OUR MISSION

To provide high quality collaborative research, education and adoption activities which benefit the Australian cotton industry, regional communities and the nation

OUR PURPOSE

To facilitate the delivery of a cotton industry that

- adopts world's best practice in production, environmental and catchment management
- secures international competitiveness using research to increase yield and fibre quality
- generates improved social and economic conditions in cotton communities

OUR PROGRAMS

- The Farm
- The Catchment
- The Community
- The Product
- The Adoption

OUR OUTCOMES

- Internationally competitive cotton farming systems
- Best practice cotton enterprises delivering sustainable ecosystems and reduced impacts on catchments
- Mutually beneficial interactions between industry and regional communities
- High quality consumer-preferred cotton
- Increased skills and knowledge of people

CRC AUSTRALIA

Established and supported under the Australian Government Cooperative Research Centres Programme

Cotton Catchment Communities CRC

Cotton Catchment Communities

Cooperative Research Centre

Annual Report 2006–2007

"Prosperity through innovation"

Cotton Catchment Communities
Cooperative Research Centre

Annual Report 2006–2007

Established and supported under the Australian Government's
Cooperative Research Centres Programme

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Achnowledgements

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CHAIRMAN'S REPORT

Year Two of the Cotton Catchment Communities CRC has been a very rewarding and exciting period. Research and adoption capacity continues to build and work towards the Cotton CRC's strategic outcomes. Additional funds of around $2 million have been attracted to the Cotton CRC, allowing us to expand our research and extension activities especially those addressing water and natural resource management. Exciting developments in the product area – with the "Field to Fabric" campaign and the launch of NORpak, outlining cotton development in northern Australia – were just two of many highlights from 2006–07.

With the second year of the Cotton CRC now past, we are entering what some call the 'middle phase' where a lot of work is settling down, with the Board and management teams being able to spend more time guiding the overall direction and progress of the collaborative research being undertaken.

Early in the life of the Cotton CRC the Board developed and put in place robust governance policies and programs, which are proving to be valuable foundations. Audit and Human Resource Committees have been meeting on regular schedules and reporting to the Board on a timely basis. During the year the directors undertook a review of Board and Directors' performance to ensure the right environment and leadership is being provided to assist the management team and the Cotton CRC to achieve their goals.

Identification of Intellectual Property (IP) opportunities has been undertaken, with increasing emphasis on early identification of possible IP. The Cotton CRC now has several IP matters under development, including one which is a restricted commercial application.

The Cotton CRC has conducted Centre Forums each six months and maintains a strong line of communication with its stakeholders. An annual Science Forum has been established, with a one-day forum in August 2006, expanded into a two-day forum in August 2007. The Science Forums are designed to improve communication and encourage project integration, while providing some peer review of project methodology and preliminary results. The

Board provides an overview of its Strategic Plan at these forums, encouraging researchers to ensure the results of their scientific endeavour focus on delivering adoptable outcomes. The Board is keen to see as much integration of work as possible: taking field scale research and applying it to a whole farm scale, then linking this into the broader catchment scale and, where appropriate, tying into community needs.

Our Strategic Plan is formally revisited each year. In January 2007 the Board, management, participants, affiliates and other interested stakeholders reviewed the plan. Several goals were refined, while several objectives and Key Performance Indicators (KPIs) were enhanced.

Unfortunately for the cotton industry, both weather and markets have thrown up significant hurdles. Lengthy periods of well below average rainfall, leading to minimal runoff, mean surface water allocations remain near zero across the cotton belt. At the same time, allocations in many groundwater supplies are being reviewed. Overall, the outlook is

quite grim. Significant inflows are required in most catchments just to meet essential requirements before any general security irrigation allocations can be made. The 2007–08 season is shaping up to be worse than last season when the industry was reduced to about a third of normal due to the lack of irrigation water.

Cotton prices have been floundering at historical lows for most of the 2006–07 season. Low prices and the lack of irrigation supplies have been a headache for the industry. Fortunately, in recent months cotton prices have risen from lows around $320 per bale to over $400 per bale. The long term average price is close to $450 per bale.

Despite the challenges, there were several positive factors for the industry during 2006–07. Variety performance continued to make great advances in both yield and quality, which augurs well for the future of the industry. It was not uncommon for field yields to achieve ten to 13 bales per hectare, while many farms averaged 11.5 to 12.5 bales per hectare over their entire crop. As a result, Australia has further extended its lead as the highest yielding cotton industry in the world, albeit on a significantly reduced crop area. The drought has also pushed cottonseed prices to historically high levels.

Water and climate change scenarios have been major considerations of the Board. One of the new goals introduced into the Strategic Plan is to apply a greater focus on developing farming systems which increase the resilience and adaptability of the industry and its communities to increasing climatic volatility. A Farming Systems Scientist has been appointed to manage and drive much of this work.

In the Product Program, work is continuing towards ensuring Australian cotton fibre remains competitively positioned from quality and processing perspectives. The Cotton CRC has been active in promoting the 'Fibre to Fabric' course through CSIRO Textile and Fibre Technology, Geelong. Australian growers, ginners and industry personnel undertake this course, designed to maximise the quality and benefits of Australian fibre along the production chain especially in the processing stage of ginning.

During the year the Cotton CRC launched NORpak, an information manual on growing cotton in Northern Australia. It brings together a decade of research on cotton growing in places like the Ord River in Western Australia into a very user friendly publication, which can be used as a foundation for the development of cotton production in these northern regions.

On behalf of the Board I express my gratitude and congratulations to the management team and all the program and sub-program leaders who drive our research and development portfolio forward. The hard work and focus of those researchers in contributing to our science effort, along with the education and adoption personnel, is greatly appreciated. The Board also thanks the Australian Government Department of Education, Science and Training (DEST) for its important and continuing funding, guidance and support.

Let's hope that the weather changes soon, allowing our catchments to be replenished, our communities to return to prosperity and our industry to retain its position as the premier cotton industry in the world.

David Anthony
Chairman

CHIEF EXECUTIVE OFFICER'S REPORT

The second year of the Cotton Catchment Communities CRC has witnessed significant progress and achievements. Focus shifted from project development to project consolidation, with 160 active projects now under way across all cotton growing regions in Australia. Strong collaborative partnerships between industry, catchments and communities are firmly in place, allowing a united approach to achieving out goals.

Our first science forum was held in August 2006 in conjunction with the ACGRA 13th Australian Cotton Conference. Cotton CRC scientists and extension officers played a major role in disseminating information and knowledge at the conference, which was attended by over 1200 people involved in the cotton industry.

Two new staff positions have been created as the Cotton CRC ramped up its operational activities. Dr Paula Jones was appointed to the new role of Program Leader for Catchment and Communities to increase our interaction with program partners and scientists. Yvette Cunningham was appointed as the new Communications Officer to enhance our communication with end users, partners and the broader Australian community.

Our activities are geographically dispersed all over Australia. All our regional extension officer positions have been filled, giving us a strong presence in all cotton regions. To further promote the adoption of the cotton industry's environmental management system, Best Management Practices, the Cotton CRC has also co-invested with Cotton Australia and the Cotton Research and Development Corporation (CRDC) in a new Cotton BMP General Manager's position.

The Cotton CRC's web site was redesigned during the year and all project abstracts and reports are now available online to ensure the greatest exposure and utilisation of the information being generated through CRC activities. We have introduced two electronic newsletters, in addition to continuing our traditional communication activities.

Greater emphasis is being placed on the complex interactions of cotton farming systems. With that in mind, a new cotton farming systems scientist project was approved. Most Australian cotton is now grown from transgenic varieties; hence, our research focuses on agronomy for those varieties and integrated pest management for secondary pests such as mirids, with a greater emphasis on crop nutrition in order to make best use of inputs.

Cotton farms produce more than just cotton. Most cotton farm produces grain crops in rotation with cotton and therefore we have partnered with the Grains Research and Development Corporation (GRDC) in a high yielding irrigated wheat research project, as part of the cotton farming system. A range of other projects have been established looking at maize and legume rotations, while much of our extension efforts focus on water in irrigated cotton and grain crops.

At the catchment scale, a groundwater knowledge review in the Namoi valley was completed and we were successful in securing additional funding from

the National Water Commission for a new 3D modelling project of surface and groundwater interactions: a priority topic in the national water debates.

Four scoping studies were completed as part of the communities program and the results have been presented to industry. These included socio-economic indicators, natural resource management, indigenous partnerships and climate change. The Cotton CRC has also commissioned a comprehensive socio-economic analysis of the importance of the cotton industry to Australia.

The issues of preserving fibre length, optimising micronaire, reducing neps (short, immature fibre clumps) and minimising contamination are a focus of our cotton fibre quality work, which includes agronomy research through the production pipeline: harvesting, ginning and spinning. The key highlight has been the number of industry people attending the field to fabric course at Geelong, which is improving the industry's knowledge on fibre quality.

Education and training continued to be a fruitful aspect of our programs. We have 38 postgraduate students conducting a broad range of projects in the industry. Additionally, we have provided a range of scholarships and prizes for undergraduate students. To help address the national decline in science subject enrolments at schools, we have partnered with a number of organisations involved in school-based activities.

Turning to policy at the national level, the Cotton CRC has provided input into Australian Government inquiries into Rural Australia's skills need, Science and Innovation, and the Productivity Commission inquiry into rural research and development. Also at the national level, I have attended many CRC Association meetings, representing the agriculture sector CRCs. The Cotton CRC helped organise the annual CRC Chief Executive Officers workshop in Armidale: the first in regional Australia.

We have made systematic improvements to project administration, including online reporting, project summaries on the web and written feedback to researchers.

This year will be remembered for one of the worst droughts Australia has experienced, which led to increased public debate on water and climate topics. The Cotton CRC has developed a plan for water research and produced a scoping study on climate change. A new sub-program on climate change and variability has been created so that we can help the cotton industry tackle these challenges.

The 2006–07 cotton crop harvest of 1.3 million bales was down 50 per cent on the previous year. The planted area was 142,000 hectares and the average yield was 9.15 bales per hectare. The main limiting factor to the coming year's cotton production continues to be drought, which has led to an increasing lack of available water for irrigation. The Australian cotton industry's estimate for planting in 2007–2008 is 55,000 hectares, resulting in estimated production of 500,000 bales harvested. This means it will be the smallest cotton crop in 20 years and an 85 per cent reduction on the previous ten years

Looking ahead, we will be appointing an economist to sharpen our economic analysis of projects and to help with our adoption strategies. More research will be commissioned in the community program. Our knowledge will be made even more accessible, with final reports being placed on the web site. We will also be signing new project agreements with private companies to develop some novel crop management products. Greater focus will be placed on our education activities, including more work with schools and a new business plan for the cotton course.

I would like to thank the Board, Participants and Affiliates, our Program Leaders, Scientists, Extension Team, industry collaborators and CRC staff for their tireless efforts to ensure we create "prosperity through innovation".

Guy Roth
Chief Executive Officer

EXECUTIVE SUMMARY

The second year of the Cotton Catchment Communities CRC has seen a great deal of activity. With the administration and research management systems and policies well established, focus shifted from project development to project consolidation. The Cotton CRC now has 160 active projects under way in every cotton growing region in Australia.

Strong collaborative partnerships between industry, catchment and community partners have ensured the direction and relevance of research and extension priorities.

The Strategic Plan was revised in January 2007. Several goals were clarified and key performance indicators were defined more clearly. The Cotton CRC created a new goal for climate change and variability and the focus of precision agriculture was changed from research to adoption.

The Cotton CRC attracted additional research funds for new projects from the Australian Greenhouse Office, Monsanto Ltd, the Condamine Alliance, Queensland Murray Darling Committee, Borders Rivers-Gwydir CMA, National Water Commission, Central West CMA, SACOA Pty Ltd and Land and Water Australia.

RESEARCH, DEVELOPMENT AND EXTENSION HIGHLIGHTS

There have been significant organisational, research, education and extension achievements throughout 2006–07. While the majority of highlights are contained within each program report, an overview of this year's achievements includes:

Commercialisation of Research Outcomes

- The Cotton CRC now has eight research projects in which commercial partners are involved, or are being sought to commercialise Intellectual Property
- The *Heliothis* attractant, Magnet®, will be the first such commercial product in the world. Expressions of interest in market development have come from North and South America, south-east Asia and New Zealand
- A partnership valued at $500,000 with *Growth Agriculture* Pty Ltd has been signed for an insect behaviour modifying plant extracts project
- Native Fire is providing $36,497 for the 'Managing green mirids with plant extracts' project.
- A licensing agreement has been signed with Orica for a bioremediation product to be marketed under the label Landguard™
- Projects focusing on measuring fibre maturity, new ginning, electrical imaging of soil water and fungal biopesticides are currently under negotiation.

