



Round module picking and ginning review



Market implications of a record crop



New varieties announcement - 2011 and beyond



Care required with early Pix use in raingrown cotton

SEEDS *for* THOUGHT

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Far Left: Simon McKeon (CSIRO Chairman at left) in Melbourne with Jackie Oliver, Kellie Cooper, Kay Smith, Chris Tyson, Sandra Magann, Scott McCarron, Judith Gaudron, David Shann, Greg Constable, Warwick Stiller.

Left: Team members at ACRI left to right from rear: Chris Allen, Danny Llewellyn, Ammie Kidd, Shiming Liu, Rebecca Warnock, Dee Hamilton, Marilyn Smith and Megan Smith.



THE COTTON BREEDING AND BIOTECHNOLOGY TEAM INCLUDED

- Greg Constable
- Warwick Stiller
- Danny Llewellyn
- Peter Reid
- Shiming Liu
- Chris Tyson
- David Shann
- Max Barnes
- Kellie Cooper
- Deon Cameron
- Rebecca Warnock
- Marilyn Smith
- Kay Smith
- Megan Smith
- Sandra Magann
- Chris Allen
- Scott McCarron
- Tom O'Connor
- Judy Radik
- Jackie Oliver
- Judith Gaudron
- Dee Hamilton
- Ammie Kidd, and
- Sam Lee

CSIRO Breeding and Biotechnology team awarded for the development of Sicot 71BRF

It was a day of celebration for CSIRO on Wednesday 12 October with the announcement of the 2011 CSIRO Awards - our most prestigious awards focused on honouring our teams and individuals that have made significant impact on our delivery of science.

Held in Melbourne, the ceremony brought together staff, family and friends, dignitaries and external colleagues to celebrate some of our most outstanding achievements.

This year 20 awards were presented, including our CSIRO Medals, the John Philip Award, Chief Executive Study Awards and the announcement of three new CSIRO Fellows.

CSIRO Chairman, Mr Simon McKeon, awarded our highest accolade, the Chairman's Medal to the Cotton Breeding and Biotechnology Team. This exceptional team received the award in recognition of the major impact achieved on Australia's cotton production due to the breeding and deployment of the new cotton variety Sicot 71BRF.

This new variety has broad adaptation, high yield, good

quality and high disease resistance which has led to very high adoption within just two years of its commercial release, confirming the confidence of the industry in CSIRO's ability to deliver robust new varieties.

A special aspect of the ceremony was the live link between the ceremony venue and our Myall Vale site, where a secondary celebration was occurring for our Chairman's Medal winners who were unable to make the trip to Melbourne.

Minister for Innovation, Industry, Science and Research, Senator Kim Carr, was unable to attend the ceremony in person, but did record a video message that was played to the winners and their guests.

Senator Carr spoke about the outstanding value CSIRO and

all our people have made to the building of Australia and how we are helping to further advance our country into a new Australia, a nation fit to face a changing world - that is a richer, fairer and greener Australia.

CSD General Manager, Steve Ainsworth said "it is fantastic to see the CSIRO Cotton Breeding and Biotechnology Team recognised by CSIRO for the development of Sicot 71BRF. The adoption of this variety by the industry has set a very high bar to which future success will no doubt be benchmarked. I also pay tribute to my colleagues at CSD for the development of a comprehensive set of data which supported the broad introduction of Sicot 71BRF which helped growers to refine crop management to maximize performance". Source CSIRO



Above: Phil Willoughby and farm manager John Bates with their John Grellman award.

Clyde Agriculture takes out the John Grellman Shield

Clyde Agriculture from Bourke had some outstanding results last season and this was shown in the CSD variety trial. New variety Sicot 74BRF performed strongly in the trial yielding 13.4 bales per ha. This yield was the highest yield in all CSD trials this season and took out the John Grellman Shield for the highest irrigated trial yield in CSD's trial program.

Matt Gaukroger from Clyde Agriculture mentioned, "The recent success that we have had was due to a combined effort from everyone in the team. We are working on consistently getting the best yields possible for the water we have. Our program has incorporated a full irrigation program combined with a limited irrigation skip row program this season".

The skip row program that Clyde is using has given them the

opportunity to utilize extra pumping from the river and rainfall if and when this occurs in December and January.

The trial was on the property Beemery, run by manager John Bates. John has been with Clyde for many years and has seen the ups and downs that they have had to endure, particularly over the last decade with the drought. But this season yields have been exceptional at Beemery, averaging over 11.5 bales per hectare.

The trial was planted on 28th September and was picked on 27th April. There was 180 units N/ha applied to the trial and four insecticide sprays for sucking insects. There were five irrigations applied with good rainfall throughout the season. The trial had high retention of 75% most of the season and 2.3 L/ha of Pix was applied to the trial. Boll counts were 160 metre.

INDUSTRY NEWS

Report from the General Manager



▪ STEVE AINSWORTH
▪ CSD General Manager

The 2011/12 cotton season is well upon the industry and as you read this edition of Seeds For Thought I trust that your cotton crops are well established and powering along. The previous Australian crop set an historic high in terms of planted area and production in excess of 4 million bales. Prospects for the current crop seem very encouraging with a large area planted to both irrigated and dryland cotton in the traditional cotton areas but also including some more diverse production regions in southern NSW, northern Queensland and of course the crop just harvested in the Ord irrigation area. There are also growers investigating cotton across the Victorian border and in N.E NSW. The adaptability of the crop is certainly being put to these test buoyed on by well adapted varieties and technology which have fundamentally improved cotton production systems.

At CSD it has been another amazing year and we are humbled by the support that we receive from our customers and across industry. Whilst the start to the current season has been less than ideal in many areas, I am pleased to report that CSD has processed and delivered record volumes of cotton planting seed this year. This has happened in an environment where a late cotton harvest and processing season compressed the time available for CSD receive and process cotton seed for the 2012 crop. I want to express our sincere appreciation to the seed

increase growers and to our supply partners who are committed to support CSD the industry to make this possible. Any organisation is only as strong and as the commitment and passion of its people and CSD is no exception. CSD cannot successfully operate the without strong commitment of its staff and I am very proud of what everyone at CSD has delivered this year to our members and to the industry.

The cotton industry continues to rapidly embrace elite varieties and once again this has been the case where Sicot 74BRF has grown to become a very significant proportion of this year's crop. It complements Sicot 71BRF for its versatility and broad fit in a range of areas and cropping systems and offers a step change in terms of yield, fibre quality and resistance to key diseases.

CSD continues to advance elite germplasm in a range of technology backgrounds and this season is not different. We have a focused Bollgard II Liberty Link program this year which offers some new and interesting varieties in the near term. We are also progressing some new germplasm containing the Bollgard II and Roundup Ready Flex stacks this season with some of the material offering resistance to cotton bunchy top (CBT). We also are advancing new selections in the Roundup Ready Flex technology family which are targeted to improvement in yield, fibre quality and adaptability.

Finally it would remiss of me not to congratulate the CSIRO Cotton Breeding Team who was recently awarded the prestigious CSIRO Chairmans Medal for the "breeding and deployment of Sicot 71BRF". This award is the pinnacle of recognition for achievement within CSIRO and emphasizes what can be achieved by a team of focused professionals. This is a well deserved award and from everyone at CSD congratulations on a truly fantastic effort.

Well that's enough from me. I trust you enjoy this edition of Seeds For Thought.

Best wishes,
Steve Ainsworth

New face for CSD in Border Rivers

With the cotton industry swinging into action for possibly its biggest season on record, agronomist Alex North (pictured right) has come back to the industry as the Border Rivers Extension Agronomist for Cotton Seed Distributors.

Having grown up on his family's cotton farm near Goondiwindi and worked extensively throughout the region, Alex is perfectly placed for his new role as CSD's representative in the Border Rivers region - one of the country's most vibrant and progressive cotton growing areas.

Alex comes to CSD with considerable agronomy and technical experience in cotton production and also holds a Bachelor of Applied Science in Agronomy from the University of Queensland.

Obviously not afraid of a challenge, with the biggest cotton planting ever likely, Alex is stepping into a role with Australia's largest cotton seed supplier after 10 years of general agronomy.

"I'm really looking forward to re-joining the industry," Alex said.

"I'm very keen to get involved in the industry again, and am looking forward to working closely with the growers and consultants throughout the region in trialling our new and existing varieties under different scenarios and developing management packages for these varieties, to ensure that growers can maximise their yields and remain profitable into the future.

"Having spent most of my life in this region, I'm looking forward to what should hopefully be a relatively easy transition as I already have established relationships with growers and consultants in the region and am really looking forward to working with them again."

Alex's familiarity with the region's cotton growing industry is extensive, having worked on the Darling Downs and throughout the St George and Macintyre valleys where he was strongly focused on cotton agronomy and production. During this time Alex worked for organisations which included the QLD Department of Primary Industry,



Queensland Cotton, McGregor Gourlay Agricultural Services, leading cotton growers and more recently, Total Ag Services, Croppa Creek.

This has given him a broad experience base covering both research and in-field agronomics along with having on-farm experience.

"Fortunately for us, we have been able to welcome Alex to CSD and he started working with us in early October," says CSD General Manager Steve Ainsworth.

"We are really looking forward to utilising his extensive knowledge and experience of the industry and in this particular region of Border Rivers. This region is one of the most highly productive cotton growing areas of Australia and encompasses a large area from Bonshaw to Dirranbandi and we really look forward to Alex becoming a regular figure on that landscape."

Alex will be based in Goondiwindi and takes over from Dave Kelly, a well-known figure in the industry and has been a huge asset, not just to CSD but the cotton industry as a whole.

"His dedication and passion for the industry will be missed by CSD, Steve Ainsworth said.

"We wish him every success in his new venture and are pleased he is staying in the industry, He has given great service to cotton growers while at CSD and we thank him for that."

CSD expands in house agronomy capability

CSD recently announced that it has appointed Glenn Lendon (pictured right) to the role of Agronomist based in Wee Waa to expand its in-house production agronomy team capabilities.

Glenn will provide production agronomy support to CSD and will work with the Seed Product Team with the key elements of the role including

- seed production agronomy, specifically for cotton but also includes agronomy for specialty complimentary seed crops
- providing support to the Extension and Development Team particularly for the variety and agronomic trial programs
- provision of in-house agronomic support for CSD's seed production programs at CSD's seed production facilities at Little Mollee near Narrabri.

Glenn has a strong agronomy background with extensive experience in cotton and in other winter crops such as



canola having worked with companies including Nuseed and more recently Landmark.

This background nicely compliments his prior seed production experience gained at CSD during the transitional seed production program a number of years ago when CSD migrated from INGARD cotton to Bollgard II cotton

varieties with a lot of the experience gained prior to the deregulation of these products.

Speaking about Glenn's recent appointment, Steve Ainsworth said "CSD primary focus is to invest in the development of elite germplasm, trait packages and chemistry platforms which support the productivity of cotton production. Attracting people of Glenn's calibre to CSD is very important to ensure we can deliver our members and the industry as a whole the products of CSD's long term investments".

Variety based seed pricing introduced

CSD introduced a variety based pricing model in 2008 to transparently reflect the costs of developing, introducing and maintaining its diverse variety portfolio. The concept established that no longer would CSD cross subsidize small volume high cost varieties, instead treating every variety on merit as determined by the market with each variety accountable for its viability and individual costs of delivery.

Four years on and we have seen this logical concept well adopted and respected throughout the industry. It has enabled CSD to still provide unparalleled choice in varieties to cater for growers needs, yet be able to provide large volume varieties with greater efficiency allowing costs savings to be passed on to customers.

On balance some small volume varieties

are more expensive than they were under the previous cost subsidised model. However, the benefit has been that mainstay varieties like Sicot 71BRF and Sicot 71RRF for example are available at lower prices than otherwise would have been the case due to the large volume of demand and inherently lower production costs than other varieties.

As with all things in life the model that CSD uses is not perfect but it does provide a balanced approach to ensure CSD can continue to offer such a wide choice of high performance varieties to the industry and share production efficiencies. It provides a very stable methodology to introduce new varieties and technology down into the portfolio future and importantly provides very clear market signals to CSD and the CSIRO breeding team as to needs of growers and the industry.

CSD ramps up early generation seed production capacity



Above: "Westella" provides an opportunity for CSD to enhance seed production capabilities.

Recently CSD announced that it had acquired the irrigated farming property known as 'Westella' which is located in the Lower Namoi between Wee Waa and Narrabri. The property comprises 159 ha of irrigated land and adjoins our established seed production and research farm 'Little Mollee'.

The acquisition of this property flows from CSD's strategic plan to accelerate and expand its capacity to deliver cotton growers elite varieties from the cotton breeding program faster. Westella compliments Little Mollee in that it allows for a greater productive capacity, allows our crop rotations to be better managed and most importantly helps CSD to manage the genetic purity of cotton germplasm which continues to pose challenges as more and more complex trait packages come to market.

Westella and Little Mollee will be operated as a single unit and will be managed by well known cotton industry identity and CSD's Farming Manager Jack Murray. "The properties are a great complement to each other in location and they provide us with a risk

balance in that both overhead irrigation and flood irrigation methods are used" he said.

"Currently we are working on synchronizing the water supply infrastructure between the properties and I expect this project to be completed in October well in time for planting. We are very fortunate in that the previous owners and managers of Westella have handed off the property to CSD in very good condition and hence it has only required minimal work to bring it upto speed for early generation cotton seed production" Jack explained.

In 2011/12 CSD will plant it a large early generation seed crop program across its seed production properties incorporating new varieties containing the Bollgard II Roundup Ready Flex technology, the Bollgard II Liberty Link stack and new families of cotton with the Roundup Ready Flex technology.

Later in the season CSD will be hosting a field day at Little Mollee to review the continued new varieties coming from the cotton breeding program and we look forward to sharing these advances with the industry.