Accelerating the Adoption of Research

- The past year has seen the development of our extension team and adoption strategies, enhancing the Cotton CRC's ability to extend the latest research to the benefit of the Australian cotton industry, its catchments and its communities
- Extension Officers have been appointed in all major cotton valleys in partnership with the Cotton Research and Development Corporation (CRDC), NSW Department of Primary Industries (NSW DPI) and Queensland Department of Primary Industries and Fisheries (QDPI&F)
- A series of Healthy Soils and Irrigation alternative training programs have been developed
- BMP Land and Water Management workshops have been held across cotton growing regions
- Our first Science Forum was held in August 2006, in conjunction with the 13th Australian Cotton Conference which was attended by 1200 people
- A significant number of field days and seminars were held in conjunction with the industry, showcasing emerging research and best practice in water management, soils, resource management and crop rotation and configurations, along with newer areas such as birds and fish in cotton farming systems.

- CRC presentations and displays showcased Cotton CRC work at the Australian Cotton Conference and the Cotton Trade Show, both attended by many cotton industry participants
- A range of adoption materials was published, including the Cotton Pest Management Guide for 2006–2007, Nutrition Sampling Guidelines and an Envirodirectory.

Education and Training

The Cotton CRC now has 38 postgraduate students enrolled, working in areas across all of the four research programs. Almost all of them have joint supervisors from non-University research organisations in the Cotton CRC and many are jointly supervised by industry personnel.

- Eight students were granted their PhDs
- Eight university students were awarded summer scholarships during the 2007 summer to provide them with research experience related to the cotton industry
- A new partnership was formed between the Cotton CRC and the Communications Faculty of Charles Sturt University, Bathurst, to provide students with practical experience in communication planning and implementation
- A total of 139 people have completed the "Cotton Field to Fabric Training Course: Managing for Quality", which was formulaed through the collaborative work of Rene Van der Sluij (CSIRO), Geoff Dunlop (NSW TAFE) and Mark Hickman (QDPI&F)
- A prize for 3rd year students was established at Sydney University in the Faculty of Agriculture and Natural Resources

The Field to Fabric course at CSIRO Textile and Fibre Technology brings together years of research findings to teach cotton growers, consultants and others in the industry how to maintain fibre quality through the value chain

The Cotton CRC's program with secondary school students saw it host the Moree Rotary annual youth camp for 49 year 10 students from north west NSW, promoting science career opportunities. Guest speakers covered about potential careers in the cotton industry, ranging from farm work to laboratory work and office work, through to scientific research.

- The Cotton CRC contributed to the Cotton Consultants Australia Chris Lehmann Trust to fund an educational bursary for one of their members to complete a study project
- The Cotton CRC developed a new policy to provide a $1500 publication bonus for PhD students who submitted and had accepted a scientific paper to a recognised scientific journal.

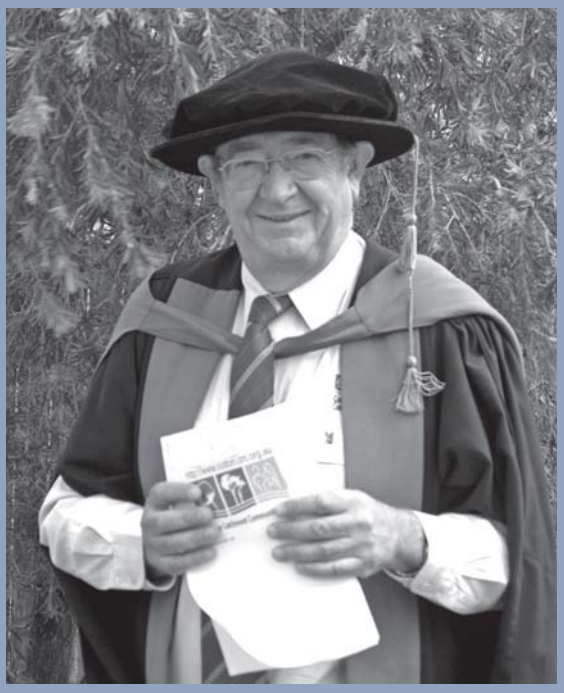
The Farm

- A new project with Monsanto was established, in which a PhD student will investigate the mechanisms by which non-resistant larvae can survive on Bollgard® II cotton and to determine whether current economic thresholds are appropriate for these survivors
- A collaborative project was developed with the Polymers CRC and the CRC for Irrigation Futures to explore new products for reducing the significant evaporative losses from water storages
- A new Cotton CRC farming systems scientist was appointed to study the interactions between soil, water, nutrients and varieties, with an emphasis on high-yielding cotton farming systems that are resilient to climate variability and change
- NORpak, a new publication guiding cotton production methods in Northern Australia, was launched by the Western Australian Chief Scientist Professor Lyn Beazley at the CRC Association Conference in Perth
- A new project was established to investigate the potential of farming cotton in the Burdekin region.

COTTON CRC CHIEF SCIENTIST INAUGURAL LECTURE

Professor Peter Gregg's inaugural lecture as a Professor at The University of New England in early 2006 provided a detailed and personal account of the growth of the Australian cotton industry.

Throughout Peter's 40 year involvement with the cotton industry, he has made significant contributions through his work as an agricultural entomologist.



Professor Peter Gregg is the Cotton CRC's Chief Scientist

PRIZES

Dr Sharon Downes was awarded an Australian Government 2006 Science and Innovation Award for Young People in Agriculture, Fisheries and Forestry. Sharon is conducting a Cotton CRC research project entitled 'Mortality of *Helicoverpa* in Bollgard II® cotton fields and implications for *Bt* resistance management.'

Sam Buchanan, of The University of NSW, working on a Cotton Catchment Communities CRC water project, was named the 2006 Water Forum CRCs "Young Water Scientist of the Year". Sam had earlier completed his PhD on 'The hydrological impacts of irrigation in the Bourke district' in 2005 under the Australian Cotton CRC.

Sharon Downes receives her award from the Minister for Fisheries, Forestry and Conservation, Senator the Hon. Eric Abetz

Cotton CRC water scientist, Sam Buchanan

The Catchment

- An on-ground incentives project was developed by the Cotton CRC and the Namoi CMA. Through this partnership, a total of $782 500 is available to assist cotton growers in the Namoi Catchment to undertake a range of on-ground works which help achieve catchment targets, such as riparian management, re-vegetation of native vegetation and water management
- A scoping study of river flow measurements by researchers at the National Centre for Groundwater Management, University of Technology, Sydney, led by Dr Bryce Kelly, was released
- *Birds on Cotton Farms*, a book released in June 2006, has proven to be extremely popular and a further 1000 copies were printed to keep up with demand
- Groundwater scoping studies were completed in the Namoi.

The Community

- A Schools-Based Traineeship project was developed with CRDC and the Aboriginal Employment Strategy: a new and exciting project which will foster greater engagement between the indigenous community and the cotton industry
- A report on climate change and its likely impact on cotton communities was released
- Three scoping studies were released, focusing on a number of issues relevant to cotton communities: Socioeconomic Indicators, Natural Resource Governance and Socioeconomic Sustainability of Cotton Catchments Communities through Aboriginal Participation.

The new user-friendly website www.cotton.crc.org.au was launched at the Australian Cotton Centre in Narrabri. *Left to right,* David Larsen, Yvette Cunningham, Loretta Clancy, Letitia Cross and Guy Roth

The Product

- A new project was established to examine the glass transition threshold of cotton fibres in relation to temperature and moisture
- A novel instrument, SIROMAT, has been developed by the CSIRO for measuring the maturity of cotton fibres and separating this parameter from fibre fineness.

Operational Risks and Impediments

The Australian cotton industry faces significant challenges in relation to the drought. The lengthy dry phase shows no signs of abating and has severely reduced cotton production. The continuing drought means the outlook for 2007–08 is not bright, with a predicted planting area of 55,000 hectares. This is an 85 per cent reduction on the previous ten year average and the lowest planting for 20 years.

The Board and Management have been modelling various drought scenarios and reviewing the financial position. Many projects will need their objectives adjusted as a result of a lack of suitable field sites. Many adoption strategies and projects will also be hampered by this, as farmers do not have the cash or motivation to make changes in a time of drought.

Along with the difficulties caused by the drought, drought, there have also proved to be some positives for the Cotton CRC. Growing ‘more crop per drop’ is a key Cotton CRC goal, with $17 million invested in the first three years into projects exploring increased water savings and efficiency. However, the urgency of this national crisis has now attracted additional funds for research in this priority area.

Website launch

This year saw the launch of the new and exciting Cotton CRC website www.cotton.crc.org.au. The website has been restructured to reflect the interests and needs of the varying Cotton CRC audiences and now has dedicated sites for Industry, Catchment and the Communities. Having three separate web domains allow us to provide our key audiences with relevant up-to-date information specific to them. The website contains a wealth of information including researcher and extension staff profiles, final reports, brochures, fact sheets and case studies and links to relevant Cotton CRC partners and affiliates, catchment bodies and community organisations.

CONTEXT AND MAJOR DEVELOPMENTS DURING THE YEAR

Industry Context

Approximately two-thirds of Australia's cotton is grown in New South Wales, with the remainder produced in Queensland. Major production in New South Wales starts at the McIntyre River on the Queensland border and encompasses the Gwydir, Namoi and Macquarie valleys in the north. Cotton is also grown along the Barwon and Darling Rivers in the west and the Lachlan and Murrumbidgee rivers in the south. In Queensland, cotton is grown mostly in the southern regions of the Darling Downs, as well as St George, Dirrinbandi and the McIntyre Valley. The remainder is grown near Emerald, Theodore and Biloela in Central Queensland. The Cotton CRC is also trialling cotton production in the Burdekin region of North Queensland and the Ord River in Western Australia.

The Australian cotton industry continues to face major challenges in production, with recent years seeing a decline in area allocated to cotton. Cotton production peaked in 1998–99 with 562,000 hectares sown. This compares with only 335,000 hectares planted in 2005–06 and 142, 000 hectares last season (2006–07): the lowest crop area planted in Australia for 24 years.

Consequently, the 2006–07 cotton crop harvest was down 50 per cent on the previous year's 598,000 tonnes (2005–06) to 295,100 tonnes or 1.3 million (227 kilogram) bales. The average Australian lint yield for 2006–07 season was excellent, at 9.15 bales per hectare. This was a record yield and three times the world average.

The continuing drought and lack of rain is likely to limit plantings in the 2007–08 season, with estimates of around 55,000 hectares. This is an 85 per cent reduction on the previous ten year average. The Cotton CRC believes it will be able to meet its objectives; however, should these conditions continue, it obviously will be very challenging.

Australia's cotton is all exported, predominantly to China, Indonesia, Japan and Korea. Cotton remains the world's preferred natural fibre. Fibre quality is paramount to the industry's continuing success. The Cotton CRC is devoting considerable resources to ensure Australian cotton quality retains its market position.

New key staff: Paula Jones, Yvette Cunningham and Kate Lightfoot

Major Developments

This was the second year of operation for the Cotton CRC, so much of the focus has been on consolidation of existing projects.

Organisational Highlights

- The Cotton CRC has reviewed its strategic direction, resulting in an amended Executive Summary Strategic Plan 2006–2012. New copies were distributed to our stakeholders and it is available on our website www.cotton.crc.org.au
- New sub-program leaders were appointed
- 160 projects across the five programs are under way
- The Cotton CRC restructured, redesigned and re-launched a new website, www.cotton.crc.org.au
- The Cotton CRC held its first Science Forum in August 2006, just prior to the Australian Cotton Conference
- National Extension Priority Teams for Soil and Disease, Water, Nutrition and Fibre Quality, and Crop Protection – Insect and Weeds were established
- Additional research funds were attracted to the Centre for new projects with the Australian Greenhouse Office, Monsanto Ltd, the Condamine Alliance, Queensland Murray Darling Committee, Borders Rivers-Gwydir CMA, National Water Commission, Central West CMA, SACOA Pty Ltd and Land and Water Australia
- Discipline groups were established in areas such as cotton nutrition, water and Integrated Pest Management (IPM)

Key Staff Appointments

Dr Paula Jones was appointed as the new Program Leader for Catchment and Communities. These programs focus on research, information delivery systems, decision support tools, and technical support to deliver sustainable ecosystems and reduce the impact on cotton catchments and communities.

Yvette Cunningham was appointed as the Communications Officer. This new role will see the development and implementation of a communications plan which builds stronger links between the Cotton CRC, its partners, industry, catchment and community groups.

Kate Lightfoot was appointed as the Namoi BMP Implementation Officer. She works with Namoi cotton growers to identify and manage environmental issues through the implementation of the BMP program, particularly the Land and Water Management module.

FINANCIAL HIGHLIGHTS

Revenue

The Cotton CRC's revenue is drawn from a number of sources, including $4 million from the Australian Government Department of Education, Science and Technology (of which 0.9 million is unallocated to current projects and shown in the Balance Sheet as Deferred Income) and partner cash contributions which, including interest, totalled $5.7 million. Other income from external investors was $1.3 million.

Total cash income was $10.2 million and in-kind investments in projects totalled $18 million, making total revenue for 2006–07 of $**28.2** million

Income has risen some on the previous year due to the ramping up of CRC activities and the success of the Cotton CRC in attracting additional project investments.

Expenditure

Total expenditure for 2006–07 was $28.1 million.

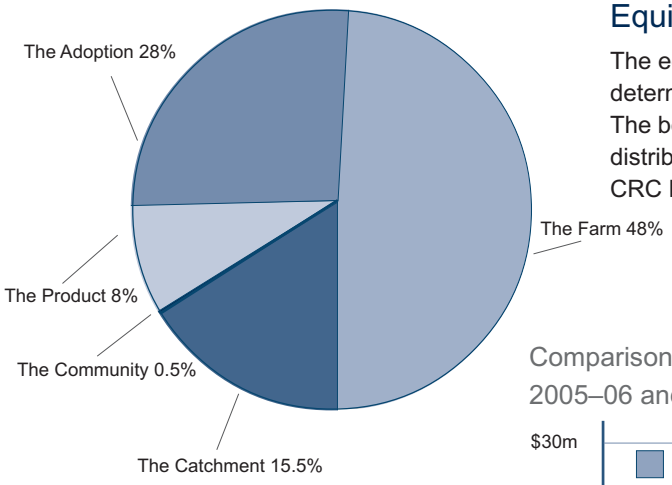
Research expenditure on the Cotton CRC's five research programs was $26.9 million, which represented 96 per cent of the overall expenditure for the year. Other areas of expenditure included employee wages, administration and operational expenditure.

The top graph shows that 48 per cent of program expenditure is allocated to The Farm research program, 28 per cent to The Adoption program, 16 per cent to The Catchment program, and 8 per cent to The Product program. Community program expenditure is forecast to grow considerably in 2007–08, as the Cotton CRC has commissioned new projects in this program.

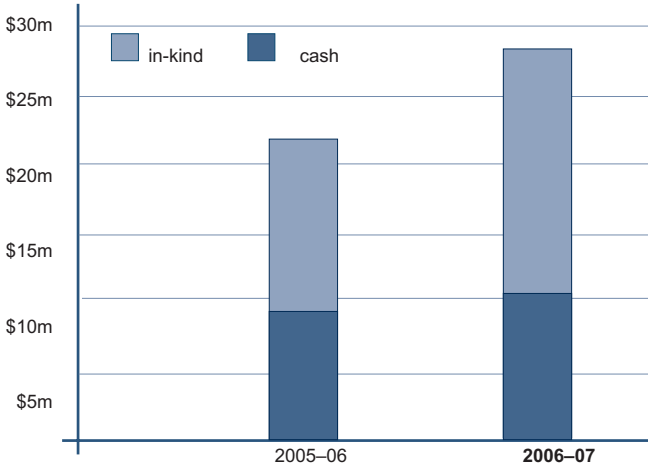
Equity of Core Participants

The equity of participants in the Cotton CRC is determined by both cash and in-kind contributions. The bottom graph shows the participants' equity distribution in the Cotton Catchment Communities CRC Ltd company as of the 30 June 2007.

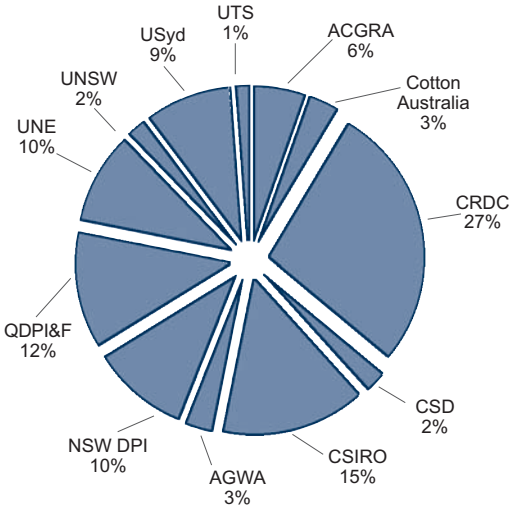
R&D Expenditure by Research Program 2006–07



Comparison of Cotton CRC in-kind and cash income for 2005–06 and 2006–07



Equity of Core Participants



NATIONAL RESEARCH PRIORITIES

The National Research Priorities and their associated priority goals were released by the Prime Minister in December 2002 and refined in 2003. They address areas of strength, opportunity or need in Australian research and assist in promoting, coordinating and implementing the national research effort.

Table 1, below, shows the contribution the Cotton Catchment Communities CRC research and development programs and projects make to the National Research Priorities by addressing one or more of their goals. The National Research Priorities are:

A An environmentally sustainable Australia

B Promoting and maintaining good health

C Frontier technologies for building and transforming Australian industries

D Safeguarding Australia

Table 1 National Research Priorities and CRC Research

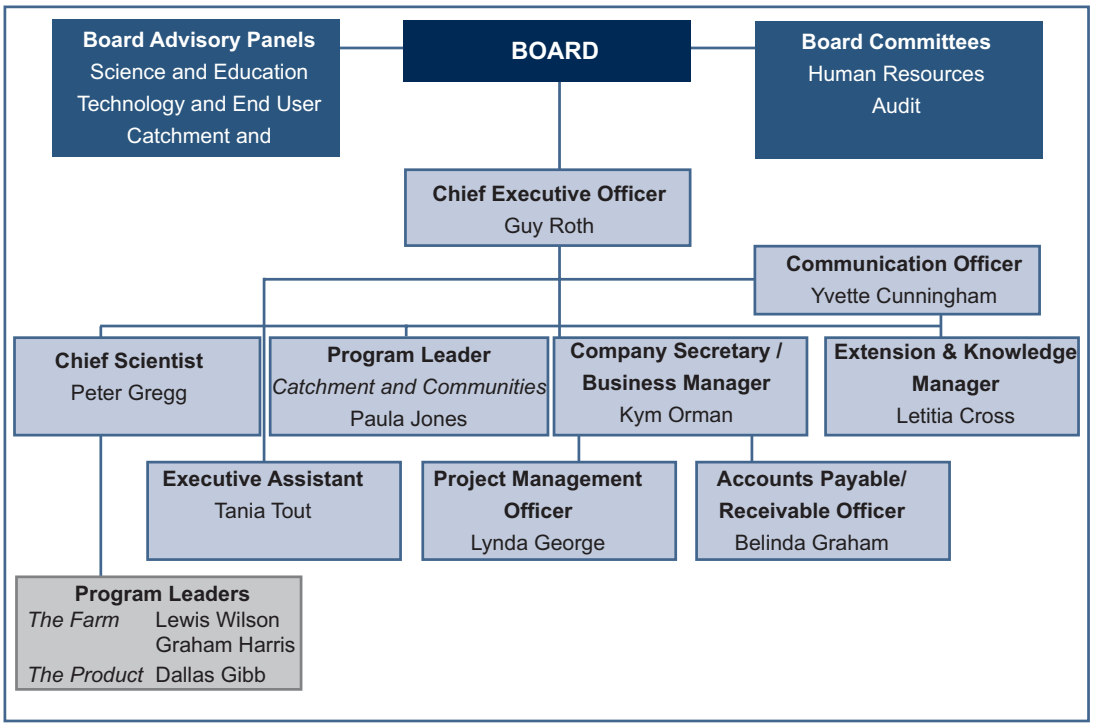
NATIONAL RESEARCH PRIORITIES	CRC RESEARCH (%)
An environmentally sustainable Australia	
Transforming the way we use our land, water, mineral and energy resources through a better understanding of environmental systems and using new technologies	
Water – a critical resource	15
Overcoming soil loss, salinity and acidity	5
Sustainable use of Australia's biodiversity	10
Responding to climate change and variability	5
Promoting and maintaining good health	
Promoting good health and preventing disease, particularly among young and older Australians	
Strengthening Australia's social and economic fabric	5
Frontier technologies for building and transforming Australian industries	
Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research	
Frontier technologies	10
Smart information use	5
Promoting an innovation culture and economy	5
Safeguarding Australia	
Safeguarding Australia from terrorism, crime, invasive diseases and pests, and securing our infrastructure, particularly with respect to our digital systems	
Protecting Australia from invasive diseases and pests	20

GOVERNANCE and MANAGEMENT

ABOUT THE COTTON CATCHMENT COMMUNITIES CRC

The Cotton Catchment Communities CRC (Cotton CRC) is an incorporated company limited by guarantee. It is subject to Corporations law and has an independent, skills-based Board with an independent Chair.

Company Structure



Cotton CRC staff: Lynda George, Belinda Graham, Tania Tout, Guy Roth, Kym Orman, Kate Lightfoot and Yvette Cunningham

PARTICIPANTS

The Cotton CRC consists of 12 core partners and 36 affiliate partners. These participants give the Cotton CRC a local, as well as a national, focus. The partnerships, which include Research and Development providers, industry, catchment and community organisations, enhance the Cotton CRC's ability to deliver outcomes to a wide range of end-users across Australia. The Cotton CRC's partners have committed significant funding, resources and expertise to the Cotton CRC's research, education and extension agenda.

Participants and Company Members

Industry

Australian Cotton Growers Research Association
Cotton Seed Distributors Ltd
Cotton Australia Ltd
Cotton Research and Development Corporation

Australian Government

CSIRO

State Governments

Department of Primary Industries, New South Wales
Department of Primary Industries and Fisheries, Queensland
Department of Agriculture and Food, Western Australia

Universities

The University of New England
The University of New South Wales
The University of Sydney
University of Technology, Sydney

Affiliate Partners

Industry

Australian Cotton Shippers Association
Aboriginal Employment Strategy Ltd
Ag Biotech Pty Ltd
Aquatech Pty Ltd
Boyce Chartered Accountants
Conservation Farmers Inc
Cotton Consultants Australia
Dunavant Enterprises Pty Ltd
Grains Research and Development Corporation
Incitec Pivot Ltd
Monsanto Australia Ltd
Orica Ltd
Queensland Cotton Ltd
SunWater
Telstra Country Wide Ltd
Terrabyte Services

Universities

The Australian National University
Central Queensland University
The University of Queensland
Charles Sturt University

Education Centres

Australian Cotton Trade Show Ltd
Australian Cotton Exhibition Centre Ltd
International Fibre Centre

Regional Natural Resource Management Bodies and NGOs

Condamine Alliance
Namoi CMA
Greening Australia

Local Government

Narrabri Shire Council
Narromine Shire Council
Inverell Shire Council
Millmerran Shire Council
Warren Shire Council

State Government

NSW Department of Water and Energy
Queensland Natural Resources & Water

Regional Media

Greenmount Press Ltd
Rural Press Ltd
The Courier Group Ltd

THE GOVERNING BOARD

The role of the Board is to govern the company, acting in the best interests of the company as a whole. The Board is responsible for optimising the company's agreed outputs and outcomes as defined by the members and for maintaining the operating values and principles set by the members.

In carrying out its governance role, the main task of the Board is to drive the performance of the Company to achieve its research outcomes. The Board also ensures the Company complies with its contractual, statutory and other legal obligations, including the requirements of regulatory bodies. The Board has the ultimate responsibility for the successful operations of the Cotton CRC.

The eight directors were appointed to the Cotton CRC Board by the shareholders. Our Board represents a range of expertise including research and development management, commercialisation and IP management, education and training, finance and business management, cotton growing and marketing, Catchment and Communities interest, natural resource management, and corporate governance.

The members have supported an incorporated company subject to tax, where the Intellectual Property (IP) will be held by the Cotton CRC Ltd on behalf of the members, with each member's ownership being proportional to their cash and in-kind valuations except where projects or IP are identified and approved as discrete IP. In that case, ownership needs to be restricted to identified providers or owners of the IP.

The Board met five times throughout 2006–07. In addition, the Board Committees met several times during the year as outlined in the attendance table at the bottom of the page.

Board Meetings 2006–07

Meeting Date	Location
28 July 2006	Sydney (Cotton Australia)
25–26 October 2006	Armidale (UNE)
24–25 January 2007	Sydney (UNSW)
26–27 April 2007	Brisbane
21 June 2007	Teleconference

Attendance at Board meetings and Board Committee meetings

	Directors' Meetings		Board Committee Meetings			
			Audit Committee		*Human Resources Committee*	
	Number eligible to attend	Number attended	Number eligible to attend	Number attended	Number eligible to attend	Number attended
Mr David Anthony	6	6	–	–	4	4
Mr John Herbert	6	6	–	–	4	4
Mr Stuart Higgins	6	6	–	–	4	4
Mr Bruce Finney	6	5	4	4	–	–
Dr Gary Fitt	6	5	–	–	–	–
Ms Kathryn Adams	6	5	4	4	–	–
Ms Helen Scott-Orr	6	5	4	4	–	–
Ms Dianne Bentley	6	6	–	–	4	4

Board of Directors

Mr. David Anthony (Chair)
BSc Ag

David Anthony has 30 years background of Science in Agriculture. In the past he has been Vice Chairman of the Australian Cotton Growers Research Association Inc 15 years, Treasurer/Vice Chairman Cotton Seed Distributors Ltd nine years, Director Cargill Australia seven years, Director/ Vice Chairman Cotton Research and Development Corporation nine years, Member Australian Institute of Company Directors, Chairman/Managing Director of Auscott Limited.