Above: Unregistered glyphosate formulation used over the top of Roundup Ready Flex cotton five days after application. Photo courtesy of Andrew Sumerville, Jubilee Consulting.

Controlling weeds in-crop

■ By Damien Deckert, National Business Manager: Roundup & Glyphosate, Nufarm Australia Limited

Growers looking to control weeds in-crop this season can rely on Roundup Ready herbicide with PLANTSHIELD (RRH+PS) to deliver the best possible weed control.

RRH+PS has been developed to meet the needs of the cotton industry. It is a high-quality formulation that gives growers more flexibility in choosing application timings and provides growers with peace of mind when controlling weeds through over-the-top applications in Roundup Ready Flex cotton.

Extensive field testing in Roundup Ready Flex crops has demonstrated that RRH+PS shows more consistent weed efficacy and crop safety compared to other unregistered glyphosate formations.

Generic glyphosate formulations can cause leaf spotting or damage, which can affect the plant's ability to photosynthesise. The picture above shows the level of damage that can be experienced when using unregistered formulations.

RRH+PS has also been specially formulated to reduce the level of off-target deposition when compared to other generic glyphosate formulations.

The formulation provides peace of mind to all growers including those who make over-the-top applications in high temperature (greater than 30°C) and high humidity (greater than 65%) conditions.

RRH+PS also provides the flexibility to be able to make applications from emergence up to 22 nodes and then again the opportunity for a single application between 60% boll open and harvest if necessary.

FOR MORE INFORMATION

- For more information on using Roundup Ready herbicide with PLANTSHIELD this season, speak to your local Nufarm Distributor.



Above: Aphids (left) and Silver Leaf Whitefly (right) will be in the backs of growers minds again this season.



Keep an eye out for secondary pests this season

Two of the secondary pests that deserve special attention as the industry moves into a big production year are silverleaf whitefly and aphids.

Silverleaf whitefly are a concern because of lint contamination problems from honeydew and the effects of this on the Australian industry's reputation in a very competitive export marketplace.

While the pest has been present in most growing areas for a number of years, it was only the Queensland valleys that had experienced major problems up until 2009, a season when many of the major NSW production areas had their first serious SLW outbreak. The potential therefore exists across most of the industry for a recurrence. A mild winter is often a precursor to a problem, there being a lower mortality and hence a greater carryover of SLW survivors from the previous year. While it could hardly be described as having been a mild winter, many areas have experienced quite good conditions for weed growth, which means that there have been adequate hosts for survivors to make it through to spring. The next key ingredient is temperature during the growing season - hotter conditions allow for more generations, and hence bigger numbers of the pest.

The biggest problem for chemical control is the pest's potential to rapidly develop resistance to registered insecticides eg Admiral®, and the cost of control. Ideally, employing a range of IPM strategies will overcome the need to have to reach for a product. These same principles will also reduce the risk of flaring other secondary pests such as mites and aphids.

Key among these principles are control of farm hosts for the pest, both in other crops and in cotton field surrounds, effective sampling, spraying on industry developed thresholds and most importantly conserving the wide range of beneficials which are most effective when populations of the pest are still at below threshold levels.

The biggest concern about aphids this season is because of the elevated levels of cotton bunchy top viral disease detected in industry disease surveys late last season. Cotton aphids, which are the vector for transmitting the disease were in higher numbers in many areas than they have been for many years. The disease was observed in 73% of crops inspected as part of the survey in QLD valleys and in 43% of NSW crops. There was an apparent association between a high incidence of bunchy top in a crop and a large number of volunteers with bunchy top symptoms nearby. However, even symptomless volunteers can be infected with the disease.

To lessen the risk of this disease, it is critical to eliminate volunteers, ratoon plants and host weeds such as marshmallow from within the newly planted crop and in cropped and non cropped areas adjacent to young cotton crops before aphid numbers build and they start migrating. Relying on attempting to control aphids early with cheap knockdown insecticides risks an explosion in populations later season due to increasing insecticide resistance.

2011 seasonal summary

▪ GENERAL MANAGER

▪ Steve Ainsworth



With record crop plantings this season it has been a challenging year for CSD to meet the cotton seed production demands of industry. Coupled with a necessity to re-plant a larger than average portion of the crop due to unfavourable conditions.

As it turns out decisions made by the company have proven effective and well timed. CSD expects to exceed its 2010 sales by more than 25% this year as another record planting proceeds. This has tested CSD's capacity to meet grower's needs, but through prudent investment in capacity, changes to our logistics methods and plain old fashioned hard work by the CSD team(s) we have been able to meet grower needs in a timely manner.

2011 has also underscored the value of the Early Order program, whereby CSD can supply the market using its cost effective 'just in time' method to ensure growers can plant with the variety and seed chemistry of choice when optimum planting conditions prevail.

I pass over the CSD Extension and Development Team to surmise the 2011 cotton crop so far.

▪ CENTRAL QLD

▪ John Marshall



The Central Queensland irrigated cotton growing regions at Emerald and the Dawson/Callide valleys have experienced a difficult start to the season. Most cotton is grown back to back in these areas, and the Emerald area in particular had very poor quality seedbed conditions at planting due to the combination of a very wet pick, and then an almost complete absence of rainfall during land preparation (20 mm total in Emerald for the four months from mid May to mid September). The weather conditions following the opening of the Bollgard II window on 15th September were not conducive to good germination and establishment in such lumpy, coarse seedbeds still carrying heavy levels of totally undecomposed cotton trash. Soil temperatures were lower than average, and strong, drying winds common. The small seeded variety Sicot 74BRF in particular struggled to achieve a satisfactory stand under these conditions. Many fields were pre watered in August to encourage a germination of Roundup Ready seed surviving from last harvest. Establishment resulting from planting into moisture in such fields was poor, and had to be followed up with a flush in many cases. Growers achieved a much better result subsequently by planting shallow into these pre watered fields and then watering up.

The Dawson/Callide experienced some establishment difficulties as well, even though they did not start planting until 28th September, and much of the land was on a short fallow from mung beans, which had been grown back into fields lost to cotton from floods in January 2011. There has been some replanting in both valleys.

Although down on plant stand, fields generally are picking up in growth as day temperatures creep over 30° in these regions towards the end of October. Both areas have abundant water on hand. The planting window for the Clermont and MacKenzie River area does not open until early November.

▪ DARLING DOWNS

▪ John Marshall

Almost all of the Downs received excellent rainfall of 75 - 100 mm during the period 8 -15th October. This was perfect timing for dryland growers and also meant that most irrigators did not have to pre water. Planting started on 20th October, with a rising plane of soil temperatures each day, culminating at 22°C on Wednesday 26th. That evening, all of the Downs received between 10 - 75 mm of storm rain. By this stage, probably 80% of the area had been planted. For most, this rain was perfect, but there are some locations where high intensity falls have caused localised flooding and crusting problems, and some replanting will be necessary. Less than 10% of the area has been affected. At this stage, it appears that the irrigated area will be about 43,000 paddock ha, and the dryland area similar or slightly larger. There is more dryland planted to single skip and solid this season than usual due to good moisture profiles and the seasonal predictions - also less skip row irrigated because of the very favourable scenario of almost all on-farm storages brimming, full bore allocations available, and Leslie Dam overflowing.

▪ MACINTYRE

▪ Alex North



Winter 2011 has been a very busy one for the cotton growers in the Macintyre Valley. Last year's flooding events has lead to many, if not all growers in the valley having full to near full storages at the end of last season. This, along with having good prospects of high water allocations being released from the respective dams this season, has lead to the prospect of there being the largest area on record planted to cotton this season throughout the Macintyre Valley.

The upshot of this is the Macintyre is looking at possibly the biggest cotton planting on record with potentially more than 65,000 ha of irrigated and 20,000 ha of dryland cotton.

With a large and successful crop planted last year, the pressure has been on for growers to get their land prep and fertilising done before this season's planting was upon them. With winter being so dry this year in most areas, many growers have been having issues with excessive trash in their back to back crops, and have come up to planting with than less than ideal bed conditions.

Early September conditions remained relatively dry and this was combined with quite warm weather along with good soil temps, which were hanging around the 14°C mark. With the prospect of a huge plant in front of them and with good dam levels to back them up, many growers took this opportunity to pre-irrigate some fields in order to fill the profile, improve the seed bed conditions and to germinate volunteers and weeds and to make an early start on their planting.

Just after many had finished pre-watering, the heavens opened up. Most areas in the region received anywhere from 40-80 mm of rain which fell very heavily over a couple of days. Luckily for most, their ground was still too wet for them to get any planting done before the rain fell, as the change brought with it a nasty cold change with very cool day and night

temperatures along with cloud cover, which plunged the soil temperatures back down into single figures in most areas.

Unfortunately for some, they had been able to plant some crop before this rain event. In most cases this has lead to a few decisions being made to re-plant due to poor germination numbers from root disease and insect attack. However some crops somehow managed to pull through, taking up to 28 days for them to accrue the 85 Day Degrees required for them to emerge and although were looking a little yellow and sad made it, and are still going ahead strongly.

So for the majority of the valley it meant that they could now plant on rain moisture rather than having to pre-irrigate, which is always a preferred option if it presents itself. Once the sun came back out and the daytime and the soils temps climbed back up around and over the 14° mark, planting was into full swing from early October. From here on, planting conditions have been near perfect and barring a few more small breaks from rainfall, means that the majority of this year's huge crop should well and truly be in by the end of October.

Once again there has been a big interest in dryland cotton in the Macintyre valley with potentially around 20,000 Ha intended to be planted.

This is slightly down from last year with not as many people having as much country available for dryland cotton ready to go this year. After a relatively good fallow period, many growers were planting on an excellent profile, leading to excellent planting conditions. The dryland planting has been progressing well, with many taking the advantage of planting after the big rain in September, with a large percentage of the crop going in around the first few weeks of October.

Much of the dryland crop was not as affected by the rain in this region, although some earlier planted crops did struggle with the early cold start and the drop in soil temperatures, but in many cases managed to pull through.

Once again the tricky decision of deciding to re-plant or not had to be made and many decided against it and decided to stick with the reduced plant stand that they have, which can work in dryland cotton, so long as the plant stand is relatively consistent and not too gappy. A small area of re-plant did occur, but in general the potential for the dryland crop in the district is looking very promising.

Once again, there are really only two main varieties which have dominated the planting this year, with the two proven performers of Sicot 74BRF and Sicot 71BRF being the predominate varieties planted in both the irrigated and dryland scenarios.

The excellent performance of Sicot 74BRF has really seen it over take 71BRF as the mainstay variety in the Macintyre Valley, due its increased yields and F-rank. Although many growers have still planted a split with 71BRF as everyone still knows that this variety is a proven performer no matter what the season throws at you.

So with the majority of the crop in and away, the prospects for this season in the Macintyre Valley are looking extremely positive for this record plant and let's hope that the flows in the river keep on coming this summer.

▪ BALONNE

▪ Alex North

Once again, the outlook for the Balonne region for the 2011/12 cotton season is looking extremely

positive. The Balonne will have greater than 60,000 ha of irrigated cotton in this year, and a small area of dryland.

Due to the extreme flood events that happened during summer last year, many growers' on-farm storages are brimming full and Beardmore Dam was still near 100% full all the way up to planting. This water security has lead to many growers intending to plant all, if not, close to 100% of their area to back-to-back cotton, which has not been done in this region for a number of years.

Due a pretty dry winter, many growers have been having some trouble dealing with excess stubble and cotton trash in preparing for this year's planting. As for many of the other regions, with many growers facing a big cotton plant, many were eager to get under way, so made the decision to begin pre-irrigating in early September, which is quite the normal procedure in this region.

The Balonne region also received the big rainfall event in September in which some areas towards Dirranbandi received around 80-100 mm, with smaller follow-up rain events 1-2 weeks later. For those who had already planted meant that already pre-irrigated country had just received over 100 mm of rain, which lead to some significant area having to be re-planted due to the extreme wet and cold conditions that followed.

Fortunately, conditions improved over the coming weeks to allow planting to finally get into full swing in the first two weeks of October. Soil temps remained in the high teens to early twenties and growers were again able to plant on rain moisture, which is a bit of a rarity in this region and the big rainfall event on their already wet country meant that many were able to top up their water used in their pre-irrigation. So after a bit of a shaky start, planting conditions improved and the majority of this large crop should be planted by the end of October.

The key varieties being planted in the Balonne this year are predominately Sicot 74 BRF, which has taken over this year from the strong performing Sicot 71 BRF, which has held the mantle for being the highest yielding and best performing variety in this region for many years. The strong performance of Sicot 74 BRF last year really caught everyone's attention, with its increased yield and improved F-Rank along with stable fibre quality really makes it a suitable addition to the long hot seasons in the Balonne. With a full water scenario this season, its indeterminate characteristics should allow it to fill fruit right to the top of the plant and make the most of the long season. There is also a mix of some of the other niche varieties such as Sicala 340 BRF, which produces excellent fibre qualities without much of a yield penalty and also the exciting new Sicot 75 BRF, which is in all of our CSD variety trials in the Balonne. We will keep you updated on its progress.

So everything is pointing to another bumper crop in the Balonne in 2011/12, with a full water scenario really lifting the spirits of the St George, Thallon and Dirranbandi Growers and will hopefully lead to a much needed prosperous time for the region.

▪ GWYDIR

▪ James Quinn



This season has shaped up as one which the Gwydir valley growers have looked forward to, prices are above average, known quantities of water are available in Copeton dam and good rainfall in the lead up and during spring have assisted in filling

soil moisture profiles. So there is some certainty in planting intentions and fields are fully prepared for the coming summer.

Planting started around 19th September after good general rain filled fallow fields with enough moisture to plant. The initial couple of days of planting seem to have fared better.

A cold snap situated around the October long weekend associated with more rainfall persisted for an extended long period. As a result many areas have required to be re-planted out of this initial planting opportunity.