Mr John Herbert (Deputy Chair)

John Herbert has had a lifetime of experience in agribusiness at Chief Executive Officer and Director level. This had included significant experience in research management and commercialisation in the private and public sectors. He has a strong interest in and a practical approach to effective corporate governance. John is a fellow of the Australian Institute of Company Directors and of the Australian Institute of Management. He has served on the Board of RIRDC and Golden Casket Lottery Corporation and as Chair of the Rice CRC and the CRC for Tropical Plant Protection. In addition to his role on the Cotton CRC Board he is Chair of the Right Mind Pty Ltd.

Mr Stuart Higgins
BSc Ag, GRAD CERT Cotton Production (UNE)

Stuart Higgins operates a Best Management Practices irrigated cotton and grain property on the Darling Downs in Queensland. He has been recognised for his work on irrigation water use efficiency improvements and for establishing initiatives for engaging the wider community in complex agricultural issues mainly through ABC Radio National. He has consulted in Asia, Africa and Central Asia for various NGOs on irrigation infrastructure assessments and agricultural value chain analysis. He is a graduate of the Vincent Fairfax Ethics in Leadership Programme, Chair of the Australian Cotton Industry Council's Best Management Practices Advisory Panel and of the Cotton CRC's Technology and End User Panel and member of the Human Resources Sub-Committee.

Mr Bruce Finney
BSc Ag

Bruce Finney has extensive experience in the agricultural sector. Prior to his appointment as Executive Director of CRDC, he worked for Twynam Agricultural Group in various roles, including Company Agronomist, Regional Manager of the Central Region and Natural Resource Management Coordinator. He is a past Chair of the Australian Cotton Growers Research Association (ACGRA), a graduate of the Australian Rural Leadership Program and of the Company Directors Course of the Australian Institute of Company Directors.

Cotton CRC Directors and CEO, *left to right*: Dr Gary Fitt, John Herbert, Kathryn Adams, Guy Roth, Helen Scott-Orr, Bruce Finney, Di Bentley, Stuart Higgins and David Anthony (Chair)

Dr Gary Fitt
BSc (Hons), PhD, ATSE, AICD

Dr Gary Fitt has extensive experience in the science agricultural sector. Prior to his appointment as Senior Principal Research Scientist and Deputy Chief, CSIRO Entomology he was the Strategy Director of CSIRO Entomology, Chief Executive Officer for the Australian Cotton CRC and a Program Leader Cotton CSIRO Plant Industry. Gary is a fellow of the Royal Entomological Society of London, Australian Entomological Society, British Ecological Society and the Academy of Technological Sciences and Engineering.

Ms Kathryn Adams
B.Sc. Agr (Hons), M.Env Stud, M.Bus, LLM, Diploma AICD

Kathryn Adams' expertise encompasses intellectual property, corporate governance, R&D investment, business development and environmental management.

Ms Helen Scott-Orr
BVSc (Hons), Dip.Bact. (Lond.), MACVS (Epidem.), FAICD

Helen Scott-Orr has extensive experience and interest in agriculture and veterinary research, policy, extension and education, especially relating to biosecurity and sustainability, as well as corporate governance of CRCs and similar alliances. Member of the Audit Committee. Elected Board representative of Queensland Department of Primary Industries and Fisheries, NSW Department of Primary Industries and Western Australian Department of Agriculture.

Ms Diane Bentley
B Sc Agr, GAICD

Diane Bentley has extensive expertise and interest in sustainability issues in relation to agriculture and natural resource management, policy development, along with research and development investment. Assistant Commissioner, Natural Resources Commission of NSW; Director, Land & Water Australia; Deputy Chair, GRDC Northern Panel; Member, CB Alexander Foundation.

Board Sub-Committees

Human Resource Committee

John Herbert (Chairperson)
Stuart Higgins
Dianne Bentley
David Anthony

The HR Committee is responsible for making recommendations for the selection and maintenance of appropriate personnel, entitlements and environments in order to achieve Cotton CRC goals.

Finance & Audit Committee

Kathryn Adams (Chairperson)
Bruce Finney
Helen Scott-Orr
Des Boucher (Independent Non-Board member)

The Finance and Audit Committee is responsible for reviewing the integrity of the Company's financial reporting and overseeing the independence of the external auditors, ensuring the best practice Governance standards are identified and recommended.

Specialist Advisory Panels

The Board has established three advisory panels: Science and Education, Technology and End Users, and Catchment and Communities. The panels consist of representatives from core participants and affiliate partners, as well as independent members with interests and skills in these areas. The panels are responsible for advising the Board and management on research and utilisation opportunities, resource allocation, emerging technical issues, opportunities for commercialisation and collaboration.

Science and Education Panel

Dr Gary Fitt	(Chairperson)
Bruce Pyke	CRDC
Dr Greg Constable	CSIRO
Dr David Murray	QDPI&F
Assoc. Prof Robin Jessop	The University of New England
Prof Henry Nix	ANU CRES
Dr Phil Price	Mackellar Consulting Group Pty Ltd
Dr Bob Martin	NSW DPI
Dr Stephen Allen	Cotton Seed Distributors
Prof Alex McBratney	The University of Sydney
Mr Lyndon Mulligan	ACGRA

Technology and End User Panel

Stuart Higgins	(Chairperson)
Dave Moore	Monsanto
David Conners	CRDC
Andrew Watson	Cotton Australia
Tony Geitz	Australian Cotton Shippers Association
Dr Geoff Naylor	CSIRO TFT
Geoff McIntyre	QDPI & F
Dave Kelly	ACGRA
Amber Dimond	Cotton Consultants Australia Inc
Dr Steven Raine	Irrigation Futures CRC
David Dowling	Greenmount Press

Catchment & Communities Panel

Dianne Bentley	(Chairperson)
John Dunnett	The Courier Newspaper
Phil McCullough	Condamine Alliance
Gary Coady	NSW Department of Water and Energy
Ralph Leutton	Cotton Australia
Dr David Freebairn	QNRM
Hamish McIntyre	ACGRA
Peter Flottmann	NSW Farmers Association
Bruce Brown	Namoi CMA

Company Management Team

The day-to-day management of the Centre is the responsibility of the Company Management Team, (CMT), comprising the Chief Executive Officer, Chief Scientist, Business Manager and Program Leaders. The team meets monthly by telephone conference or physical site meetings.

Centre Forum

The Board receives strategic input and advice from the Centre Forum, which is made up of representatives of all partners and associated affiliates. This is a very important activity for communication and dialogue on key aspects of the Cotton CRC's progress, activities, commercialisation and other key issues as identified by the members, partners and Board.

Centre Forum Meetings 2006–07

Meeting Date	Location
7th August 2006	Broadbeach (13th Australian Cotton Conference)
26th April 2007	Brisbane

The Cotton CRC's Company Management Team: Lynda George, Lewis Wilson, Letitia Cross, Dallas Gibb, Peter Gregg, Guy Roth, Graham Harris, Kym Orman and Paula Jones

Cotton CRC Directors with senior management at the Auscott warehouse

Table 2 Specified Personnel

2.1 CEO and Governing Board Members		
Name	Organisation	COTTON CRC Position / Role
David Anthony	Independent	Chairman
John Herbert	Independent	Deputy Chair
Bruce Finney	Industry Participants group	Director
Dianne Bentley	Independent	Director
Dr Gary Fitt	Research providers group	Director
Kathryn Adams	independent	Director
Helen Scott-Orr	Government departments group	Director
Stuart Higgins	Independent	Director
Guy Roth	Cotton Catchment Communities CRC	Chief Executive Officer
2.2 Program Leaders		
Name	Organisation	COTTON CRC Position / Role
Professor Peter Gregg	Cotton Catchment Communities CRC	Chief Scientist
Dr Paula Jones	Cotton Catchment Communities CRC	Program Leader Catchment & Community
Letitia Cross	NSW DPI	Adoption Program Leader
Dr Lewis Wilson	CSIRO	Farm Program Leader
Dallas Gibb	CRDC	Product Program Leader
Graham Harris	QDPI&F	Farm Program Leader

RESEARCH PROGRAMS

RESEARCH ACTIVITIES AND ACHIEVEMENTS

PROGRAM 1: The Farm

Program Leaders

Prof Peter Gregg	Cotton CRC Chief Scientist
Graham Harris	QDPI&F
Dr Lewis Wilson	CSIRO

Sub-Program Leaders

Integrated Pest Management

Dr. Paul Grundy	QDPI&F
Dr David Nehl	NSW DPI

Plants and Soils

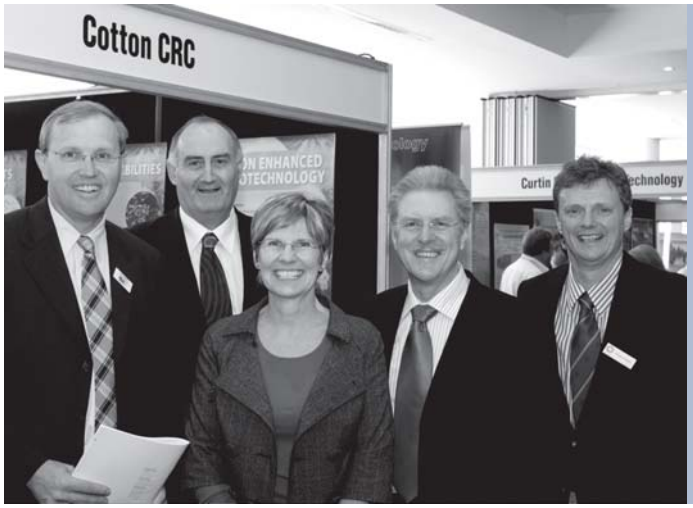
Stephen Yeates	CSIRO
Dr Inakwu Odeh	Sydney University

Water Use Efficiency

David Wigginton	NSW DPI

New Tools and Technologies

Dr Robert Mensah	NSW DPI



Guy Roth and David Anthony (Cotton CRC), Geoff Strickland (AGWA)and Stephen Yeates (CSIRO) with Western Australia's Chief Scientist, Professor Lyn Beazley, who launched the Cotton CRC's NORpak at the CRC Association Conference in Perth. Bringing together ten years of research results, NORpak will provide a blueprint for cotton production in northern Australia

PROGRAM HIGHLIGHTS

- Establishment of a new project with Monsanto in which a UNE PhD student will investigate the mechanisms by which non-resistant larvae can survive on Bollgard® II cotton, and determine whether current economic thresholds are appropriate for these survivors
- Development of a collaborative project with the Polymers CRC and the CRC for Irrigation Futures to explore new products for reducing the significant evaporative losses from water storages
- Initiation of two new projects focusing on the efficiency of nutrient utilisation in cotton, which will help improve yield and reduce risks of nutrient leaching or losses of the greenhouse gas Nitrous oxide to the atmosphere
- Appointment of a new farming systems scientist to study the interactions between soil, water, nutrients and varieties, with an emphasis on high-yielding cotton farming systems that are resilient to climate variability and change
- Magnet®, the Cotton CRC's award-winning moth attractant technology, continues to move towards commercialisation
- A new publication, NORpak, which is a blueprint for cotton production in northern Australia, was launched by the Western Australian Chief Scientist, Professor Lyn Beazley, at the CRC Association Conference in Perth
- Establishment of a new project investigating the potential of farming cotton in the Burdekin region.

The Cotton Catchment Communities CRC Farm Program conducts research to improve the productivity and sustainability of Australian cotton farming systems and contributes substantially towards the overall goal of adding $1 billion of additional benefits to its industry, catchments and communities.

The Farm goals are:

- Reducing pesticide use by 50 per cent through integrated pest management for insects, weeds and diseases
- Improving water use efficiency through a 20 per cent increase in cotton yield per megalitre of water supplied to farms
- Improving the efficiency of utilisation of applied nutrients by up to 15 per cent with comparable reductions in greenhouse gas emissions
- Developing and introducing at least two novel products which enhance crop management and profitability
- Developing cotton farming systems which have enhanced resilience and adaptive capacity to climate variability or change.

Research in the Farm Program has been the subject of intensive strategic planning at all levels from the Board to individual sub-programs during the year. An increased emphasis on climate change and its implications for cotton farming systems has been one outcome of this process. In particular areas, such as insect pest management and crop nutrition, strategic planning has defined priority research in some detail – a necessary response to resource limitations imposed by drought and other industry changes.

The program receives major support from CRDC, but there are also significant contributions from, and collaborative projects with, many large and small agribusiness enterprises including Monsanto, Incitec, Queensland Cotton, Cotton Seed Distributors, Ag

Sharon Downes, Trudy Staines and Judy Nobilo (CSIRO) inspect cages as part of a field experiment looking at the mortality of *Helicoverpa armigera* in a Bollgard II® landscape

New Cotton CRC Farming Systems Scientist, Dirk Richards (CSIRO), measures soil moisture with a neutron probe

Biotech, *Growth Agriculture*, Terrabyte, Aquatech and Sustainable Irrigation Systems. We also have partnerships with GRDC, Sunwater, the Condamine Alliance and Telstra.