A combination of cool weather, wet conditions and seed placement, which in hindsight was too deep, all contributed to poor emergence. However, before the rainfall growers were chasing moisture which was rapidly drying away, the decision to plant deep was a sound one based on the conditions at hand. Sicot 74BRF has had the most problems reaching a viable stand.

Indications are that about 50,000 ha of irrigated cotton will be planted in the Gwydir valley this season. Planting intentions improved due to good spring rainfall which has also put a bit more water in Copeton Dam, which at the time of writing was sitting at 55% capacity.

Temperature conditions improved and seed planted post the second week of October looks to be popping up within twelve days. Earlier planted cotton was taking up to three weeks to emerge due to the conditions. Although we are now experiencing warmer conditions we are yet to reach what could be classed as average. This has meant that emergence is slow, cotyledons are smaller and seedling diseases are being regularly seen in many fields. We have had numerous nights where the minimum temp has not exceeded twelve degrees

It is expected that the overall dryland plant will be lower on the heights of last season but if conditions and price are favourable 50,000 ha would not be out of the realms of possibility. Fallow fields are now full and dryland planting got into full swing on the back of rainfall on 14th September across the Valley.

Many growers are favouring both Sicot 74BRF and Sicot 71BRF in dryland situations. Difficulties in planting are similar to those in the irrigated sense with cooler weather. Also there are areas of ponded water in fields with many growers forced to pick up and manoeuvre around these areas. A good sign, but will lead to un-cropped areas within fields for the duration of the summer.

■ NAMOI

■ Rob Eveleigh



It has been the coldest start to the cotton season for many years. Last year was bad enough but this season the combination of wet and very cold conditions from late September through the first half of October has led to slow establishment and significant stand loss for many growers. Up to 10% of the Namoi has had to be replanted. Planting of the irrigated crop is virtually complete but planting of the dryland crop will continue well into November. A total area of just over 100,000 ha seems likely in the Namoi region, including Walgett. About 72,000 ha is irrigated. This will be the largest area ever planted to cotton in the valley. Much of the extra area has come from a resurgence of cotton in the Upper Namoi and significant dryland plantings.

Seedling disease, including black root rot has had a major impact on establishment and seedling growth.

This has been spurred on by cool days and cold nights. At Myall Vale in the first 26 days of October there have been 17 cold shock days. There were even some frosts in the upper Namoi in early October. As the planting window passes we will need a period of warm dry weather to get the crop moving.

Weed germinations have been constant and fleabane is again a major problem for many growers. Over 99% of the crop is BRF with Sicot 74BRF and Sicot 71BRF the main varieties. The first over the top Roundup applications started in early October.

Early season insects have been light so far, but wireworms have been more active than normal throughout the region. Whitefly can again be found in home gardens around the Namoi so growers will be on the lookout for this pest throughout the season.

The water supply situation is good. Keepit Dam is at 100%, with constant flows down the river as the Namoi and Peel catchments are getting regular rainfall. Split Rock dam is still only at 24% despite the rain. On farm storages along the Barwon are generally in good shape and most dryland fields have full profiles. It's shaping up to be a good season.

■ MACQUARIE

■ Bob Ford



The Macquarie is back to full production after Burrendong dam filling last year. This meant plenty of water for this year's crop. There are 42,000 hectares of irrigation and 3,000 hectares of dryland being grown. Most of the irrigation crop is on 1m row spacing but there is some on 60 inch configuration. The dryland is a mix of super single and two and eight row configuration. The last two seasons has seen some reasonable yields in dryland and good fibre quality.

Planting began late September but got hit by cold weather in early October. Some growers stopped and waited for the soil temperatures to rise again. Others got caught with 120 mm of rain that fell over two weekends delaying planting.

The early cotton has been slow. The later planted crop has established quite well with good warm conditions occurring mid way through October. Replant is running at about 10% mainly due to the cold start.

The variety split is around 60% Sicot 71BRF and 40% Sicot 74BRF. Sicot 74BRF performed well last season with the good warm finish that occurred in the Macquarie. Sicot 71BRF has been the most consistent variety over a long time in this region.

■ WESTERN NSW/ BOURKE

■ Bob Ford

For the second year running growers from Bourke have been able to plant maximum acreages due to full storages and continuing runs in the river. There has been around 11,000 ha planted mainly as fully irrigated 1m rows, but there is some single skip row cotton being grown after positive results in trials last season.

This season is shaping up well with ideal planting conditions starting around 20th September and continuing into October with very few cold shock days. Most crops were watered up and plants have grown strongly with these good growing conditions.

There has been little replant and due to a good run in the river in October another 300-400 ha of cotton has been planted.

There has been little replant and the main variety grown this season is Sicot 74BRF after a very successful 2010 season. Sicot 71BRF has also been planted with some Sicala 340BRF.

■ LACHLAN/ M'BIDGEE /MENINDEE

■ Bob Ford

The Lachlan Murrumbidgee and Menindee has seen a rapid expansion over the last two years from 3,500 hectares in 2009 to 61,000 hectares for 2011 season. Most of this has been driven by availability of water with Blowering, Burrinjuck and Wyangala dams being close to capacity. The Darling riving has also been flowing strongly for the past year. Strong cotton prices with lower prices for other commodity crops have helped with the expansion.

It is the first time in ten years that towns like Condobolin have been able to irrigate cotton from the Lachlan which says how bad the drought was in this region. Hillston and Condobolin growing around 16,000 hectares hasn't seen areas of cotton like this since the late 1990's and the Murrumbidgee that had 800 hectares two seasons ago has close to 37,000 hectares of cotton with nearly 70 new growers.

The cotton planting started around 20th September

and although soil temperatures were reasonable they were followed by near freezing conditions in early October. These cool conditions lasted for over a week causing slow growth and emergence. Most seedlings took between 12 to 18 days to emerge in these cool conditions.

Interesting on a recent trip with Steve Allen pathologist ACRI there was little seedling disease. Plants had stopped growing through the cool period but when the warmer conditions eventually arrived the seedlings started to move and emergence and establishment has been reasonable considering the conditions that existed in early October.

There has been around 15% replant with rain sealing off some of the soils as well as drying out of the top two inches of soil with 30 degrees Celsius temperatures occurring mid October.

Plants that had been under the soil for up to 16 days had then faced the onslaught of hot windy weather when they eventually emerged.

Some growers flushed their crop to help emerging seedlings which must have been a tough decision to make considering the near freezing conditions a week or two earlier, but so far this has worked and brought more seedlings up. Sicot 71BRF is the major variety grown at 85% of the area with Sicot 74BRF making up the rest.

Getting more out of 74

Sicot 74BRF is an exciting new cotton variety which has had its full commercial release by Cotton Seed Distributors this season.

CSD General Manager said "Sicot 74BRF had a limited release in the 2010/11 planting season, and we have been encouraged by the high yields that this variety has achieved for growers. This planting season, we are happy to say that this variety will be fully available to the Australian cotton industry."

Early uptake of this variety by cotton growers will see it being the most popular variety grown in Australia this coming season.

"Sicot 74BRF has shown a three percent increase in yield over what was the most popular variety, Sicot 71BRF, in our extensive trial program." CSD Extension and Development Agronomist Rob Eveleigh said. "We have also recorded improvements in fibre quality especially length and strength."

The CSD Extension and Development team have stressed the importance of proper management of Sicot 74BRF to achieve its full potential. They have noted that there are characteristics of this variety which growers should be aware of and try to exploit. CSD Extension and Development Agronomist Bob Ford stressed the need to ensure an even plant stand on emergence. "Sicot 74BRF is a more difficult seed to germinate compared to other varieties which growers are used to planting. Establishment rates can be reduced if care is not taken during planting to ensure that the seed has every chance of germination."

In last year's CSD trials, in situations where conditions are not as ideal as we would like eg cool temperatures, marginal moisture, cloddy conditions, the plant stands of Sicot 74BRF were one to two plants per metre behind Sicot 71BRF. Although this may not seem like much, as this variety goes industry wide, attention to detail in the planting operation may be the difference

between re-planting or not.

Pre-flowering management is also crucial - if the cotton plant is set up and growing strongly at flowering, it has the ability to produce and retain more bolls as the season progresses. The characteristic of Sicot 74BRF of producing a lot of fruit in the latter half of the season makes having an actively growing plant at flowering essential.

"Although the principle is the same for any cotton crop, it can be exploited to really increase the yield potential in Sicot 74BRF." CSD Extension and Development Agronomist John Marshall said.

Sicot 71BRF and Sicot 74BRF amass fruit in different ways. With Sicot 71BRF the majority of the yield is generated on fruiting branches 1-12, and additional yield in this variety can be achieved by getting the plant to fruit outside this region.

Sicot 74BRF generates a lot more of its yield away from the main stem of the plant, on vegetative branches and high fruiting nodes. If growers are able to have a healthy and actively growing plant early in the flowering period, it will be set up well to take advantage of this characteristic. The fruiting pattern of Sicot 74BRF will also require growers to really pay attention to their watering and nutrition regimes. The later season fruit demand of Sicot 74BRF compared to Sicot 71BRF has increased emphasis on ensuring water and nutrients are available at the right time.

"Sicot 74BRF has the ability to amass a lot of bolls, and they are large bolls. Growers should be aware of this peak in demand of the plant which will be later than they are used to. Sicot 74BRF should be managed to ensure the maximum boll weight is generated by ensuring the irrigation water and nutrition are supplied right up to and post cut out", Mr Marshall said

We want growers to generate a lot of bolls but also to ensure that they are heavy bolls, he concluded.

Round module picking and ginning review

It is expected that 70-80% of the current plant, the biggest on record, will be picked under this system, in only the third season after its introduction. One of the most far reaching and rapid changes in the Australian cotton industry has been the movement to round module pickers.

At the farm level, the system has provided solutions to a number of problematic issues:

1. The mineral resources boom has resulted in a shortage of seasonal or casual staff in many cotton growing regions. The new system has greatly reduced the need for the employment of casuals during picking.
2. OH & S issues specific to the module building process have been overcome. The picker procession, ie contractors moving with a convoy of pickers, boll buggies and module builders on main roads between different valleys will soon be a thing of the past.
3. Picking sections of fields within farms is greatly simplified.
4. The uptake of the new machines has provided a very timely reserve

of second hand basket pickers, corresponding with two of the biggest seasons ever for the industry.

There are a few concerns about the new style pickers, the major ones relating to wet picking conditions. Some growers are concerned about the heavier round module picker's ability to traffic on heavy black clay soils under extremely wet soil conditions such as those experienced on the Downs in 1996.

Increased compaction when picking under wet soil conditions is also a concern due to the heavier weight of round module machines vs basket pickers.

Michael Braunack, CSIRO, Narrabri carried out some preliminary investigations on comparative degrees of soil compaction from both types of pickers in this last season at sites at Boggabilla, Narrabri and Hillston.

The growers at all sites indicated that the soils were only slightly wetter than normal at picking. Measurements indicated that subsoil zones of higher soil strength are closer to the surface after passage



with a round module picker than after a basket picker. As well, lateral movement of soil between dual wheels is causing more compaction under the row close to the surface.

While well planned amelioration strategies such as rotational cropping are likely to manage this increased level of damage, the situation is more of concern in those areas where cotton was picked under much wetter conditions and fields are in back to back cotton. Also, some growers have made mention that they have had to increase horsepower requirements for post picking operations since moving to the new system.

Round bale module picking - A contractor's viewpoint

McVeigh Family, Lock Eaton

The family has been contracting with two round module pickers over two seasons, the two machines each having amassed about 1400 fan hours in total. In this last season, their contracting extended across the Upper Namoi, Macintyre Valley, Dirranbandi and on the Downs

1. LABOUR, MACHINERY AND OHS ISSUES

There has been a significant reduction in both labour and machinery requirements. Where the two unit contracting operation previously involved eight pieces of machinery and ten staff, a similar sized activity now uses two pickers, a bale grab and four staff. The need for employing casuals during picking is eliminated. Obviously, the skill requirements for the current system staff has increased.

Staff fatigue levels are reduced and obviously OH & S issues have improved from many aspects.

2. PICKING CAPACITY AND EFFICIENCY

Picking capacity can be increased by 30% per day. This basically comes from non stop picking, with time savings in dumping, service and clean down frequency as well as the machine's ability to pick cotton at slightly higher moisture capacity and speed. The latter comes from dual fans which enable the machine to operate in most crops at close to 6.5 km/hr. However, there are still some flow issues with heads 2 and 5 in very big crops which means a reduction in ground speed by up to 10%.

It is critical that the machine is kept moving to achieve high efficiency. When going well, a machine can be producing 11 round bales per hour, which is approx 40 lint bales or \$20,000 worth of cotton

Rain interruptions are of less consequence because concerns about partially completed modules are eliminated.

Downtime during picking is generally related to issues with sensors, of which there are almost 50 on a machine.

Harnesses carrying the sensors are smaller in the 7760's than basket pickers and this makes diagnosing where the problem lies difficult. Some sensors when activated stop the machine, and time losses can quickly build up while trying to work out what is the problem.

3. PICKER MOVEMENT AND TRANSPORT

Movement between (partially picked) fields such as when doing trials etc is much simpler as is movement between farms. Loading onto a truck can be completed in an hour. There were instances this

season where the machines were operating in valleys 400 km apart on the same day.

4. PRODUCING THE BEST PRODUCT

The machine has the capability to pick cotton wetter than is recommended for storage and ginning. Currently, a hand held moisture meter and dew point charts are used to decide when to start and stop.

This past season, the pickers were stopped when the moisture reading approached 12-12.5%. On average, this was about 3 am, but earlier in the season at Goondiwindi about 1 am, and on the Downs 11-12 pm - every night is different! While an on-board moisture meters would improve assessment, it is still important to get out and check regularly to verify these readings.

Because no cotton is in contact with the ground, there is less soil contamination and lint deterioration, both in the field and in the gin yard. This is dependent on the plastic wrap not being damaged. Both in the field and during ginning, there is less seed cotton floating about around round bales

Bale placement from the picker does not seem to be a big issue in relation to damage to the plastic wrap. It is all about care with the bale lift.

If not a clean lift, cotton stalks can become embedded in the plastic at the base, causing damage and the possibility of contamination. If the lift is not high enough, especially if tail drains are steep, the plastic can scrape on the ground and the wrap bust.

Feeding seed cotton from broken bales back in through the heads remains a cumbersome and expensive operation, badly in need of a practical solution.

Loading round bales onto chainbeds is an activity which can cause damage to plastic wrap if not done carefully. It is important to stage the bales exactly in line before loading. If there is any chance of rain, the bales are not staged, because it is difficult to get the ground to dry out because of lack of sun and wind in a staged sausage formation. If it is damp at loading, there is more chance of bales slipping on chains, causing damage to the plastic wrap.

Quantity of plastic wrap per bale influences bale stability and cost. Producing a denser bale would reduce wrap cost, transport costs and storage space in gin yards. However, wrap cost is reasonably well balanced against the cost of tarps and rope. Contamination from older tarps is probably a more serious problem than that from plastic wrap.

Ginners' viewpoint on the round module system

Ginners have concerns about certain aspects of the product coming from a round module picker. They feel that just because a machine has the ability to pick cotton of higher moisture content, this does not mean that this should necessarily happen.

Ginners have invested a lot of money at short notice to make modifications to the unloading and feeder bays. However, they are calling for discipline to be exercised by growers and contractors, particularly in relation to the moisture content at picking, the staging of round modules and their loading and transport from the field.

1. ROUND MODULE MOISTURE CONTENT AT PICKING

Different processes occur with wet cotton stored in a round module compared with that in a conventional module.

The combination of the effect of hot sun on the plastic enclosed module, as well as a proportionally smaller uncovered surface exposed to drying wind and sun appears to cause moisture to accumulate adjacent to the external wrap. This is further aggravated by the fact that there is no air movement through plastic wrap, in contrast to a tarpaulin.

This 'wet' zone has the potential to cause quality damage to cotton in that area and creates unevenness in moisture content, a bain for ginning. Gin fronts are easily clogged by unexpected wet bunches of cotton, productivity suffers and the potential for fires increases.

Superimposed upon this is variability in moisture content in entire round bales, a product of ill disciplined staging of round bales in the field for transport, with little regard given to time of picking. Such variability means that ginners are constantly adjusting burners because of round module variability.

Even if every round bale was moisture tested on the gin weighbridge, this would not a practical solution if there was variability within loads as the modules are already staged on the truck. It needs to be addressed prior to this, at staging in the field, to minimise double handling.

Module variability is not just confined to

moisture content, trash also being an issue. A round module picker basically divides a field into smaller units with less infield blending. Big variation in trash content between adjacent round modules coming into the gin front creates problems for ginners.

2. KEEPING MOISTURE OUT OF ROUND MODULES

Assuming the cotton has been picked at the correct moisture content, a figure ginners feel needs to be considerably lower than the commonly used 12% with conventional picking system, it is critical to reduce the chance of damage from rainfall to staged round modules in the field or on the pads in gin yards.

Intact plastic is the first consideration. Ginners feel that quality of wrap should not be compromised. Thinner cheaper wrap will result in more damage during deposition, field handling and loading. If staged in sausage formation, a 10-15 cm gap needs to be left between adjacent round modules to allow air movement and drying after rain.

Rain moisture can accumulate in the plastic lip on the bottom of the round module, especially if exposed to high intensity, driving rain. A cut with a Stanley knife can help drain this. However, care has to be exercised doing this because the pressure release can cause a partial module collapse. This is especially serious in the field, before the module is loaded.

While the Stanley knife can be busy in the gin yard after a rain event, one advantage of round modules is that there is less pooling of water compared with tarpaulins of poorly shaped modules.

3. PLASTIC CONTAMINATION

Round module contamination with plastic has serious consequences for the industry. Some round modules arrive in the feeder bay with cotton stalks still embedded in their base, with torn scraps of plastic forced into the seed cotton.

Quite randomly, a tail of plastic will turn up in the middle of a round module, where it is very hard to detect. Feeder bay staff have to be on constant alert that all plastic tails produced when cutting the plastic cover are collected.

COMPASS POINT

Market implications of a record crop

Got your picker greased yet? You can bet your bottom dollar everyone through the entire supply chain is waiting for the coming cotton harvest with a mixture of anticipation, trepidation and, dare I say it, fear of the unknown.

By Pete Johnson, Cotton Compass Pty Limited

Planting hadn't been completed at the time of writing - but all indications were pointing toward a crop somewhere either side of 600,000 hectares. It's a number that rolls off the tongue pretty easily, and is even easier to say after a sip of water. What might cause a bit more coughing and spluttering is when you extrapolate it out to a production figure - which comes scarily close to 5 million bales - and maybe even higher.

From a marketing and logistics perspective, a crop of this size is going to present some extreme challenges - not just in terms of finding markets for the crop, but also in terms of the storage and movement of bales.

All of this will impact on the export program for Australian cotton and hence the market.

This article attempts to model some of the market implications of the massive crop size from a logistics point of view. For the sake of conservatism, we have called the crop 4.8 million bales.

FIRSTLY, recent Cotton Compass surveys suggest that close to 2.4 million bales (or roughly 50% of the crop) has already been forward sold by growers at planting time. Based on average gin start times and estimated ginning capacity, we probably won't see that volume ginned until some time in late June. Overall, we estimate the average gin date for the crop will be somewhere around mid June - which needs to be considered in terms of cash-flow and tax implications for the grower.

Additionally, merchants should be pricing any purchases made from now based on the assumption of average delivery in late June/early July.

SECONDLY, based on estimated peak shipment capacity of 600,000 bales per month, we reckon the average shipment date for the crop will be somewhere around late August - bringing the

average storage time to about two and a half months.

These first and second factors combined could affect pricing depending on whether the futures market is reflecting "carrying costs" or not. Last season, we saw an unusual situation where the market traded in backwardation throughout the season - which effectively meant cotton should have been priced lower if delivery and/or shipment delays were expected. In practice, this did not always occur and some losses were invariably incurred.

We believe merchants will be more alert to the likely impact of market carries this season - and this is likely to impact on market dynamics.

THIRDLY, there are going to be some pretty substantial capacity constraints during peak season. We anticipate peak season ginning of about 260,000 bales per week will run for about 12 weeks from early May until late July. The strain on trucking, classing, and warehousing facilities will be immense during this period - and there could be issues with rising costs, delays and potential demurrage. This could all affect the bottom line for stakeholders throughout the supply chain.

LASTLY, storage requirements are likely to peak at a minimum of 1.6 million static bales on the floor, and that is assuming consistent mill demand and a smooth and uninterrupted shipment program. This is clearly more warehouse space than we have utilized in the past, and may come at increased cost. Additionally, there could be implications in terms of accessing finance for such large inventories over an extended storage timeframe - particularly if credit markets start to bite.

Clearly, the marketing and logistics challenges of the 2012 crop are going to be many and varied - and for all stakeholders throughout the supply chain it will be a matter of being aware, and being prepared.



Where to for prices?

With global production and stocks on the rise, and mills becoming increasingly "inventory conscious" in the face of uncertain macro-economic conditions, cotton prices are extremely unlikely to run to last year's heady highs.

For these, and a number of reasons, we think anything in the range of A\$525 - 550 per bale will potentially represent our best selling opportunities from here - and that this target range could well have to be ratcheted back to the \$500 - 525 zone.

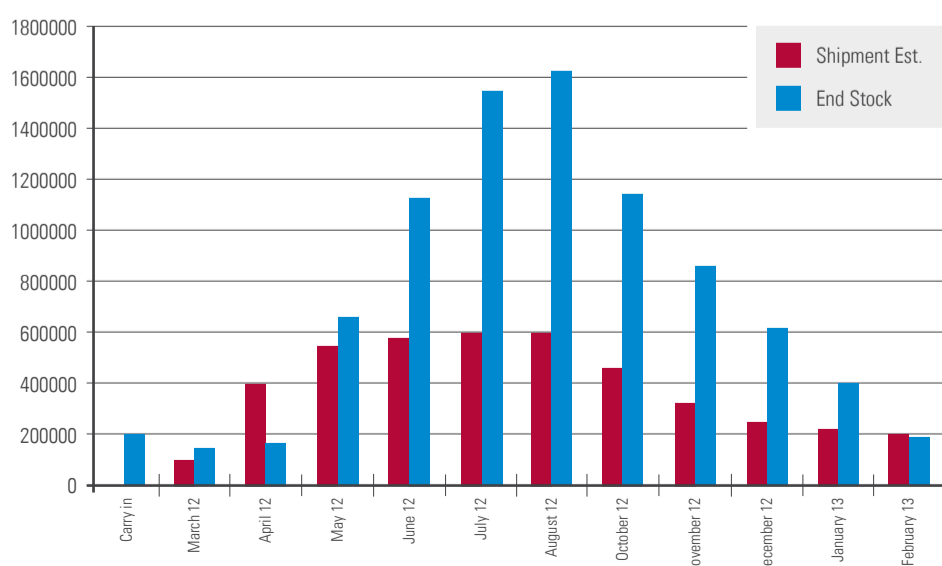
As a worst case, we think the ICE futures contract could fall back into the low 80's - which would likely deliver cash pricing in the A\$400 - 450/bale range depending on currency and basis markets at the time. In all likelihood, a fall in futures of that magnitude would be linked to

global macro-economic malaise, which would have a corresponding impact on the Aussie Dollar and hence an insulating effect for cash prices.

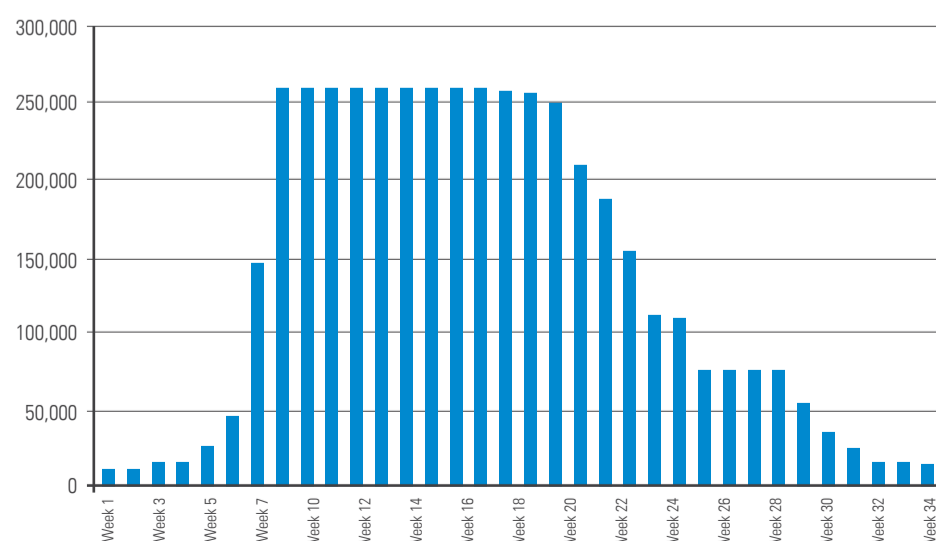
And as far as basis is concerned, don't hold your breath. There is a massive crop in the wings as well as a smaller merchant base than what we have been used to. With plentiful global supplies, mills are unlikely to "panic buy" like they did last year, and the potential for tighter credit markets will likely impact on the ability of both merchants and consumers to finance large inventories (and margin calls).

With close to 50% of the crop already committed to merchants, it's unlikely they will be falling over themselves in the short term to add to long positions.

MONTHLY STOCKS/SHIPMENTS (BALES)



WEEKLY GINNING (BALES/WEEK)



IRRIGATED COTTON

Manage moisture key for skip row irrigated plantings

Skip row irrigated cotton is not a new concept at all but the popularity of this method of growing cotton has grown during the previous seasons in response to lower water availability.

Growers are trying to combine benefits of both irrigated and dryland cotton production systems to maximize yield potential and make most valuable use of irrigation water inputs.

The CSD Extension and Development team have been looking into this form of cotton growing trying to further understand how to extract the most from cotton grown this way.

James Quinn CSD E&D Agronomist has conducted trials over the past three seasons looking at irrigation strategies to best utilize available water.

"We have been able to ascertain that with the extra soil and sunlight available to cotton plants grown in wider row configurations, the system is more efficient than those on the traditional one metre spacing. However, knowing how and when to take advantage of this improved efficiency is very difficult."

Knowing exactly how much moisture is in the entire soil profile is critical within this system in



managing skip row crops. There are limitations with current soil moisture monitoring equipment. We can overcome this shortfall in data through more monitoring of the plant for early signs of stress and hope we can react in time to limit this stress.

Mr Quinn said that similar generalizations apply to growing skip row cotton as would to one metre cotton, limiting the impact of plant stress is the key.

"Ensuring moisture whether it is from rainfall or irrigation water is available to the plant especially during the key flowering and early boll fill is essential. Later in the season when demand is reduced the crop can dry down the soil profile and make use of any late rainfall. However, if the crop is stressed during this critical time it is very difficult for it to recover."

THE CSD EXTENSION AND DEVELOPMENT TEAM TIPS FOR THOSE LOOKING TO IRRIGATING SKIP ROW COTTON THIS SEASON:

1. Think like a dryland farmer - soil moisture is key. Do everything within your power to maximize storage and conservation of soil moisture.
2. Prepare a strategy for good & bad outcomes throughout the season, especially if rainfalls late. What will the crop require to meet adjusted yield potentials?
3. Generate an even plant stand, growing a uniform crop is easier to manage especially if rainfall arrives late.
4. Pay attention to early plant growth; do not let the plant get too big as difficulties in crop management, picking and stubble removal could ensue.