This year has been marked by many research advances and new initiatives, despite the restricted production due to limited irrigation water. Yields in the cotton industry were as high as they have ever been, and quality was good.

Integrated crop protection

"the good guys and the bad guys"

Transgenic insect-resistant cotton (Bollgard® II) remains a central plank in the strategy of integrated pest management for insect pests. Reports of survival of *Helicoverpa* larvae in some crops led to the establishment of a new project with Monsanto, in which UNE PhD student, Baoqian Lu, will investigate the mechanisms by which apparently non-resistant larvae can survive on Bollgard®, and determine whether current economic thresholds are appropriate to prevent yield loss from these survivors. Green mirids, which are not controlled by Bollgard®, continue to present a challenge to pest management. Following surveys by Dr. Mary Whitehouse of CSIRO on current industry practices, improvement of IPM for mirids has been prioritised both as a focus for research on their ecology and selective control options and as a priority for the Insects team in the National Cotton Extension Insect and Weeds National Priority Team.

The dry conditions of the past year meant problematic diseases were less apparent. Nevertheless, in anticipation of a return to conditions more conducive to disease outbreaks, research continues at UNE on black root rot and considerable progress has been made in understanding the molecular biology of the plant-pathogen interaction, which may lead to new genetic and biological control methods. The cotton leaf curl virus does not occur in

Australia but, the vector of the disease, silver leaf whitefly, does. This disease has been identified as a major biosecurity threat, and the Cotton CRC helped fund a visit by researchers, agronomists and cotton growers to Pakistan, where the disease is a major problem, to improve the industry's preparedness for any outbreak of this potentially devastating disease.

Transgenic Roundup-Ready® cotton continues to have a major impact on weed management in Australian cotton. Previous Cotton CRC research has defined the place of Roundup Ready® cotton in integrated weed management, and the ways in which potential resistance to glyphosate can be avoided. Widespread adoption of this useful technology has led to changes in the weed complex in cotton farming systems. One of the weeds which is increasing in importance is fleabane, and a new PhD project has been funded to examine the ecology of this species.

Plants and soils

"growing it"

Grower surveys and strategic planning meetings conducted throughout the year have consistently indicated that growers see crop nutrition as a high priority. This is due to the increased fertiliser costs and increasing industry awareness of the contribution of fertiliser to greenhouse gas emissions of nitrous oxide (N_2O). In this situation, there is a clear need for research to understand and improve the efficiency of nutrient utilisation by cotton. The Cotton CRC has responded by developing two new research projects (Dr Ian Rochester, CSIRO and Dr. Nilantha Hulugalle, NSW DPI). One of these projects will appoint a new nutrition scientist to study the phosphorous (P) and potassium (K) nutrition of cotton, the two most frequently required fertilisers after nitrogen (N). There are also four new PhD projects at the University of Sydney, covering various aspects of soil health and plant nutrition.

The Cotton CRC has established a plant nutrition advisory group, led by Dr Chris Dowling of Nutrient Management Systems, to ensure that the research remains focused on priorities identified by both industry and researchers. This group has met on several occasions and provided specific advice to Cotton CRC management.

Fibre quality is increasingly a critical issue in the competitiveness of Australian cotton in international markets. Research in The Farm and The Product Programs is investigating the effect of agronomic management on fibre properties of cotton at the farm gate and exploring opportunities to manipulate this without negatively affecting yield. This knowledge is being captured in CSIRO's OZCOT cotton crop simulation model and in the Cotton CRC's FIBREpak publication, currently under development.

Water use efficiency

"more crop per drop"

Irrigation water allocations in the Murray-Darling basin have been severely curtailed in the last cotton season, and this appears likely to continue for the 2007–08 season. In these circumstances, improved water use efficiency is essential.

One project, led by Stephen Yeates (CSIRO), is providing the knowledge to improve water use efficiency by determining the water requirements of high-yielding transgenic varieties in which fruit retention is increased. This research is showing that the water use efficiency (bales per megalitre) of these varieties is at least equal to, if not better than, that of conventional cotton. Other Cotton CRC research aims to determine the extent of water losses through deep drainage, to investigate crop options in limited water situations and to improve irrigation recommendations by better defining how soil type and climatic conditions affect the cotton plant's response to moisture stress.

Cotton CRC Chief Scientist, Professor Peter Gregg, and John Cameron with Simon White and Jenelle Hare, who demonstrated their water use efficiency project in Dalby

Another highlight is research examining evaporation and seepage from on-farm storages. The Cotton CRC in collaboration with the Australian Cotton Grower's Research Association and other industry bodies successfully applied for a $1 million grant from the National Water Initiative to tackle this problem. These funds will be used to apply the latest monitoring techniques to quantify losses from storages in all cotton growing districts.

The Cotton CRC is also involved in a collaborative project with the Polymers CRC and the CRC for Irrigation Futures to develop new products for reducing evaporative losses from storages.

New tools and technologies

"improving the tool kit"

The aim of this sub-program is to develop novel tools which enhance productivity in the cotton industry, and which can be commercialised by participants to generate royalty flows to the Cotton CRC.

Research has concentrated on novel products for insect pest management, especially semiochemicals (chemicals used by insects to identify food or mates). Magnet®, the Cotton CRC's award-winning moth attractant technology, continues to move towards commercialisation. Obstacles in the regulatory process which necessitated reformulation of the product have now been overcome, and registration is expected in time for the 2007–08 season. Magnet® will be the first moth attractant based on synthetic plant volatiles in commercial use in the world.

Other semiochemical-based products are being developed through partnerships with *Growth Agriculture*, with whom a $500,000 agreement has been signed, with Native Fire Pty Ltd and with Cargill Pty. Ltd. A project developing fungal biopesticides for use against mirids and other pests has been established in partnership with CRDC and Becker-Underwood Pty Ltd.

Resilient farming systems
"adapting to change"

Cotton is rarely the sole cropping enterprise on cotton farms. It is usually grown in farming systems with other crops, notably grains and oilseeds. Current high prices for these crops, and limited irrigation water, mean that the viability of cotton farmers depends on the viability and sustainability of the systems in which cotton is grown. Strategic planning during the year identified climate variability and climate change as a major challenge to these systems. The Cotton CRC has responded by establishing a sub-program and several new projects.

A farming systems scientist has been appointed through CSIRO to study the interactions between soil, water, nutrients and varieties in high-yielding cotton farming systems. This research will also emphasise resilience and sustainability issues, especially in relation to green house emissions and efficiency of input use, including energy. The farming systems scientist will collaborate with a range of scientists, ensuring integration of their results, and seek input from industry in setting priorities and in establishment of cooperative research. Another project, with GRDC funding, has been established to determine the optimal agronomic approaches to producing high yielding irrigated grains within cotton farming systems. Linkages between this project and the farming systems scientist will ensure integration of outcomes. A new PhD project has been established through the University of Queensland to investigate the scientific basis of empirical observations of benefits from cotton-maize rotations.

Measuring greenhouse gases in the crop

The drought in the Murray-Darling basin has led to public discussion on the merits of expanding irrigation industries in northern Australia, where rainfall is predicted to increase in future. Cotton CRC research aimed at developing sustainable cotton farming systems in the north, especially in the Ord River Irrigation Area, has been summarised in a new Cotton CRC publication, NORpak, which was launched by the Western Australian Chief Scientist Professor Lyn Beazley at the Cooperative Research Association Conference in Perth in May 2007. NORpak was written by Cotton CRC scientists and the information it contains will assist government policy decisions in relation to agricultural development not only for the Ord, but for northern Australia generally.

In Queensland, interest has been expressed by sugar cane growers in cotton as an alternative crop in sugar farming systems in the Burdekin region, where water supplies are potentially abundant. There are a number of agronomic challenges associated with cotton in this region, and proximity to the Great Barrier Reef means that the requirements for environmental best practices are stringent. The Cotton CRC has responded to this by initiating a research project led by Dr. Paul Grundy of QDPI&F, and involving partnerships with Queensland Cotton, Sunwater, CSIRO, CSD and Monsanto.

All cotton farming systems, whether in traditional areas of southern Australia or new areas in the north, will be affected by climate change and climate variability. While the relationship between the current drought and the greenhouse effect is not clear, our present situation underlines the need to develop cotton farming systems which are resilient in the face of both short and long term climatic shifts. The Cotton CRC has conducted a scoping study, with funding from the Australian Greenhouse Office, which explores the greenhouse footprint of cotton, the vulnerability of the industry to climate change and some potential responses. This study will guide the development of projects in the new Resilient Farming Systems sub-program.

For* The Farm *Outputs and Milestones, see Table 3.1 on page 58.

PROGRAM 2 The Catchment

Author of *Birds on Cotton Farms,* Greg Ford, leads a group of 'twitchers' at a Birds on Cotton Farms field day, observing the diversity of bird life on-farm

Program Leader

Dr Paula Jones Cotton CRC

Sub-Program Leaders

Integrated management of river systems
Dr Glenn Wilson UNE

The dynamics and connectivity of groundwater systems
Assoc Prof Bryce Kelly UNSW
Prof Ian Acworth UNSW

Managing on-farm water storages for irrigation and environmental purposes
Prof Ivan Kennedy USyd

Managing biodiversity and ecosystem services on farms
Dr Alan House CSIRO

Integrated farm and catchment management resources
Dr Veronica Chapman QDPI&F

PROGRAM HIGHLIGHTS

- Appointment of the Catchment Program Leader and Sub-Program Leaders
- The program has 33 projects under way across a number of cotton growing regions in New South Wales and Queensland, including the Macquarie, Lachlan, Namoi, Border Rivers-Gwydir, Condamine and Queensland Murray Darling Commission catchment areas
- A number of projects are under way in the Gwydir, characterising river health and ecological responses to flow variability
- Professor Ivan Kennedy and his team have produced a number of publications: a book, fact sheets and articles, including *Rational environment management of agrochemicals: risk assessment, monitoring, and remedial action,* First Edition; *Calculation of pesticide degradation in decaying cotton gin trash; Pesticide removal from cotton farm tailwater by a pilot-scale ponded wetland.* A brochure, *Management practices to enhance ecosystem services,* was also produced within the program
- The completion and release of a study entitled 'A scoping study of river flow measurements'
- A successful application for additional funding from National Water Commission to develop a 3D geological and hydrogeological mapping and database tool for the Namoi Valley
- The development of an on-ground incentives project between the Cotton CRC and the Namoi CMA. Through this partnership, a total of $782 500 is now available to assist cotton growers in the Namoi Catchment to undertake a range of on-ground works, which help achieve catchment targets
- The book *Birds on Cotton Farms,* released in June 2006, has proven to be extremely popular. The response to this book was so successful that a further 1000 copies had to be printed to keep up with demand.

The Cotton Catchment Communities CRC Catchment Program aims to enable best practice cotton enterprises to deliver sustainable ecosystems and reduced impacts on catchments. This is being achieved by undertaking research in five key fields: river systems, groundwater, on-farm storages, and biodiversity and catchment management resources.

Two years into the Cotton CRC, the Catchment Program has really gathered momentum. There are now 33 research projects under way, including 14 PhD scholarships with more still being developed. These projects are spread across all five key research fields and a range of cotton growing regions in both New South Wales and Queensland. More importantly, many of the projects bring together a number of different research and investment partners from industry, catchment bodies, State and Federal Government agencies, research institutes and community organisations. This collaboration has led to the establishment of very valuable partnerships and research projects, which will make a significant contribution to the management of natural resources in these cotton catchments.

This year saw the appointment of the full-time Program Leader and Sub-Program leaders. An inaugural Sub-Program Leaders' meeting was held at the University of Technology, Sydney, in March 2007. The meeting was an opportunity for leaders to meet, gain a greater understanding of the structure and research within the program and provide some valuable input into the revision of the Program's strategic direction.

Integrated management of river systems

The management of river systems supporting cotton catchments is an important issue, yet our knowledge regarding the health and management of these systems is limited, especially in terms of managing environmental flows and identifying indicators of riparian health. By 2012, the Cotton CRC aims to have characterised river health and ecological responses to flow variability in two key floodplain catchments and will have assisted catchment bodies to develop science-based riparian health indicators. A number of projects are under way in the Gwydir to address this goal and more will be developed in a second catchment area in the near future.

Dr Glenn Wilson and his team from the University of New England are undertaking the largest project in the Gwydir wetlands, recognised as one of Australia's most significant wetlands sites. Their project, entitled 'Managing environmental flows in an agricultural landscape: the Lower Gwydir floodplain,' aims to determine the flow requirements of streams and terminal wetlands on the Lower Gwydir floodplain, develop recommendations for future flow management and provide managers with a model to guide the effective management of lows to maximise environmental outcomes. This three-year project is funded through the Australian Government Department of Environment and Heritage with contributions and support from the Border Rivers-Gwydir CMA, ACGRA, NSW Department of Water and Energy, NSW DPI and the Cotton CRC. The project has recently completed its first full sampling season and has already developed a draft conceptual model.