CSD variety trial program for 2011-12 season

CSD will be undertaking an extensive variety trial program again this season, in response to the large, widescale planting across all regions. While the program was quite large last season, with 64 registered trials being included in the Variety Trial Results Book, a number of trials had to be abandoned, especially in Central and Southern Queensland, due to flooding.

At this stage, a total of 75 trials will be assessed in 2011-12, spread geographically from Ayr in North Queensland, to Griffith in the south. The majority of the trials will be based on Bollgard II Roundup Ready varieties. All of these trials will contain the new variety release, Sicot 75BRF, which is seen as having a potential fit in both irrigated and raingrown production systems. Data collected from these trials will be particularly important in aiding growers' choice between Sicot 74BRF and Sicot 75BRF for next season.

There will also be a number of Bollgard II Liberty Link variety trials, with two new experimental lines featuring in these trials. As well, there will be some specific Roundup Ready trials, and also some conventional trials, where the performance of the new unnamed variety CSX9238 will be further evaluated this season.

Approximately 25% of the trials will be raingrown, and included in the irrigated trials will be some sites where wide row systems will be evaluated, a particularly important aspect for gaining additional water use efficiency data.

Exciting expansion of cotton in Southern NSW

Over ten years ago as the devastating drought kicked into gear in NSW there was talk of a new area that had the potential to grow cotton, that region being the Murrumbidgee. Cotton had already proven itself at Condoblin and Hillston on the Lachlan with good yield results using conventional and INGARD cotton.

The Murrumbidgee was seen as an area that had one of the most reliable irrigation schemes in Australia and had huge potential due to its multi-cropping history from wheat to rice to corn and vegetables. The drought put a halt in the expansion of cotton in the Murrumbidgee as growers went back to what they knew mainly rice and corn.

Two years ago there was 3,500 hectares grown in southern NSW mainly at Hillston on bores. There was around 500 hectares of this that was grown in the Murrumbidgee area.

This season there will be over 60,000 hectares grown in southern NSW, incorporating Condoblin, Hillston, Tandou and the Murrumbidgee. Of this 36,000 hectares will be grown in the Murrumbidgee.

A combination of factors has led to the expansion of cotton in the Murrumbidgee, but water and price have been the two major reasons. While the cotton

price has risen over the last two seasons other crops like rice and corn have been relatively poor compared to cotton.

Another reason also exists with the success of local growers who have continued to grow cotton through the drought with good yields and quality being achieved in the Murrumbidgee. One local family, Roger and Tim Commins have taken a further step making sure cotton will in the Murrumbidgee for some time. The Commins brothers have had good success growing cotton and now in combination with three other growers are building a cotton gin near Winton, fifty kilometres south east from Griffith. The cotton gin itself will be the first cotton gin built for over ten years in the industry and is a high capacity gin. Currently the gin is being built and is not far off the construction of the Lummus Gin under the already constructed gin housing.

Completion is scheduled for March and growers have already signed to use the gin for the next three seasons.

There is no doubt that this new expanding cotton region is here to stay with growers commenting that cotton completes their cropping systems and fits in well with their corn, rice and wheat rotations.



Above: Gin manager Chris Veness with Roger Commins inspect the construction of the new cotton gin near Winton.

Below: Construction on the new cotton gin is well under way.



New varieties announcement - 2011 and beyond

Sicot 75BRF

The long awaited release of Sicot 75BRF has begun with a limited planting this year. Sicot 75BRF promises to add to the choice available for growers in most regions, particularly where fusarium disease pressure is high. This variety has similar attributes to Sicot 74BRF, that is a very high yield potential and exceptional gin turnout. Compared to Sicot 71BRF, Sicot 75BRF has significantly longer fibre length and slightly higher micronaire. We expect Sicot 75BRF to perform well in the same regions as Sicot 74BRF. However to fully evaluate this new variety CSD has included it in nearly all our stacked variety trials ranging from Hillston to Central Queensland. Sicot 75BRF may also have a fit in dryland production systems given its relatively indeterminate growth habit and excellent fibre quality.

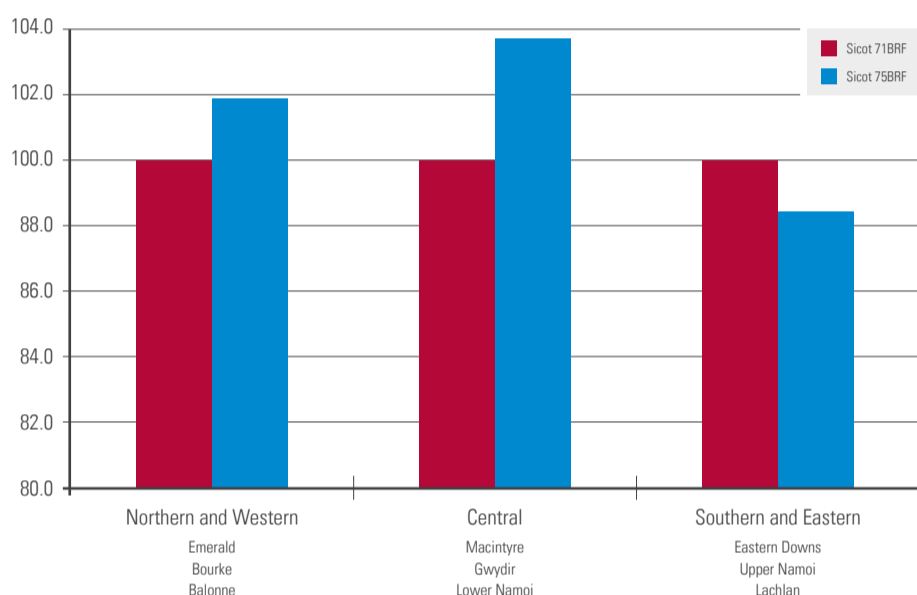
Sicot 75BRF will have the highest F rank of any commercial variety (currently 142(3)). It should become the variety of choice in fields with heavy fusarium pressure.



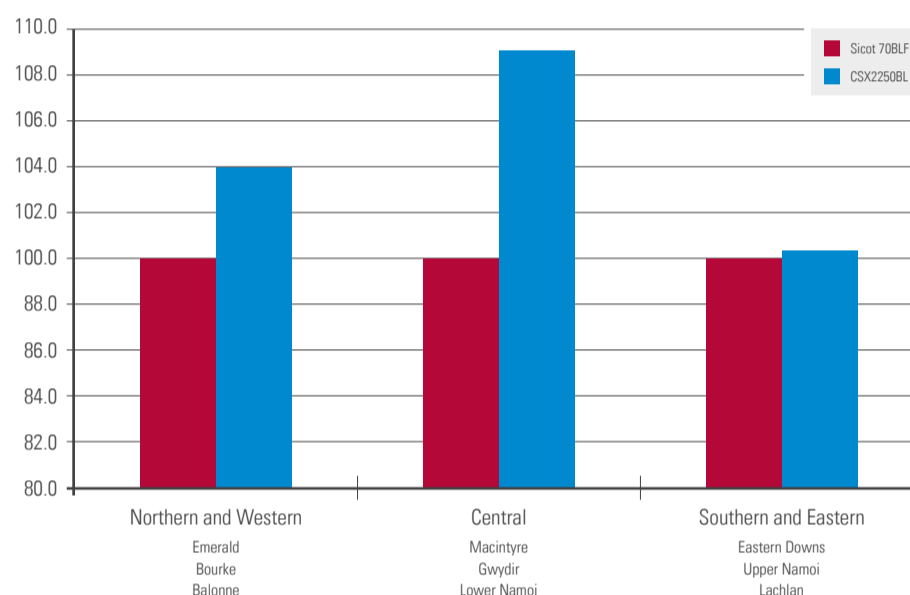
CSX 2250BL - A new Liberty Link variety

Seed increase of an exciting new Liberty Link /Bollgard variety has begun in 2011. The yet to be named CSX2250BL promises to have a yield potential similar to Sicot 71BRF and Sicot 74BRF, particularly in the central production regions. CSX2250BL has been a massive 9% higher yielding than Sicot 70BL in small scale CSIRO trials located in the Namoi, Gwydir and McIntyre valley. This new variety has been included in several CSD variety trials and we hope to present large scale performance data at next year's CSD Information meetings. We hope to have a limited release of CSX2250BL in 2012.

SICOT 75BRF - REGIONAL ADAPTION



CSX 2250BL - REGIONAL ADAPTION



CSIRO SMALL SCALE TRIALS (3 YEARS, 36 SITES)

	REL YIELD %	LINT %	LEN	STR	MIC	F.RANK
Sicot 75BRF	101.6	43.5	1.26	31.9	4.4	142(3)
Sicot 71BRF	100.0	41.6	1.23	31.5	4.2	118(8)

CSIRO SMALL SCALE TRIALS (2 SEASONS, 7 SITES)

	REL YIELD %	LENGTH	STRENGTH	MICRONAIRE	F.RANK
CSX2250BL	105.0	1.26	30.6	4.3	128(1)
Sicot 70BL	100.0	1.24	30.1	4.0	101(4)

More choice in RRF coming soon

CSD has started the seed increase of a new RRF line that has better yield and fibre quality than Sicot 71RRF and Sicot 80RRF. The yet to be named variety will be the first of several improvement to the RRF range over the next few seasons. We hope to begin large scale trials of the new variety in 2012.

New conventional variety

Sicot 71 have been the dominant conventional variety for almost a decade. It has exceptional yield potential and great adaptation throughout the cotton growing regions of Australia. It has been a challenge to breed a variety with consistently higher yield and quality than Sicot 71. CSIRO have 2 new lines that appear to outperform Sicot 71. CSX9238 in particular has produced yield about 4% higher than Sicot 71. It also has better fibre length and fusarium resistance. CSD is continuing to seed increase and evaluate CSX9238 in large scale trials. We hope to make the variety commercially available for the 2012 planting season.

CSIRO DATA (3 SEASONS, 12 SITES)

	REL YIELD %	LENGTH	STRENGTH	MICRONAIRE	F.RANK
CSX4285	101.0	1.26	31.6	4.2	138(5)
CSX9238	104.0	1.22	33.0	4.0	112(5)
Sicot 71BRF	100.0	1.18	32.0	4.2	104(22)

Bollgard III on the way

Breeding of new BRF varieties ceased a few years ago and there will be no more new releases over the next few years. However breeding of the new Bollgard III stacked varieties is well underway and we expect to begin seed increase in 2012 with large scale evaluation in CSD trials likely to begin in 2013.



Sicot 74BRF comes home with wet sail

The past two cotton seasons, climatically we have had polar opposite, 2009/10 was hot early with a fantastic finish, whereas 2010/11 was cool and wet early with an average finish. In these two seasons the CSD Extension and Development Team has extensively monitored the performance of Sicot 74BRF in cotton growing regions.

Looking at the data generated through the CSD segmented picking program shows how Sicot 74BRF can take advantage and amass a large amount of fruit in the second half of the season.

CSD's Moree based Extension and Development Agronomist, James Quinn said, "We isolated farms where we had segmenting picking data for Sicot 74BRF in both seasons to compare. Major differences between the two years were in the number of bolls produced. In 09/10 an extra 30 bolls per meter were generated, these were mainly situated on upper nodes. Surprisingly boll weight between the two seasons was relatively stable."

This data also highlights the effect climatic conditions can have on yield potential. In this case there is a 2.1 b/ha difference between

Sicot 74BRF grown on the same farms with similar management.

"Although the weather conditions are out of control of most growers, this is a significant difference in yield potential. Regardless of the climatic influence growers should be aware of the ability to amass considerable fruit and yield late in the season and adjust nutrition and irrigation accordingly." Mr Quinn said

The segmented picking analysis from these same fields shows a greater yield differential but most striking is the difference between the two years in the late fruit.

"There is almost 75% more yield is generated in this section of the plant in the 09/10 season compared to last season. It is easy to surmise that the increase in boll load is harboured in this later produced fruit.

Eight bales per hectare or 45% of the yield of the 09/10 Sicot 74BRF crop was generated above fruiting branch 9. Highlighting that if the season favours you Sicot 74BRF has the potential to take full advantage." Mr Quinn concluded.



	10/11	09/10	
Yield	11.0	13.1	16%
Boll weight	2.40	2.44	1%
Boll number	133	165	19%

Above: Actual Field Data (CSD Variety Trial Program, 5 trials).

	10/11	09/10
Total yield	14.16	17.73
Early yield	6.5 (45.6%)	5.8 (32.9%)
Late yield	4.6 (32.5%)	8.0 (45.1%)
Vegetable fruit	3.1 (21.9%)	3.9 (21.9%)

Above: CSD Segmented picking breakdown.

Region	2009/10	2010/11
Hay	13.7%	-0.7%
Hillston	13.3%	1.7%
Gunnedah	8.4%	3.4%
Narrabri	8.6%	0.5%
Moree	6.2%	0.1%
Bourke	11.3%	-6.7%
Goondiwindi	12.6%	-0.7%
Dalby	9.2%	-5.2%
St George	5.4%	-7.3%
Emerald	1.2%	-7.2%

Above: Day degree accumulation as a percent of average conditions by district 09-11 (source: CSD Variety Trial Results).

Rotation to Liberty Link working for St George cotton grower - Scott Armstrong

With the Balonne region returning to full production over the last few years due to a return to a full Beardmore dam, this will mean that for the first time in a few seasons they will be planting nearly all fields to back-to-back cotton.

St George cotton grower Scott Armstrong is making hay while the sun shines and is planting close to 100% of his area to back-to-back cotton, due to a possible full water allocation facing them this season.

One of the biggest challenges that faces the scenario of planting back-to-back cotton is how do you control the volunteers from last year's crop?

With good early rain falling in most areas around planting time, this has lead to a large germination of volunteer cotton coming up at the same time as the crop, competing for vital nutrients and moisture which can set back the early growth and vigour of the crop.

Many growers in the industry have embraced the new Roundup Ready Flex technology. When planting RR Flex cotton back into country that was RR Flex the previous year, the volunteers that germinate in the crop will obviously not be controlled by the RR Herbicide.

Scott Armstrong has found the answer to this problem by using the Liberty Link technology from Bayer, which allows you to spray Liberty 200 Herbicide directly over the crop.

Scott plants half of his crop to Roundup Ready Flex, and half to Liberty Link, which is then rotated each year in order to get full control of volunteers and general weeds each season.

Over the past three seasons, Scott has planted the Liberty Link varieties of Sicot 70BL and the Conventional Variety Sicot 80L along with R-Up Ready Flex varieties Sicot 71RRF and 71BRF in a 50-50 conventional/ bollgard split, along with a 50-50 herbicide split between Liberty Link and RR Flex.

'Last season our Sicot 70BL was our highest yielding variety on the farm, which came out just in front of our Conventional 71RRF and our 71BRF' Scott said. The season before we also had a big success with our conventional Sicot 80L, this out-yielded everything on the farm'.

'We find the use of the Liberty Herbicide to be extremely effective in controlling our problem weeds such as fleabane and peachvine, along with very effective control of our RR Flex volunteers in our back-to-back fields.' Scott says.

This season Scott is trialling a number of new Bollgard Liberty Link varieties in a CSD variety trial, which includes some promising new Liberty Link varieties, which will hopefully have a yield benefit on the current commercial varieties.



Cruiser Extreme - A good introduction

This season sees the introduction of a new seed treatment Cruiser Extreme from Syngenta. It is seen as a replacement for some of the granular insecticide products that are currently available.

According to Peter Chapman from Syngenta, "The main attribute of the product is its ability to control thrips, aphids and wireworm. The ease of use coming on the seed is certainly a benefit to growers who have been using granular products with lock and load systems for some time now".

Since Temik has been taken off the market Cruiser Extreme is seen as a good replacement product that is easy to use and will protect against

the main pests of seedling cotton.

Cruiser Extreme is around 10% of the cotton area this season with many growers using this product over the granular products. In trials last season growers commented on two main points. One, the safety aspect of the product, not having to deal with S6 chemicals and secondly, the ease of use with the product coming with the seed.

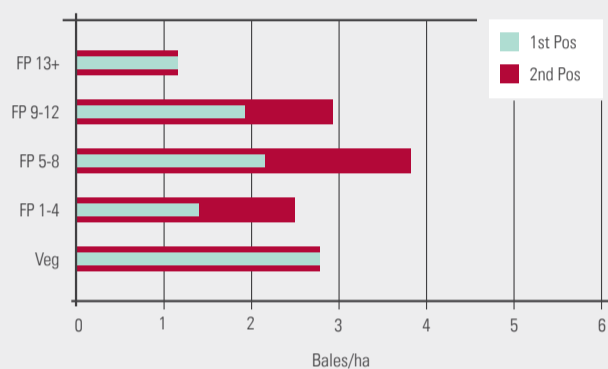
Further trials using Cruiser extreme are being conducted this season up against the granular products and results will be available in the new year.

Sicot 71BRF vs Sicot 74BRF - The tale of the tape

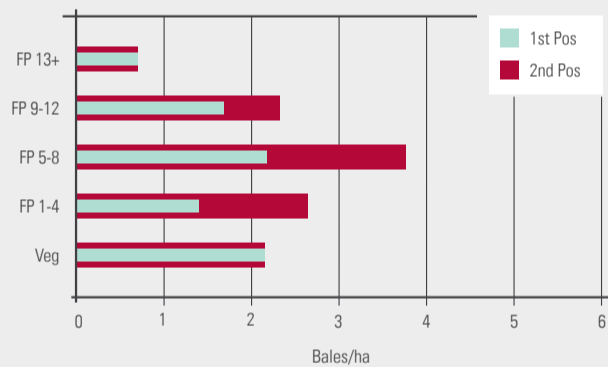
NORTHERN CROPS (14)

	SICOT 74BRF	SICOT 71BRF
Boll number	127	124
Boll weight	2.32g lint	2.08g lint
Early yield (FB 1-8)	5.6 b/ha (43%)	6.4 b/ha (56%)
Late yield (FB 9+)	4.6 b/ha (35%)	2.9 b/ha (26%)
Vegetable branch yield	2.8 b/ha (22%)	2.1 b/ha (18%)

SICOT 74BRF



SICOT 71BRF



The CSD Extension and Development Team's segmented picking program allows an opportunity to closely examine the nuances between Sicot 71BRF and Sicot 74BRF.

Looking at the differences between the two most popular cotton varieties within Australia provides hints for cotton growers on how to exploit these characteristics to boost the yield potential of their crops.

CSD's Namoi based Extension and Development Agronomist, Rob Eveleigh said "Sicot 71BRF is a very versatile variety, with adaptability right across the entire Australian cotton industry in both dryland and irrigated conditions. Sicot 74BRF has also shown great adaptability to the entire industry, but is favoured to the more northern and western growing regions where the longer season length allows it to capitalize on the ability of this variety to put a lot of fruit on in the second half of boll filling".

Stark differences are seen in the growth type between Sicot 74BRF and Sicot 71BRF is seen when we isolate those crops grown in southern climates compared to those in the Northern areas.

In both examples the boll weight of Sicot 71BRF is less than Sicot 74BRF. The extra boll weight has enabled Sicot 74BRF to equal the yield in southern areas, where the number of bolls was less than those accumulated by Sicot 71BRF.

The most striking difference between these two varieties is the percentage of the final yield which is generated on the first eight fruiting branches, or early set yield. In both northern and southern examples the more than half the yield is generated on these branches in Sicot 71BRF. Whereas the early and late yield is distributed more evenly up the plant in Sicot 74BRF.

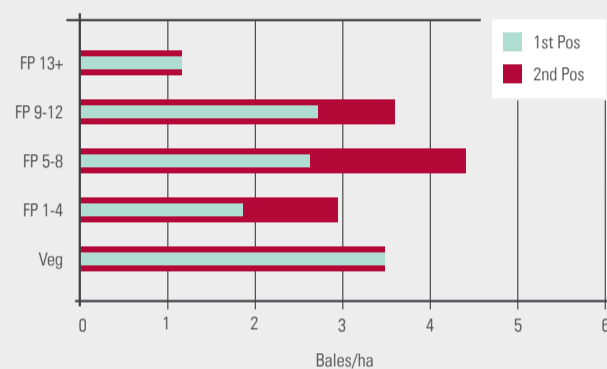
Southern crops of Sicot 74BRF are heavily reliant on the second half of the season. Without an extended season climatically Sicot 74BRF is unable to capitalise on its ability to produce later fruit.

Mr Eveleigh said, "The key to getting the most out of Sicot 71BRF is taking advantage of the early yield generated and pushing the plant to generate additional fruit on the upper fruiting branches and vegetable branches. With Sicot 74BRF it is trying to maximize the amount of early fruit, whilst enabling the season length to assist in generating fruit with high boll weight during the second half of the season."

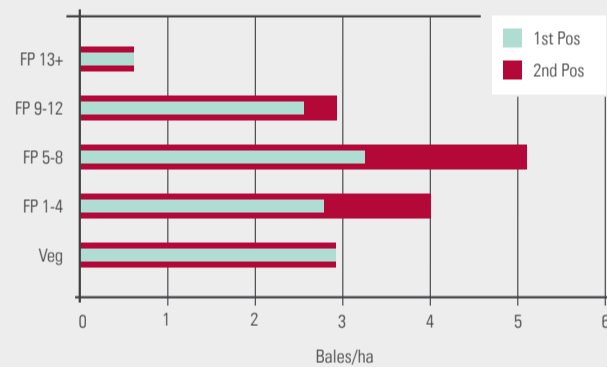
SOUTHERN CROPS (3)

	SICOT 74BRF	SICOT 71BRF
Boll number	159	169
Boll weight	2.22g lint	2.05g lint
Early yield (FB 1-8)	6.6 b/ha (42%)	9.0 b/ha (59%)
Late yield (FB 9+)	5.5 b/ha (35%)	3.4 b/ha (22%)
Vegetable branch yield	3.5 b/ha (22%)	2.9 b/ha (19%)

SICOT 74BRF



SICOT 71BRF



Sicala 340 BRF - Delivers exceptional fibre quality

Each season CSD establishes a large number of trials throughout the cotton growing regions of Australia. To recognize the achievements of our trial growers CSD established the Dr Norm Thomson shield for outstanding fibre quality in a CSD Variety trial. The late Dr Norm Thomson was arguably the breeder responsible for setting up one of the most successful cotton breeding programs in the world. He set the foundation for our high yield, high fibre quality, disease tolerant varieties that are grown today.

Fibre quality is measured using a number of different parameters. It is only fitting that the winner is chosen by our current CSIRO breeding team. Dr Greg Constable selects the winning crop after careful consideration of all the fibre quality characteristics.

From a short list of crops grown all over NSW and Queensland the decision by the CSIRO breeders was unanimous. The cotton grown by John Ellis of "Miralwyn" Carinda was deemed to be the best of all

the contenders, followed closely by Bruce Longworth of Moree and Auscott Warren. John Cameron's Sicala 340BRF crops only fault was its micronaire, which was considered too low to produce the highest yarn strength.

It is interesting that the last two recipients of the award have grown crops in the western portion of NSW. Steve Buster from "Darling Farms" was the previous winner. Another interesting feature is the domination of Sicala 340BRF in the awards.

All the contenders came from crops of Sicala 340BRF. Some of the entries, like Bruce Longworth's were from dryland fields.

But the winning crop this season was fully irrigated and not only achieved fantastic fibre quality it also produced a yield of over 10.3 bales/ha. The farm manager, John Ellis also said "commercial fields of Sicala 340BRF grown on "Miralwyn" also had exceptional fibre quality, in some cases better than in the variety trial."



Left: John Ellis, manager of Miralwyn Cotton, Carinda was the clear winner of the Dr Norm Thomson Shield for best Fibre Quality in a CSD Variety Trial. John's Sicala 340BRF produced fantastic fibre quality.

DR NORM THOMSON SHIELD CONTENDERS 2011

	VARIETY	LENGTH	STRENGTH	MIC
John Cameron, Bongeen	Sicala 340BRF	1.30 (42)	35.4	3.2
Brendon Swaffer, Clermont	Sicala 340BRF	1.29 (41)	30.6	4.0
John Ellis, Carinda	Sicala 340BRF	1.29 (41)	34.2	3.7
Matt Gaukroger, Bourke	Sicala 340BRF	1.28 (41)	33.6	4.2
Auscott, Warren	Sicala 340BRF	1.28 (41)	34.2	4.3
Bruce Longworth, Moree	Sicala 340BRF	1.27 (41)	36.6	4.4
Andrew Watson, Boggabri	Sicala 340BRF	1.27 (41)	34.0	4.5
Philip Morgan, Breeza	Sicala 340BRF	1.27 (41)	35.2	4.5
Rob Newell, Boggabilla	Sicala 340BRF	1.26 (40)	32.5	4.3

RESEARCH WRAP

Rotating towards carbon-neutral cotton crops

Carbon sequestration is an important national issue for cropping in Australia. CSIRO's and Cotton CRC's Dr Ian Rochester is leading research that has identified opportunities for sequestering carbon in soil.

The experiments compare numerous cotton-based crop rotation systems that include wheat and legumes (such as faba beans and vetch) that have improved soil nitrogen (N) status and reduced the need for N fertiliser.

Dr Rochester found that soil organic carbon stocks measured in the surface 30 cm of soil increased in all the cropping systems examined over a period of 12 years.

On average, soil organic carbon stocks increased by almost 1 t CO₂e/ha/yr. In the best system, he found 1.4 t CO₂e/ha/yr was sequestered. This amount of carbon sequestration accounts for much of the CO₂ emissions generated from cotton farming practices, including tillage and nitrogen fertiliser use.

Data also shows that the stocks of organic carbon in the 30-60 cm soil layer have also increased.

These levels of carbon sequestration are a consequence of the crops grown, the fertile soil type, use of irrigation and conservative tillage practices

Hence, the levels quoted here may not be achieved in other less-productive cropping systems or on poorer soils.

"The carbon sequestration process is beneficial in removing CO₂ from the atmosphere while improving soil health by building soil carbon levels which promotes soil fertility", said Dr Rochester.



Above: Dr Ian Rochester, CSIRO and Cotton CRC.

Improved management practices have helped achieve and maintain higher soil carbon stocks more effectively. These practices include:

- Introduction of legume rotation crops, as they provide high nitrogen content and release carbon into the soil more quickly;
- adoption of reduced tillage practices with permanent ridges, as ploughing breaks down soil carbon storage;
- incorporation of all crop stubbles into the topsoil, instead of leaving them on the soil surface.

This research is funded by the Cotton Catchment Communities CRC, an organisation established to ensure world's best practice in cotton production, environment and catchment management.

Mulch Manager, an implement to manage vetch cover crops in rotation with furrow-irrigated cotton innovation

Cover crops are frequently sown in rotation with high value crops in many annual cropping systems. The advantages include better soil structure (e.g. improved soil structure and water-holding capacity), higher soil organic carbon, improved nutrient recycling and weed control.

In conventionally-tilled systems the cover crop are usually mowed and incorporated during land preparation, and is commonly referred to as "green manuring", whereas in minimum or no-tilled systems the cover crop is usually killed by applying one or more herbicides. Applying herbicides contributes significantly to the costs in a no-till systems, in addition to the herbicides can be costly in terms of environmental quality.

Vetch is a creeping, nitrogen-fixing cover crop sown in rotation with cotton. The vetch stubble conserves moisture and minimises water runoff and soil erosion and as the stubble decays it provide nitrogen to the following cotton crop.

Nilantha Hulugalle, Cotton CRC and NSW DPI Researcher said vetch needs to be killed and re-growth controlled to allow cotton to be sown".