This year also saw the completion and release of a study entitled 'A scoping study of river flow measurements', which was undertaken by researchers at the National Centre for Groundwater Management, University of Technology, Sydney and led by Dr Bryce Kelly. The study was commissioned due to concerns regarding the accuracy of river flow measurements in some cotton catchments. Making management decisions associated with environmental flows is difficult and the problem is compounded by uncertainties in flow measurement.

Dr Martin Andersen (UNSW) takes water measurements as part of a groundwater study in the Namoi that has established new data on the relationships between surface water and groundwater

Cotton CRC Program Leader for The Catchment, Dr Paula Jones, addresses representatives from catchment bodies, irrigators' associations, Government and industry at the Groundwater Day held at the Australian Cotton Research Institute

This scoping study undertook a review on how flows are currently being measured, the problems associated with the measurements and the research that is being undertaken, both in Australia and overseas, to improve measurements.

The dynamics and connectivity of groundwater systems

Our knowledge of water quality and quantity in groundwater systems is critical for sustainable management. For many catchments, models that characterise the movement of water and the sustainability of water allocation vary in quality and input data. These factors, coupled with the continuation of the drought, have highlighted the need for much more research and made groundwater management an important issue in many cotton catchments.

To address this, the Cotton CRC aims to benchmark current groundwater conditions in a number of cotton catchments and improve the reliability of aquifer recharge modelling by at least ten per cent. This is a large undertaking but we now have a number of projects in place to deliver on this goal by 2012.

Groundwater Scoping Studies, undertaken by researchers at the National Centre for Groundwater Management, University of Technology, Sydney and led by Prof Noel Merrick, are making a significant contribution to this goal. The Scoping Studies have been undertaken across a number of cotton growing regions in New South Wales and Queensland, including the Macquarie, Lachlan, Namoi, Border Rivers-Gwydir, Condamine and QMDC catchment areas. The studies have reviewed current measures of aquifer sustainability, identified areas of concern with respect to the existing groundwater models, highlighted those geographic regions requiring further investigation and made recommendations on future research requirements.

The Cotton CRC has also initiated a consultation process in association with the release of these reports. Representatives from catchment bodies, irrigators associations, Government and industry have been asked to comment on the draft reports. A number of meetings have been held with these representatives to discuss the reports findings, establish the key research priorities for each region and to identify opportunities for future collaborative projects addressing these priorities. Copies of the scoping reports are available on the Cotton CRC website.

Another highlight that will make a significant contribution to this sub-programs goal is that being undertaken by Professor Ian Acworth and his team at the University of New South Wales. The project, entitled 'Development of 3D Geological Mapping and Database Interface to Support Interconnected Groundwater and Surface Water Management,' is a collaboration between the Namoi CMA, National Water Commission and Cotton CRC.

This project is unique, in that it aims to develop a 3D geological and hydrogeological mapping and database tool that can support management decisions concerning water allocation in areas where significant surface water and groundwater resources are located.

Managing on-farm water storages for irrigation and environmental purposes

Managing and maintaining water quality is an important issue on cotton farms. High water quality brings both production and environmental benefits. By 2012, the Cotton CRC aims to establish baselines for on-farm water quality and develop remediation processes with the capacity to deliver both farm and catchment benefits.

A new project established this year to address this sub-program goal is entitled 'Development of bioremediation enzymes for residues of diuron metabolites'. The research team is being led by Dr Robyn Russell from CSIRO – Entomology and involves funding support from Orica Australia Pty Ltd and the Cotton CRC. CSIRO – Entomology and Orica Australia Pty Ltd have been developing enzymatic bioremediation technology for reducing/removing pesticide residues in waste water streams from a range of agricultural production and processing industries. The most advanced enzymes in this technology (for OPs and certain pyrethroids) are now being commercialised by Orica under the label Landguard™. This project contributes to the overall technology by developing an enzyme that would degrade toxic metabolites of phenylurea herbicides like diuron. This is a three year project and despite being in its initial phase is already well ahead of schedule and making good progress.

The presence of water storages on cotton farms can also provide important habitat for a range of aquatic species. Susan Lutton, a PhD student at Griffith University, has nearly completed a study examining the diversity of aquatic species present in water storages in the Border Rivers regions. The study aims to characterise the aquatic biodiversity of water storages, describe the aquatic communities present in these storages, and understand the flow patterns that may enhance their abundance and diversity. Despite the difficulties associated with the drought, Susan has made some interesting findings and an information sheet outlining these results is available on the Cotton CRC website.

Another highlight this year has been the numerous publications produced by Ivan Kennedy, Angus Crossan and their team at the University of Sydney, based on the research findings from their projects with CRDC and the Cotton CRC. Their publications include the book *Rational Environment Management of Agrochemicals: Risk Assessment, Monitoring, and Remedial Action,* First Edition, which is currently in press. The manuscript, *Calculation of Pesticide Degradation in Decaying Cotton Gin Trash* has been accepted for publication in the Bulletin of Environmental Contamination and Toxicology. A second publication regarding the risk assessment of pesticides in gin trash is almost complete and will be submitted shortly and a journal article entitled 'Pesticide removal from cotton farm tailwater by a pilot-scale ponded wetland' by Michael Rose, Francisco Sanchez-Bayo, Angus Crossan and Ivan Kennedy (project 2.03.05) has been accepted for publication in the journal 'Chemosphere'.

Managing biodiversity and ecosystem services on farms

Biodiversity is essential to the health and function of farms and cotton catchments. It provides important ecosystem services through controlling pests and diseases, pollinating plants and recycling nutrients, to name just a few benefits. This sub-program aims to develop best practice techniques and guidelines to enable cotton industry and catchment bodies to better assess, manage and monitor biodiversity and ecosystem services in cotton catchments.

The first year of the Cotton CRC saw a number of projects established to address this goal in the Macquarie, Namoi and Border Rivers-Gwydir.

This year has seen the development of another project entitled 'Healthy Cotton Catchments' with a focus in the Condamine and Queensland Murray Darling Commission (QMDC) catchment areas. The project is led by Dr Alan House of CSIRO Sustainable Ecosystems and is a collaborative project involving researchers from CSIRO Entomology and the University of Queensland. Condamine Alliance, QMDC, Land and Water Australia and the Cotton CRC are providing financial support.

This project will undertake a number of investigations, including how cotton farms can preserve biodiversity (including insects, birds and bats) by managing patches of native vegetation; how insects and other animals that contribute to pest control move from native vegetation into cotton and other crops; explore the consequences of different vegetation management options; and recommend best practice for cotton farmers and catchment managers. This research will provide a scientific underpinning for the design of cotton properties that follow best management practice for enhanced ecosystem services and will also assist catchment bodies manage for biodiversity outcomes.

Alan House (CSIRO) explains his healthy cotton catchment project at one of his field sites in the Condamine region

Integrated farm and catchment management resources

This sub-program aims to develop a set of farm and catchment information resources and tools that are consistent with good science, best practice, practical adoption and catchment goals. To achieve this, the Cotton CRC is working with industry, catchment bodies and researchers to develop and implement a number of projects.

A highlight this year has been the development of an On-ground Incentives project between the Cotton CRC and the Namoi CMA. Through this partnership, a total of $782 500 is now available to assist cotton growers in the Namoi Catchment to implement a range of on-ground activities in the areas of native vegetation conservation, improved riparian health and sustainable farming. Stacey Spanswick and Jane MacFarlane (Namoi CMA/Cotton CRC) led this project and are working with cotton growers to develop a range of projects which will deliver on a

number of catchment targets. This project has been well received by growers and on-ground activities on several farms have already commenced, with some of the specific project targets likely to be exceeded.

Birds on Cotton Farms, released in June 2006, has proven to be extremely popular. A further 1000 copies had to be printed to keep up with demand and a number of field days held in the Namoi valley were well attended. The momentum gained through the book will be further built on by the research project in the Namoi valley being undertaken by Evan Cleland of Birds Australia, South East Queensland. Evan is documenting bird species present on cotton farms and the habitat that they occupy and has found 138 species of birds. This project will help cotton growers understand the habitat value of native vegetation and provide tools and information to enable growers to assess, monitor and manage their native vegetation.

For* The Catchment *Outputs and Milestones, see Table 3.2 on page 64.

Jane Macfarlane (Namoi CMA), Paula Jones (Cotton CRC), Jim MacDonald (Chairman of Namoi CMA) and Kate Lightfoot (Cotton CRC). A highlight of The Catchment program this year has been the development of an on-ground incentives project between the Cotton CRC and the Namoi Catchment Management Authority, which aims to encourage vegetation conservation, riparian health and sustainable farming

PROGRAM 3 The Community

Program Leader

Dr Paula Jones Cotton CRC

PROGRAM HIGHLIGHTS

- Appointment of the Community Program leader
- Release of three scoping studies focusing on a number of issues relevant to cotton communities including Socio-economic Indicators, Natural Resource Governance and Socio-economic sustainability of cotton catchments communities through aboriginal participation
- Development of the Schools-Based Traineeship project in conjunction with CRDC and the Aboriginal Employment Strategy
- A report has been released on climate change and its likely impact on cotton communities
- The first Community program PhD project is underway
- Sponsorship of Wincott (the Women in Cotton network).

Helen Dugdale (CRDC) gives a presentation on the Schools-based Traineeship program, which will be piloted at the Australian Cotton Research Institute, beginning in 2008

The Cotton Catchment Communities CRC Community Program aims to enable mutually beneficial interactions between industry and regional communities. This is being achieved by undertaking research in three key fields: documenting the cotton industry's contribution to the economic and social fabric of cotton growing regions; identifying opportunities, and implementing strategies, which enhance the flexibility and resilience of these cotton communities; and identifying ways that community and industry can collectively contribute to natural resource management issues.

The last 12 months has seen much activity in the Community program including a revision of its strategic direction, the completion of a number of projects and the development of new projects.

A highlight of the year has been the completion and release of three scoping studies commissioned in the first year of the Cotton CRC. These focused on a number of issues relevant to cotton communities and developed recommendations for future research projects, that the Cotton CRC has now embarked on. Copies of the three scoping reports were provided to key stakeholders and are available on the Cotton CRC website.

The first report, entitled 'Scoping the Selection of Baseline Socio-economic Indicators for Cotton Communities' was undertaken by Tom Measham, Russell Gorddard (CSIRO Sustainable Ecosystems) and Richard Stayner (UNE). The report focused on the development of a set of economic and social indicators that could be used to track the condition of cotton communities over the life of the Cotton CRC and beyond.

The scoping report demonstrated that cotton communities face a number of challenges and the issues are often complex and regionally specific. Some issues are directly related to specific nature of the cotton industry, while other issues are similar to those facing much of rural Australia. For example, significant differences were found in the issues facing the Macquarie Valley towns of Warren and Narromine. The advent of Roundup Ready® cotton, coupled with reduced areas planted due to the very low allocations of surface water in recent years (and the absence of groundwater), has meant a large reduction in economic flows through Warren, especially in terms of the reduction for seasonal labour. By comparison, the availability of some groundwater, the lower relative share of cotton in

total agricultural production and the proximity of the expanding regional centre of Dubbo have ameliorated the effects of reduced surface water allocations in Narromine.

The second of the scoping studies, 'Natural Resource Governance in the Cotton Industry' by Toni Darbus, Russell Gorddard, Sonia Graham (CSIRO Sustainable Ecosystems), Ian Reeve (UNE) and Bob Farquharson (NSW DPI) assessed the current condition of natural resource management (NRM) governance in the Australian Cotton Industry. The researchers interviewed representatives from a range of sectors who were familiar with the cotton industry across New South Wales and Queensland, including local and state Governments, regional NRM bodies and a range of organisations within the cotton Industry. The interviewees were asked a range of questions on NRM issues and past policy, their organisation's NRM policies, the coordination of NRM policies across organisations and an assessment of overall NRM policy processes.

Some key findings from the scoping study were:

- Water is considered to be the most important issue facing the cotton industry both now and into the future (the next ten years)
- Of the different sectors interviewed, the cotton industry is the most integrated in terms of NRM policies
- The majority of interviewees were cautiously optimistic that the current policies would solve NRM problems. There was general agreement across all sectors in relation to future NRM policy success that monitoring of the ecological achievements of the water and vegetation reform process is crucial.

The final scoping report by Maria Cotter (UNE), Ian Davidson (UNE), Helen Ross (UQ), David Brown (QDPI&F), Bernadette Duncan (Nindethana Aboriginal Corporation) and Warren Waters (Warren Waters Consultancy) is entitled 'Enhancing the environmental and socioeconomic sustainability of cotton catchment communities through aboriginal participation: scoping the research priorities.' This study focused on identifying the opportunities for enhancing the capacity of Aboriginal and non-Aboriginal organisations to undertake collaborative research within cotton catchments for increased environmental and socioeconomic sustainability.