"In the past vetch has been killed by either incorporating or slashing followed by application of the herbicide Sprayseed®, yet due to the high cost of this herbicide a new control method was needed".

Review of scientific literature indicated that in many Mediterranean orchards where vetch is grown as a cover crop, good control could be achieved by

cutting of the lateral stems ("runners") followed by a directed spray application.

"We decided that these two operations could be combined in a bed/furrow system by an implement which, in a single pass, was able to cut the runners off with a pair of discs while applying a narrow band of Sprayseed® to the plant line, to this end the "Mulch Manager" was invented". The 'Mulch manager' is made from a toolbar which has spring-loaded pairs of parallel coulter discs attached, one set of nozzles between the individual coulter discs that directed a contact herbicide to the bed surfaces to kill the cover crop.

"Avoiding herbicide application in furrows did, however, result in secondary weed growth. To address this, weeds were controlled by a second herbicide tank which applied a cheaper herbicide such as Roundup® simultaneously to the furrows".

Thus, in a single pass, the 'Mulch manager' cuts vetch runners while simultaneously applying different herbicides to bed surfaces to kill a vetch cover crop and to furrows to control other volunteer weeds.

"The 'Mulch Manager' is an integrated mechanical and chemical management system that can efficiently kill aggressive and bulky prostrate cover crops such as vetch with fewer machine passes, reduces the use of more expensive herbicides such as Sprayseed by 30%, decreases labour, lowers risk to operators and has a lower carbon footprint", concluded Nilantha.

Implementation of genetically modified *Bacillus thuringiensis* (Bt) cotton

■ Dominic Cross, PhD Student - Cotton CRC / University of Sydney



Above: PhD Student Dominic Cross.

The implementation of genetically modified *Bacillus thuringiensis* (Bt) cotton has reduced the use of chemicals by suppressing *Helicoverpa armigera* and *H. punctigera* pest populations. This results in selection for resistance to Bt since pests tolerant to Bt survive and convey their resistant genes to the next generation. To maintain susceptibility to Bt in pest populations, refuges of unsprayed non-Bt cotton or pigeon pea are planted with Bt cotton so that susceptible populations dilute any acquired resistance, preventing Bt cotton from becoming ineffective at controlling pest populations.

Planting an unsprayed crop carrying high numbers of invertebrates and with a low yield potential can appear counterintuitive to growers. Therefore, quantifying and improving the efficacy of refuges is necessary to maintain industry support. Disease,

predator and parasitoid populations increase with increasing densities of *Helicoverpa* larvae and could cause excessive mortality as larvae numbers increase. Consequently larger numbers of larvae may result in fewer moths. Part of my research will identify if there is a point at which the density of *Helicoverpa* in the crop causes the population to crash, and whether this point varies between refuge types.

Though still in its infancy, my project will determine the best management strategy for refuges in cotton to ensure maximal output of Bt susceptible moths. From the practical perspective, the information gained will enable growers to be confident that they are getting the best biological benefit from their refuges via the most cost-effective means. From a biological perspective, the project will examine the interguild effects of high herbivore numbers.

End of an era of collaborative research

The announcement that the Cotton Catchment Communities CRC was unsuccessful in its bid for a further five years of funding brings to an end 19 years of collaborative research under the CRC program.

Over this time the Cotton Catchment Communities CRC has brought together government agencies, universities, farmers, catchment bodies, local government and private businesses to invest over \$320 million in research and development since 1994.

This concerted effort has resulted in at least \$2 billion worth of value for the cotton industry, its catchments and communities over the 19 years of the CRCs operation. Phil Armytage, CEO of the Cotton Catchment Communities CRC, said there was great disappointment across the industry and associated partners and communities that the request for funds to extend the operations of the Cooperative Research Centre was unsuccessful.

"Regional Australia is experiencing rapid and significant social, economic and environmental change and a lot of this change is happening in cotton regions".

The additional funding being sought in the extension bid was aimed at finding science based strategies to deal with these issues through its

proposed Regional People, Water, Carbon and Energy, and Green GM Farming programs.

"These are important issues with our bid application gaining support from some 98 different partners who collectively committed over \$87 million of cash and in-kind support to undertake this work over the next 5 years", said Mr Armytage.

Partners included research providers, farmers, industry groups, private businesses, catchment bodies, community groups, state agencies, regional development bodies and local government.

"While there has been significant disappointment that the Cotton Catchment Communities CRC was unsuccessful the industry does appreciate the funding it has received over 19 years and the significant difference it has made to our regions"

"The CRC program, founded on collaboration, is an excellent example of how science can solve problems".

"Yet we believe the whole CRC program needs higher priority in science investment strategies to ensure Australian research and development has a robust funding base", concluded Mr Armytage.

The Cotton Catchment Communities CRC was one of three agricultural based CRC's to miss out on a 5 year extension. It will formally close its doors on the 30th June 2012.

COTTON AUSTRALIA

Australian Cotton industry award winners announced

Watched on by their cotton industry peers, friends and the broad cotton family, winners in the Australian Cotton Industry Awards were announced in Narrabri on the 10 August.

Over 300 guests were hosted by Mr Rugby, Gordon Bray as MC at a glittering and emotional ceremony followed by a stand up cocktail party that was enjoyed by all who attended.

Earlier in the day the finalists were introduced to the industry at the first Finalists Forum, where sponsors interviewed the finalists in their category about their achievements. This was a highly successful event and will be built upon at the Conference next year.

As the last official function for this year's Cotton Collective, the awards recognised the talented and dedicated people who have made an outstanding contribution to the cotton industry.

CSD Researcher of the Year Award Winner

Dr Warwick Stiller CSIRO Plant Industry, Narrabri, NSW

Dr Warwick Stiller is a cotton breeder who joined CSIRO Plant Industry in 1995 as a post graduate student, and has developed into a committed scientist and plant breeder who is globally recognised for his work.

Warwick has spent the last 16 years of his life in the cotton breeding scheme that was established to produce varieties for dryland productivity, stress tolerance and water use efficiency and he has played a leading role in delivering new varieties to the Australian cotton industry that deliver exceptional yield and quality and are the envy of our competitors.

AgriRisk Innovative Grower of the Year Winner

Stuart and Maxine Armitage Cecil Plains, QLD

By the end of December 2010, Stuart and Maxine Armitage had received 16 inches of rain and a good percentage of their 240 hectares of cotton was under water. And as if that wasn't bad enough, they had just picked three cotton modules when another 4 ½ inches came pouring down, putting a stop to harvest for over a month.

With serious concerns for the mental health of some local growers and spirits pretty low in general, the Armitages faced this difficult issue head on, organising a number of support services to help people through. A mental health night was arranged with a psychologist and respected GP that 90 locals attended, and a Relax and Revive night hosted by bush poet Murray Hartin was a great social occasion with 120 attending.

Chris Lehman Trust Young Achiever of the Year Winner, sponsored by Bayer CropScience

Fleur Anderson President, Dawson Valley Cotton Grower Association, Theodore, QLD

Born into a cotton growing family on the Darling Downs, Fleur Anderson has been around cotton all her life, and was thrown into the thick of it during the recent floods that devastated her small rural community for the second year running. Some growers lost the lot, twice in the same season, and as the President of the Theodore Cotton Growers Association, Fleur stepped up to the plate and supported her growers and community when it couldn't get much tougher.

Fleur and her husband's family farm was affected too, but undeterred, she set about gathering data across the valley that established the scale of the problem and ultimately helped lead to additional government assistance.



Above: The winners of the Australian Cotton Industry Awards are congratulated.



Left: (left to right) Greg Constable, Andrew Watson, Geoff MacIntyre and Steve Ainsworth.

Monsanto Grower of the Year Winner

Ed Willis and Von Warner Thallon, QLD

Bullamon Plains is an outstanding farm enterprise including 20,000 hectares of grazing, dryland and irrigated cropping located at Thallon, about 65km south of St George in Queensland. Owned by the Willis', the farm has been in the family since 1928, with four generations of the family currently living on the property.

In the 2010-11 season, Bullamon Plains grew its largest ever cotton crop of 1,432 hectares, with an average yield of 11.1 bales per ha, taking out the local cotton crop competition for the last three years.

Cotton Australia Service to Industry Award Winner

Joanne Grainger Mungindi, QLD

With almost three decades in the cotton industry, Joanne Grainger has represented the industry in many of its major policy forums, donating countless hours of her own time for the betterment of the industry.

From 2007 to 2010, Joanne was the Chair of Cotton Australia (she joined the Board in 2002), where she oversaw the merger of the organisation with the Australian Cotton Growers Research Association. This paved the way for a new industry structure that reduced duplication and streamlined the advocacy efforts of the industry across all major policy areas.

Dimethoate and Diuron under further review

The APVMA have suspended many uses of dimethoate, a product used to control weeds in cotton production. Suspended uses of dimethoate include fresh fruit and vegetables and in home gardens as foreshadowed in the recently released review report. A new permit is required to continue to use dimethoate on cotton, and there are amended directions for its use on cotton during the suspension period.

The APVMA has determined that the consumption of certain crops and produce that have been treated with dimethoate may exceed acceptable dietary levels and therefore cause an undue hazard to human health.

These are the interim findings from the APVMA review of dimethoate which commenced in 2004. Manufacturers of dimethoate products will have the next 12

months to provide further evidence to the APVMA to address specific concerns about remaining uses, including the withholding period on cotton.

A new set of use instructions have been issued and manufacturers must ensure that these instructions and the permit is provided to the person taking responsibility for the product at point of sale, during the suspension period.

The suspension is for a period of 12 months, ending 5th October 2012. The APVMA have issued a permit (PER13155) to enable persons to possess, have custody of, use or otherwise deal with suspended dimethoate products and labels. The permit outlines the manner in which dimethoate products may continue to be used and the amended use patterns that will apply to certain crops during the suspension period.

PERMIT 13155 can be downloaded from the APVMA web site:

<http://permits.apvma.gov.au/PER13155.PDF>

Growers will find the new permit conditions for dimethoate use attached to drums for this current season's use. It is very important to the future availability of these products that the new permit conditions are carefully followed.

THE NEW DIRECTIONS FOR COTTON ARE:

- **DO NOT** harvest for 14 days after application,
- **DO NOT** Feed Cotton Fodder, Stubble or Trash To Livestock.

These directions are also contained in Permit 13155.

Free access to HR services for cotton growers, sponsored by Cotton Australia

Cotton growers can access FREE one-on-one HR and industrial relations advice from expert in the field Bob Kellow, thanks to support from Cotton Australia.

Cotton Australia recognises this can be a tricky area for growers and so is providing this service, free of charge to assist in this critical area of farm business.

Bob can answer all sorts of questions - from the obligations of an employer when it comes to hiring staff, through workers compensation advice and the challenges for a small farm enterprise when it comes to terminating staff.

FOR MORE INFORMATION

- To find the answers to your employment and HR issues, simply ring Bob Kellow on 02 6760 9667 - free of charge.

Log your paddocks with CottonMap

By Gerard Bardell, Business Manager, Nufarm

As cotton planting gets underway, now is the time to log your cotton fields with CottonMap.

CottonMap is a joint effort between Cotton Australia, Cotton Research and Development Corporation (CRDC), Grains Research Development Corporation and Nufarm to minimise off-target damage from downward herbicide application, particularly during fallow spraying.

CottonMap allows growers, consultants, agronomists and contractors to plot cotton fields online so you and your neighbours are aware of the location of nearby cotton fields when spraying.

So far, more than 280,000 hectares have been logged with CottonMap across NSW and southern Queensland.

A recent technical upgrade means that it is now easier to register cotton fields with CottonMap, while neighbours can also use their iPhone, tablet or smart phone device to check the location of nearby cotton fields before spraying.

The CottonMap website now recognises if the user is using a smart phone or tablet and shows a simplified version of the website.

It is fully functional with iPads, iPhones and Android



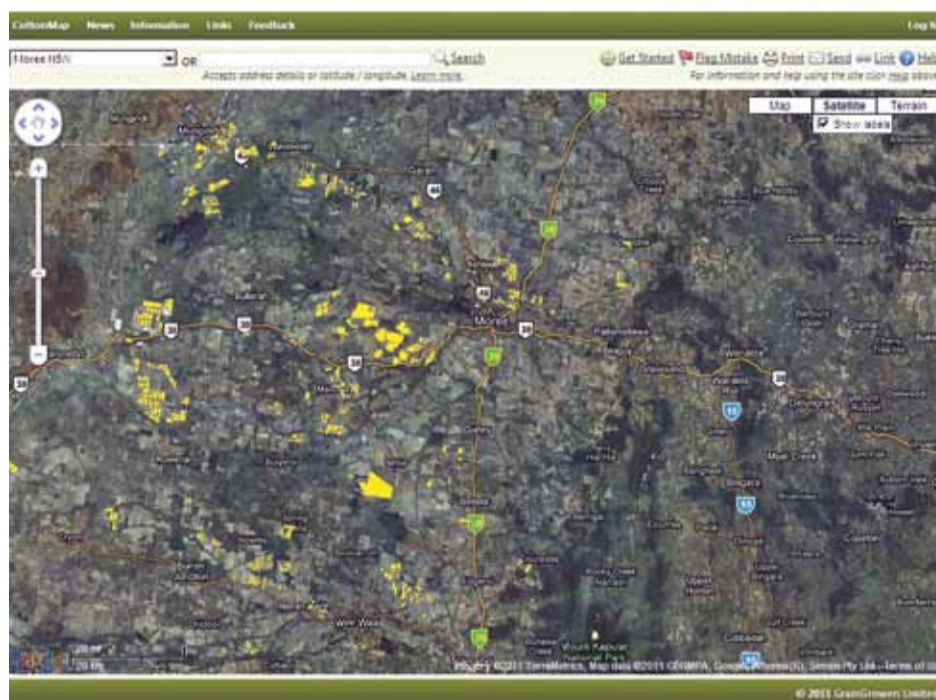
devices and provides new features, such as a location function, which brings up the location of the user.

You can also choose a 2.5, 5 or 10 km buffer which highlights the proximity to neighbouring fields and quick links to advice on drift reduction and useful information related to correct application.

Remember, physical spray drift is 100% manageable when applications are planned well, monitored closely and equipment is set up correctly!

Below: A screen shot of CottonMap, it is now easier to check the location of nearby cotton fields when spraying.

Cotton Awareness Mapping



The fight continues to halt phenoxy herbicide drift

With a massive crop on the way and a larger number of growers spread over a bigger area than ever before, Cotton Australia is working to make sure the cotton crop is again protected from phenoxy herbicide drift this season.

Last season saw a major improvement to a problem that had become a major issue just a few years ago, when in 2009-10 over \$9 million worth of damage was done to cotton across 16,000 hectares of area. A concerted effort from Cotton Australia and a comprehensive plan has seen spray drift from 2,4D products steadily decrease to the point last year that there were very few incidents.

But Cotton Australia warns that we mustn't become complacent, and that is why an awareness campaign to educate users of phenoxy herbicides will continue for the fourth year this season. The Cotton Australia awareness campaign will involve providing direct information on best management practice spray application, cotton crop field locations and adverse incident reporting procedures. It will also include a lobbying component, and work with spray applicators and resellers to ensure messages are directly delivered to users of phenoxy herbicides at the point of purchase.

Another key strategy is CottonMap, a website where cotton fields are mapped on-line so that potential users of Phenoxy products are alerted to the proximity of cotton fields to any area requiring weed control over summer. 200,000 hectares of cotton has already been mapped this season.

Following a major technical upgrade and feedback from users, the CottonMap system is now accessible on smart phones and tablet devices which are becoming increasingly popular tools for managing the cotton farm business. This is thanks to a joint effort between Cotton Australia, the Cotton Research and Development Corporation



Above: CottonMap on the iPhone 3G.

(CRDC), Grains Research Development Corporation and Nufarm.

The enhanced technology now means cotton growers can more easily register the fields they are planting with cotton, while their neighbours can also use an android, iphone, ipad or smart phone device to check for cotton before spraying - all while on the go.

Cotton Australia strongly urges any cotton grower that is affected by 2,4D drift or even suspects damage to their crops to report it to their closest Cotton Australia Regional Manager immediately. It is critical that incidents are properly logged and investigated and Cotton Australia has a straightforward process in place for adverse incident reporting that is simple and confidential.

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FOR MORE INFORMATION

- For further information on Cotton Australia's Phenoxy Herbicide campaign including useful resources for growers, please visit www.cottonaustralia.com.au/toolkit/phenoxyherbicides/
- For more information or to register for CottonMap, please visit www.cottonmap.com.au

THE SOY SOURCE

Ensuring soybean seed quality stacks up

When it comes to soybeans planting, seed quality makes a big difference in profitability of the crop. According to CSD Extension and Development Agronomist Jim Quinn, achieving the correct and uniform plant stand is vital in maximising the yield potential of a soybean crop.

Results from a replicated soybean variety trial conducted on Brad Swark's property "Narallen", Inverell showed differences of up to \$100 to \$150/ha in crop profitability due to planting seed quality.

"We compared the same variety 'Bunya', sourced from two different companies with differing quality control standards. We saw a 0.2 t/ha difference in the final yield which was solely related to planting seed quality and vigour," Mr Quinn said.

"Soybeans are becoming an attractive alternative summer crop in the slopes and plains areas. However, maximising the yield potential and delivering soybeans that the market requires is essential for growers to maximise their returns.

"As with all crops, starting with good quality seed is the first step, as it costs the same to plant poor germinating seed as it does good quality seed with high germination rates. Buying cheaper seed with no quality guarantee of germination rates may save money in the short term, but at harvest time the differences show in yields."

Mr Quinn said newer soybean varieties which the market seeks are a large and sensitive seed that is easily downgraded with handling. A damaged seed means less seedling vigour, and less germination.

"Every time we touch the seed at CSD Grains from harvest of a specially grown seed crops, during the grading process, and finally bagging we sample it, this ensures that what goes into the bag at the end is the best quality seed possible," he said.

"This continual testing process gives confidence in the quality planting seed we provide to growers."

The Inverell trial results showed CSD 'Bunya' planting seed performed best, with the highest establishment rate (88.2 percent) and yield (2.9t/ha). CSD 'Moonbi', with one of the lower establishment rates (61.8 percent) due its late sowing date, went on to have the second-highest yield at 2.7 t/ha.

The trial showed that soybeans are well suited to more variable climatic conditions presented in the more easterly grains regions, in particular CSD Moonbi, which yielded well despite being planted four weeks after the planting window.

"While this suggests planting date flexibility, we are looking forward to seeing the full potential of this variety when sown in the normal planting



window from early to mid-November through to early December," Mr Quinn says.

"This shows that growers in regions like Inverell, soybeans are a great summer cropping opportunity."



Above: Fresh produce display at Sydney Botanic Gardens on the Year of the farmer launch day.

Year of the farmer launch

Cotton and other crops were on display at the site of Australia's first European farm for the launch of Australian Year of the Farmer on 13 October, at the Botanic Gardens in Sydney.

2012 will be the Year of the Farmer and was launched by its patron, the Governor-General of Australia, Ms Quentin Bryce AC. Other supporters included ambassador and farmer Glenn McGrath and mining magnate Andrew Forrest who donated \$1 million to the cause.

Designed to celebrate the contribution farmers make to the Australian economy and community, the Australian Year of the Farmer 2012 is an education and awareness campaign underpinned with the support of not-for-profit agricultural groups and corporate sponsors.

Cotton Australia sees the Year of the Farmer as a major opportunity to promote some of the cotton industry's key messages, particularly in the areas of cotton careers, contribution to the community and the Australian economy, innovation and sustainability. Reaching urban audiences will be

the key, and there are many events, campaigns and activities designed to engage and educate with metropolitan communities throughout the year.

Cotton Australia will make the Year of the Farmer a major platform for its communication activities in 2012, and is currently in negotiations with organisers to determine exactly what that support will be. At the very least, Cotton Australia will be a proud supporter, with the themes and messages integrated into public awareness, social media and education plans for the coming year - and every opportunity to partner with Year of the Farmer programs will be fully utilised.

All 250 guests at the launch on 13 October went away with a cotton seed planting pack, and Cotton Australia is working to ensure an educational garden plot in the Botanic Gardens that's been set aside for the year will contain cotton plants.

A food and fibre display to launch the year was set up on site, containing a mini cotton bale and cotton bolls and cotton plants were on display at the launch.



CSD to offer soybean planting seed this season

Cotton Seed Distributors has announced it will be supplying quality soybean planting seed again this season. Planting seed will be available in mainstream varieties which have with a good fit in the high value human consumption, milling and have application to the crush market as well.

"We have forecast for a reasonable volume of Bunya and Soy 791 planting seed to be available this season. We also have increased a limited volume of Moonbi and we expect the demand for this variety to be strong given its broad adaption and quality attributes" said Steve Ainsworth, General Manager at CSD. "The quality of the soy planting seed across the board looks good and even with a variety like Bunya (which is a notoriously tricky variety to produce seed with high quality), early indications are that seed quality is excellent he went on to say"

On top of this CSD is advancing a new coded soybean line called L023B thru seed production. This is a very exciting variety and is particularly well adapted to the M.I.A and is expected to replace Snowy and Djackal as the variety of choice in this



region' he said. 'It will be available only in very limited volumes (mainly for seed production and trials) this year but given a successful seed increase program we expect to be able to fully commercialize this variety in 2012.'

Growers looking to access varieties from CSD should contact their local CSD cotton or soybean seed supplier to check out planting seed availability and pricing.

DRYLAND DEVELOPMENT

Care required with early Pix use in raingrown cotton

A small plot trial conducted at Warra on the Darling Downs last season showed a significant yield reduction resulted from relatively low rate applications of Pix early-mid season on a raingrown crop (Siokra 24BRF). The field had received significant rainfall around the time period that the Pix was applied, but the trial plots were not showing obvious symptoms of waterlogging.

The crop was planted on 29th October, with the first Pix application of 400 mL/ha on 14th December, crop stage being 9.5 nodes, 43 cm height. A second application, at the same rate was made on 5th January, crop stage being 16 nodes, 75 cm height. A cutout application was made in early February @ 1.2 L/ha. At harvest, there was a height reduction of 15 cm, a 1.5 node reduction and quicker maturity measured in the treated plots. Yield was reduced by

24%, which came from both a boll number reduction (18%), and also reduced average boll size (seed cotton weight) across the whole plant (6%), evident from the maturity pick. The actual yield from the Pix treated plots was 323 grams of seed cotton/m of double skip row (equates to 2.6 bale/ha commercially @ 37% t/o) vs 424 g/m in the neighbouring untreated plots. The Pix treatment also showed a significant reduction in micronaire (Table 3).

Trimming was also carried out on some plots on 14th December, the plants cut off at the height of the lowest fruiting branch on average, to see the effects of this treatment on maturity, yield and quality. While it produced a significant delay in peak flowering of approximately 2.5 weeks, there was also a yield reduction of 17% (boll number reduction only), and some noticeable changes in fibre quality.

Date of Pick	Quality Characteristic	Pix Treated	Untreated	Trimmed
15/03/11	Length	1.23	1.23	-
	Strength	34.5	33.1	-
	Micronaire	4.3	4.5	-
31/03/11	Length	1.27	1.26	-
	Strength	30.0	31.9	-
	Micronaire	3.5	4.6	-
07/04/11	Length	1.23	1.24	1.20
	Strength	32.9	32.2	33.0
	Micronaire	3.3	4.0	4.1
03/05/11	Length			1.18
	Strength			31.6
	Micronaire			4.7

Table 3: Pix and Trimming Effects on Fibre Quality of Raingrown DS Siokra 24BRF.

Date of Pick	PIX TREATED			UNTREATED		
	Bolls/m	% Open	Av. Boll size (g)	Bolls/m	% Open	Av. Boll size (g)
15/03/11	21	27	4.68	19	20	4.94
22/03/11	16	48	4.33	14.6	35	4.67
31/03/11	28.3	84	4.05	36.9	74	4.32
07/04/11	7.9	94	3.39	14.2	89	3.93
14/04/11	2.1	97	3.50	7.3	96	3.44

Table 1: Effect of Pix on Boll Count, Maturity and Boll Size of Raingrown DS Siokra 24BRF.

Date of Pick	TRIMMED		UNTREATED	
	Bolls/m	% Open	Bolls/m	% Open
15/03/11	0	0	14.6	14
22/03/11	0.5	0.5	10.5	24
31/03/11	4.7	6	36.8	61
07/04/11	10.5	18	21.3	82
14/04/11	24.2	45	9.4	91
20/04/11	10.2	57	7.7	98
03/05/11	33.9	96	1.6	100
16/05/11	3.9	100	-	-

Table 2: Effects of Trimming on Boll Count and Maturity of Raingrown DS Siokra 24BRF.



Above: Tipped (LHS), untreated (RHS) Warra 8th February 2011.

Stewart Hayllor - Winner of the Alan Brimblecombe Shield 2010/11

Stewart Hayllor from the Nandi area, south of Dalby is the winner of the Alan Brimblecombe Shield for 2010/11. This shield is awarded to the grower producing the highest yield in a CSD dryland variety trial.

A yield of 4.8 bales/ha was measured from Sicot 74BRF in the trial, which is quite remarkable in that the crop was twice inundated by the Condamine River floodwater, to a depth of 45 cm on the first occasion at the end of December, and then again a fortnight later.

Stewart had conducted industry dryland variety trials for the last seven seasons. He grows both irrigated and dryland cotton, both systems now based on a 150 cm row spacing. In situations where fallow soil moisture is limited, he can change his dryland configuration from 150 cm solid configuration (66% green ha) to a skip system (44% green ha) with minimal adjustment. Most machinery used in the

cropping program is 9m in width, with tractors set up on 3 m centres.

This season's trial was planted into a good body of standing wheat stubble on 23rd October. A stand of 10 plants/m was achieved from a drop of 13.5 seeds/m, an establishment of 70%, with little difference between the varieties.

Very wet conditions were experienced from mid November on, but the crop continued to grow well, although height variation was obvious, related to variable drainage between trafficked and non trafficked rows.

The first flood came across the field on 28th December, with river water sweeping all the wheat stubble away, but not causing much plant damage in the part of the field with the trial. Significant square shedding followed this event, with bottom five fruit retention getting down to 30% on 4th January, with no flowers evident. A second flood, with water 30 cm

deep occurred on 14th January. The crop recovered reasonably well from the waterlogged conditions, and was sitting at 60% retention and NAWF of 6 at the end of January. By mid February, it was 20% cutout.

However, there was then a very prolonged period of top crop maturation, with defoliation delayed because of field variability. Rainfall for the season consisted of 460 mm from mid November until 11th January, no rain for the next six weeks, 180 mm in March and a further 90 mm during April-May.

70 kg/ha of nitrogen was applied at the end of the fallow and Starter Z went on during planting. A foliar megamix was applied on 25th January.

There were two over the top Roundup Ready herbicide applications, in late November and late January.

The insecticide program included aerial Regent for mirids (25th January), Shield for aphids (4th February); Wizard for mites (16th February) and Rogor for aphids



Above: CSD Director Paul McVeigh (left) and CSD Extension and Development Agronomist John Marshall (right) congratulate Stewart Hayllor (middle) on winning the Alan Brimblecombe Shield.

(2nd March). There were two defoliation passes, with Rogor added to the first on 1st May

There were some serious wheeltracks left from picking, but after mulching and pupae busting, the field was planted to wheat, which is looking quite good after reasonable rainfall arrived in late winter/early spring.