The towns of Dirrinbandi, St George, Dalby, Moree, Narrabri and Warren were used and Aboriginal community participants in this study identified that both the current status and future potential for Aboriginal involvement in the cotton industry was dependent on understanding one or more of five key areas of concern: health, employment, environment, education and culture.

Aboriginal people were identified as an underused human capital resource within the cotton catchment communities in which they live. With the increasing recognition of the lack of a skilled labour force to service the rural sector, training incentives and collaborative partnerships that can enable Aboriginal people – particularly the significant proportion of them that are young – to become active participants in the skilled labour market is needed. This must be a viable long-term strategy for the social and economic sustainability of these cotton communities.

The study also identified strong Aboriginal community concern about, and aspirations for, educational opportunities and employment outcomes. These suggest that cotton industry programs that support education, training and mentoring of Aboriginal students on pathways to employment within both the industry itself and allied services are the most readily identifiable 'win-win' options. Underpinning such general educational support programs should be a more rigorous participatory action research program that enables the examination of, for example, entrepreneurial Aboriginal businesses associated with industry initiatives.

Following on from the recommendations of the scoping studies the Cotton CRC has funded and is in the process of developing a number of projects to address some of the issues identified.

One project funded through the Community program this year is that being undertaken by Donna Moodie, a PhD student at The University of Queensland. Donna is undertaking a project entitled 'Inclusive engagement and development: an indigenous perspective of community, business and sustainable development'. While still in its early stages, this research will build upon knowledge and understanding of engagement processes between indigenous and non-indigenous people in cotton catchment communities. This research will document how to engage effectively with indigenous communities with a view to promoting long-term, resilient relationships and will also assist the cotton industry and indigenous people to improve their current levels of engagement.

Additionally, the Community program, as part of its 'call for projects' in December 2006, is funding a Schools-Based Traineeship project in conjunction with CRDC and the Aboriginal Employment Strategy. These traineeships combine paid work, industry recognised training and credit towards the NSW Higher School Certificate (HSC). Students complete 100 days of work over two years, while completing the HSC at the same time.

While the project is not due to start until the 2008 school year, plans are underway to run it at the Australian Cotton Research Institute and involve staff from CSIRO, NSW DPI and the Cotton CRC. This will be a new and exciting project for the Cotton CRC to be involved in, as it will foster greater engagement between the indigenous community and the cotton industry as well as providing students with the necessary employment skills and training to enable them to access some of the great jobs available in the industry.

Another project completed this year within the Community program is a report on climate change and its likely impact on cotton communities. This work was undertaken by David McRae (QDPI&F), Guy Roth (Cotton CRC) and Mike Bange (CSIRO) and funded by the Australian Greenhouse Office.

The project aimed to increase the understanding of climate change in the cotton industry and develop agreed positions and knowledge on adaptation options. Formal meetings, including a workshop with the Australian Cotton Industry Council, were held with cotton industry leaders to capture their knowledge and views on climate change and adaptation strategies. In addition, regional workshops were held for a total of around 400 cotton growers, agronomists, researchers, extension officers and other members of the community at Emerald, St George, Goondiwindi, Dalby, Narrabri and Dubbo.

The project found that some of the projected increases in temperature will have both positive and negative impacts for cotton growth, depending on whether the location is currently considered a cool or hot cotton growing region. Some of the benefits of warmer temperatures include less cold shock days, more rapid germination and a longer growing season, enabling more flexible planting dates and higher yields. However, in hotter regions more heat stress will lead to decreased growth, crop shedding and lower yields.

The major concern and unknown for the cotton industry is rainfall and water availability for irrigation. Increases in extreme daily rainfall and more variability, combined with increases in evapotranspiration, mean less water is likely to be available.

The study also highlighted a number of strategies that the cotton industry can use to adapt to climate change. These include different varieties and species of cotton, consideration of agronomic aspects such as planting dates, irrigation, fertiliser, row spacing, water management and more use of seasonal climate forecasting.

Dr David Nehl (NSW DPI) gives a presentation on crop protection in the face of climate change at the Climate Change Forum held in Narrabri

Learning to adapt to climate change is an important issue, not only for the industry but also the regional communities which it supports. The current drought has seen a decline in cotton production over the last few years and this has impacts on the social and economic fabric of these communities. In this coming year, the Community program will gather momentum and will be undertaking a number of studies aimed at addressing climate change and other issues that will impact on cotton communities. Those projects currently being developed and due to start in the 2007–08 year include:

- documenting the social and economic contribution of the industry to cotton communities
- examining the past and likely future socio-economic impacts of changing agricultural technologies, emerging industries and climatic conditions on the Australian cotton industry and its regional communities
- obtaining a better understanding of the barriers and drivers to collective natural resource management and the potential socio-economic impacts of future policies on the cotton industry and regional communities, and
- identifying innovative regional businesses and potential areas for economic growth in regional communities in New South Wales and Queensland.

For* The Community *Outputs and Milestones, see Table 3.3 on page 70.

PROGRAM 4 The Product

Program Leader

Dallas Gibb CRDC

PROGRAM HIGHLIGHTS

- The development of SIROMAT for measuring the maturity of cotton fibres
- The continued success of the Field to Fabric Cotton course based in Geelong: attended by 139 participants with the next course to be held in November 2007
- Certification of six classing facilities to BMP for Classing by Cotton Australia following formal audit
- A project investigating the best way to market Australian cotton in regard to both quality and environmental sustainability was completed
- A new project examining the glass transition threshold of cotton fibres in relation to temperature and moisture was established

Australian cotton growers have realised increasingly that they are part of the fashion industry, as shown by this cotton fashion parade at the Cotton Expo in Narrabri in 2007. This has meant that R&D has placed an ever-growing emphasis on developing the world's best quality fibre to spinners to produce high quality cotton fabric

The Cotton Catchment Communities CRC Product Program aims to produce high quality consumer-preferred cotton. This is being achieved by undertaking research in five key fields: Fibre quality and agronomic factors, harvesting and ginning process, marketing initiatives, reducing contamination and value adding.

Two years into the Cotton CRC, the Product Program is making good progress. There are now ten research projects underway, with research delivered primarily by CSIRO Textile and Fibre Technology (TFT) and by NSW DPI.

Australian cotton is already among the world's best with regard to quality. However, challenges remain in key areas, notably fineness, neps (immature fibre tangles) and short fibre content. In the current drought conditions, there is a risk the loss of world markets as mills look elsewhere for reliable supplies; hence the importance of maintaining the Australian cotton industry's reputation for quality.

Fibre quality and agronomic factors

A major project linking the CSIRO divisions of Plant Industry at Narrabri and Textile and Fibre Technology at Geelong is examining the influence of on-farm agronomy on fibre quality: investigating factors such as variety, planting configuration, irrigation and defoliation scheduling. This work will maximise the value of recent high-quality Australia varieties in keeping Australian cotton at the forefront of quality world growths.

A key strategy for maintaining quality is the development of a new technique for measuring the maturity of cotton fibres and separating this parameter from fibre fineness. CSIRO TFT has developed a novel instrument, SIROMAT, for this purpose. As well as assisting the field-to-fibre quality project, this machine will be useful to overseas cotton mills. Potential IP has been identified, and discussions are being conducted with a potential licensee.

Harvesting and ginning processes

Three projects have been established to research ginning technology, to ensure that the quality of cotton from the field is not excessively compromised by the ginning process. Moisture levels in cotton need to be monitored constantly so that damage to the fibres can be avoided. Research continues on the development of improved methods to minimise damage.

A new project is studying the glass transition threshold of cotton fibres in relation to temperature and moisture: a critical factor in determining the level of fibre damage in ginning. This pilot project is intended to lead to a PhD project next year.

Another project on modifying lint cleaners in gins to avoid fibre damage has been established. This is expected to lead to commercial products but the Australian industry will be offered lead time to maximise competitive advantages.

Marketing initiatives

A joint project with CRDC to investigate the best ways of marketing Australian cotton in regard to both quality and environmental sustainability was finalised, with the conclusion that focusing on quality was the best strategy. Future Cotton CRC initiatives will concentrate on this strategy. Additionally, a project to standardise classing methods using High Volume Instrumentation techniques and ensure consistency in the application of these methods across different laboratories in Australia has been established.

Reducing contamination

Australian cotton has an enviable reputation for freedom from contaminants from the field and gin; however, vigilance is required to maintain this reputation. A project monitoring the frequency and types of contaminants found in our cotton is being undertaken, in collaboration with Australian gins and an Indonesian spinning mill.

Value adding

The value adding component of The Product program has focused on the development of aquaculture techniques for on-farm water storages. Progress has been restricted because many such storages have been empty, due to water shortages. Some of our commercial partners in aquaculture have shifted their interest to the cultivation of salt water species in wastewater from coal seam gas extractions.

The industry embraced the Field to Fabric cotton course conducted by Rene van der Sluijs of CSIRO TFT, with 139 participants in 2006–07 and further courses being held in the coming year

The Cotton CRC Board recognised the potential for this approach but considered it to be beyond the scope of the Cotton CRC's strategic plan and we are therefore continuing the work for a limited period while fostering the development of new partnerships outside the Cotton CRC. Other projects involving the assessment of silver perch for cultivation on cotton water storages are continuing and a PhD project through UNE in this field.

For* The Product *Outputs and Milestones, see the Table 3.4 on page 77.

Cleave Rogan (ACGRA) with executives from the large Japanese retailers, IZUMIYA, who told delegates at the 13th Australian Cotton Conference in 2006 that they are sourcing only Australian BMP Cotton for their environmentally branded 'Good-i' range of clothing

PROGRAM 5 The Adoption

Program Leader
Extension and Knowledge
Letitia Cross

Sub-Program Leaders
Regional Extension
Julie O'Halloran

Specialist Extension
Mark Hickman

Members of the National Cotton Extension Team and Cotton Australia Grower Services Managers set the direction for the coming season at this extension workshop in Mudgee, May 2007

PROGRAM HIGHLIGHTS

- Reinvestment in regional services through the appointment of eight regional extension officers into the Australian cotton industry
- Natural resource management capacity was increased through three specialist resource management staff joining the National Cotton Extension Team (NCET)
- An agreed commitment for the NCET to provide BMP support services to growers, in conjunction with Cotton Australia
- Three National Priority Teams were established in the industry focus areas of Crop Protection, Water, and Soils and Nutrition
- The Cotton CRC website has been redeveloped to reflect the wider scope of the Cotton CRC in – industry, catchments and communities enabling more targeted communication with all sectors
- Initiation of a new project focusing on adoption of integrated soil management practices in irrigated cotton and grain
- A second phase of the Natural Resource Management delivery in the Australian Cotton Industry project commenced
- CRC presentations and displays presenting CRC work at the Australian Cotton Conference and the Cotton Trade Show
- Partnerships were developed with catchment bodies, aiding in delivery of the industry's environmental management system, the BMP program
- A series of healthy soils, irrigation alternative and BMP Land and Water Management module workshops were held across cotton growing regions
- A significant number of field days and seminars were held in conjunction with industry, showcasing emerging research and best practice in water management, soils, resource management, crop rotation and configurations, along with newer areas such as birds and fish in Cotton Farming Systems
- Our first Science Forum was held in August 2006 in conjunction with the 13th Australian Cotton Conference.

The National Cotton Extension Team

The Cotton Catchment Communities CRC Adoption Program aims to increase adoption of knowledge and enhance decision-making capabilities of people working in or with the cotton industry, its catchments and communities. The National Cotton Extension Team is integral to achieving this goal, with members of the team based throughout cotton growing districts. This is why even in the current trying conditions, this year has seen reinvestment into rebuilding the Cotton CRC Extension Team.

As a result of this rebuilding phase the cotton industry now has a comprehensive Extension Network in place with the solid foundation of Regional Extension Officers across the major cotton growing valleys. These Regional Extension Officers are employed through NSW DPI and Queensland DPI&F, predominantly industry funded through the CRDC and the Cotton CRC.

The complete team consists of:

- Doug Sands (Central Queensland)
- Kate Charleston (Darling Downs)
- Dallas King (Lower Balonne)
- Rod Gordon (McIntyre)
- Julie O'Halloran (Gwydir)
- Sally Ceeney (Macquarie)
- James Hill (Southern NSW)

These officers are the foundation of the extension team and are a vital link for growers and other industry personnel in their region to the wider research and development community. Technical specialists and wider industry personnel then provide specialist support in specific areas of water management, resource management, soil health and BMP. Through close collaboration with various funding organisations including CRDC, Namoi CMA, Border Rivers-Gwydir CMA, Cotton Australia, Department of Agriculture Fisheries and Forestry, Land and Water Australia and Natural Resources and Water, this year has also seen significant investment with the addition of six new technical specialists:

- Lance Pendergast (Water Use Efficiency, Central Queensland)
- Rod Jackson (Water Use Efficiency, Namoi)
- Janelle Montgomery (Water Use Efficiency, Gwydir)
- Kate Lightfoot (BMP Implementation Officer, Namoi)
- Rob Welsh, (Resource Management Specialist)
- Helen Squires (Soil Extension Specialist)

Restructuring of the program has also seen the appointment of Julie O'Halloran as the Sub Program Leader for Regional Extension and Mark Hickman as Sub-Program Leader for Specialist Extension.

With the full complement of extension staff and leaders now in place, the Adoption Program has been able to provide structure for the consistent delivery of emerging research across the industry, while also providing targeted regional services. This has been developed through the NCET's focus on National Priority Teams.

National Priority Teams

The National Priority Team approach enables the development and implementation of extension strategies that address industry issues of national significance. The national priorities are aligned to the industry research directions set through the Cotton CRC, CRDC and ACGRA.

Three interim National Priority Teams were established in October 2006 in response to the 2005 Cotton Industry Extension Review. These were Crop Protection, Water, and Soils and Nutrition.

The National Priority Teams were adjusted in May 2007 for the approach of the 2007–08 season and now include Insects and Weeds, Water, Soils and Disease, Nutrition, and Fibre Quality .

The teams are responsible for:

- Developing crop management strategies, information resources and extension delivery plans for the relevant national priority
- Collaborating with relevant research scientists and industry personnel
- Coordinating and supporting extension delivery and implementation by regional extension officers in all cotton production regions
- Ensuring outcomes of cotton research from all Cotton CRC Programs are delivered to industry.

Whist still relatively new the National Priority Teams have made significant progress in a number of areas. The Soils and Nutrition team have developed a protocol for monitoring nitrogen use efficiency. This protocol provides growers and consultants with the capacity to benchmark nitrogen use. This has resulted in the establishment of field trial sites in Gwydir, Namoi, McIntyre and Emerald regions.

The Crop Protection Team, in collaboration with researchers, has produced a publication entitled "Effective Aphid Management" which provides a significant industry resource supporting enhanced aphid management. This publication was complemented by strategic information on aphid management from a resistance perspective

developed by Grant Herron and published in numerous regional newsletters.

The Water Team has established a regular feature in the Australia Cotton Grower magazine, entitled Water Matters. This has been an effective way of delivering water use efficiency information and research to the industry. Topics covered in Water Matters included four Water Use Efficiency case studies:

- Cutting evaporation
- Centre Pivot Lateral Move
- Variable water application
- Irrigation siphons – size and placement.

HEALTHY SOILS

This year also saw the establishment of the "Accelerating adoption of integrated soil management practices in irrigated cotton and grain" project. This project aims to pull together existing research and experience from industry leaders in soil health and extend this knowledge for the development of more profitable and sustainable farming systems, benefiting not only the individual farm but the natural resources of the greater catchments across the industry.

The direction of the healthy soils program has been driven by eight regional focus groups were held (at Narrabri, Moree, Hillston, Hay, Mungindi, Goondiwindi, St George, and Dalby with phone interviews conducted in the Emerald district) to identify the soil health issues on a regional scale.

Positive response has been received for the five regionally and topically dispersed case studies, varying across irrigated and dryland cropping systems. The case studies are a compilation of accredited research and experiences from growers who have implemented a change to their farming system that has resulted in improved soil and environmental health. As a result further case studies are being scoped.

Good attendance has been a measure of success for the six healthy soils workshops delivered across the industry. Growers, consultants and commercial representatives made up the 52 participants with positive feedback, including:

> "Great to see and hear what actually works"
> *Consultant*
>
> "Good to learn more about what I can do"
> *Grower*

As a result of these workshops greater awareness of soil health has been generated. Participants are now better able to identify and address their soils limitations and have gained a greater understanding of the importance of establishing a sound soil sampling regime and monitoring program.

This soil pit day was held in Dirrinbandi as part of the Healthy Soils project

Regional Extension

The regional extension priorities have been developed through an extensive consultation process with Regional Advisory Panels. These panels bring together local grower representation (large and small, private and corporate farms), agribusiness and staff management. These panels then provide regional direction and prioritisation of extension services in association with the Extension and Knowledge Manager.

Extension activities

The Extension Team conducts workshops and field days in direct response to industry needs. These days were run in conjunction with research staff, consultants and other independent service providers in the region and were well attended. Examples during 2006–07 include:

- Investigating limited water scenarios at Goondiwindi in collaboration with CSD and CSIRO
- Three field walks in the Gwydir (row configurations and water use, basic soil biology/ soil health and rotations in the farming system)
- Lachlan Valley growers information day (foliar fertiliser strategies and cereal-cotton rotations including ground preparation)
- Farm walks, Emerald
- Lippia Management Field Day, Namoi Valley
- Centre Pivot Field Day, Clifton, Darling Downs
- Lateral Move Field Day, Norwin, Darling Downs
- Storage Compaction Field Day, Cecil Plains, Darling Downs
- Drip Tape Field Day, Warwick, in collaboration with Growcom

The Fish on Cotton Farms Field Day held in the Namoi Valley

- WaterTrack is being used, evaluated and demonstrated in various districts, including Boggabri and Burren Junction, Namoi Valley, Narromine, and the Macquarie and Gwydir Valleys
- Fish on Farms Field Day, Gwydir Valley
- Birds on Cotton Farms field Day, Namoi
- Greenhouse Gas/Nitrogen Fertiliser Use Field Day, Namoi Valley, Gwydir Valley, Darling Downs and St George.

Extension staff also participated in a number of field days as guest speakers including:

- Lower Namoi Cotton Growers Association field day held at the Australian Cotton Research Institute at Narrabri in March 2007
- Lachlan and Murrumbidgee Cotton Field Day in the Hillston district to support new and current growers
- The Gwydir Valley Cotton Field Day March 2007.

In addition, the extension team have been proactive in supporting the cotton industry Best Management Practice program (BMP). Land and Water Management workshops were held in conjunction with Cotton Australia, members of the Cotton CRC extension team and Catchment Body staff. The workshops were designed to provide practical advice on the implementation of the Cotton BMP Land and Water Management module, with nine workshops held across the Gwydir, MacIntryre, Darling Downs and Namoi Valley's. The cotton extension team continues to work with Cotton Australia and Catchment Bodies to support the implementation of the BMP program.

Trial work and demonstration sites

Trial work and demonstration sites are important for research and also the successful extension of research findings. Growers, consultants and other collaborators see great value in these sites and continue to provide substantial in-kind support to the work of the extension team by hosting trials and demonstrations. Despite the decline in cotton plantings, the team has continued to undertake this work in conjunction with researchers across a number of valleys.

Some of their activities for 2006–07 year included:

- Row configuration trial comparing solid planted cotton and the skip configuration of '1 in 1 out' in the Gwydir Valley
- Planting date trial was conducted in Emerald
- Siphonless irrigation trials in Lower Balonne and Border Rivers- Gwydir
- Nitrogen use efficiency field trial sites in the Gwydir, Namoi, McIntyre and Emerald regions.

New Website

This year saw the redeveloped of the Cotton CRC website www.cotton.crc.org.au in order to reflect the wider audiences of the current Cotton CRC. The new website now houses industry-specific information including researcher and extension staff profiles, final reports, brochures, fact sheets and case studies and links to relevant Cotton CRC partners and affiliates. Additionally through the Catchment and Communities pages, users can access more regionally specific information and resources including regional based research, Catchment and Community projects and links to Catchment Bodies and community organisations.

The official opening of the new water exhibit at the Australian Cotton Centre in Narrabri. *Left to right,* Cotton CRC Chair Dave Anthony, Cotton Centre Manager Sandy Young, the Hon. John Cobb MP, Assistant Minister for the Environment and Water Resources, who opened the exhibition, Robin Logan (CRDC) and Jim MacDonald (Namoi CMA)

Pest Management Guide

Each year NSW DPI in conjunction with the Cotton CRC release the 'Cotton Pest Management Guide', prepared and distributed to the industry in late 2006. In early 2007, a survey was conducted to evaluate the usefulness of this publication and to ensure future editions meet the needs of clients. Feedback from the survey was overwhelmingly positive and work has begun on the 2007–08 guide.

Feedback on the Pest Management Guide

"To be honest it is one of the best publications I receive"

"an excellent publication"

"this is the bible and I was wondering when it would to arrive"

"This is a very useful publication and the industry should ensure its continued support"

Ecosystem Services Brochure

The past year also saw the completion of the "Ag15 – Enhanced NRM in irrigated cotton and grains" project. This project led to the delivery of natural resource issues to the cotton industry in Queensland and successfully produced a cotton-specific ecosystem services brochure entitled "Australian cotton industry - management practices to enhance ecosystem services". Initially 2000 copies were printed and distributed to the industry however due to its success a further 2000 copies were reprinted and have been disturbed to Catchment Bodies, Schools and the wider community.

Water Exhibit at the Australian Cotton Exhibition Centre

The Australian Cotton Exhibition Centre in Narrabri provides the industry with an opportunity to promote cotton production to the wider community. An important element in cotton production is water and its efficient use and management. To demonstrate the interaction that occurs between industry, key stakeholders and Catchment Bodies to ensure sustainable management of this precious resource, a new water exhibit was completed in November 2006. The interactive display features information on water management within the catchment and cotton production systems. The exhibit was launched in August 2007 by the Hon John Cobb MP, Assistant Minister for the Environment and Water Resources.

Cotton Tales

Cotton Tales is a newsletter produced by Regional Extension Officers to inform cotton growers of emerging research, how it relates to their specific region and upcoming events. During 2006–07 over 40 editions were produced across all cotton growing regions. This newsletter is a valuable extension and communication tool and receives strong support from those who receive it.

2006 Cotton Conference and Cotton CRC Science Forum

Our first Science Forum was held in August 2006 in conjunction with the 13th Australian Cotton Conference. The conference and Science Forum was highly successful providing an opportunity to share information, peer review activities and gain a greater awareness of Cotton CRC research activities across the different program areas. The Conference and Forum were well attended with over 1200 delegates present with Cotton CRC Scientists and Extension Officers playing a major role.

The Adoption *Outputs and Milestones are included in Table 4: Commercialisation and Utilisation Outputs and Milestones on page 80.*

RESEARCH COLLABORATIONS

Collaboration within Australia

The Cotton Catchment Communities CRC has entered into a wide range of formal and informal collaborations during 2006–07. The Board established a series of core values for the Cotton CRC, including collaboration, consultation and communication.

Cooperation with and between our participating organisations, cotton industry stakeholders and the wider community has been a key strategy of getting our programs under way. The Cotton CRC has a range of mechanisms in place to enable a positive member communication process designed to maintain an active 'community of interest' among all partners.

All Cotton CRC projects involve collaborations with various combinations of researchers, end-users and other stakeholders. The Cotton CRC has about 150 new projects across the programs, involving cotton industry bodies, small and medium enterprises, catchment regional organisations and community stakeholders.

Discipline groups operate to enable researchers and industry personnel to discuss the fine details of projects and opportunities. These groups cover topics like water, soils, nutrition, and crop protection issues. The Cotton CRC is moving to increase the numbers of small to medium enterprises involved in these groups. An example is the new nutrition group, coordinated by Nutrient Management Systems Pty Ltd. Cotton Seed Distributors Ltd is also helping with the adoption of research via internet tools such as Web on Wednesday and Facts on Friday.

A number of workshops have also been held to foster collaboration. These workshops enable the many new participants to get to know each other and the wide range of work that is occurring. Some examples are:

- A Groundwater forum
- A Climate Change workshop
- A Mirid workshop
- A Soil Health workshop
- An Irrigation research and extension workshop

Cotton Australia and the Australian Cotton Growers Research Association (ACGRA), representing cotton growers, provide direction and contribute extensive networks to the Cotton CRC. The Cotton and Grains Research and Development Corporations are significant investors of grower and Australian Government funds. Cotton Seed Distributors, Dunavant, Queensland Cotton, Monsanto Australia, Incitec Pivot, Telstra and the Cotton Shippers Association add further industry input, commercialisation prospects and their own network of people.

CSIRO brings expertise and infrastructure through its Plant Industry, Entomology, Land and Water, Textile and Fibre Technology and Sustainable Ecosystems divisions. State agriculture departments in NSW, Queensland and Western Australia play important roles in research and adoption, as do the new catchment bodies such as Namoi Catchment Management Authority (CMA), Condamine Alliance, Border Rivers CMA, Queensland Murray Darling Committee and Central West CMA. The Universities of Sydney, New England and Queensland are critical to the education activities. The University of NSW, University of Technology Sydney, University of Central Queensland, Australian National University, SunWater and Aquatech will contribute new skills in water management.

The Cotton CRC has also established a very successful partnership with the community organisation, Birds Australia, following the release of the publication, *Birds on Cotton Farms*, which is targeting the national research priority of biodiversity.

The Cotton CRC supports Wincott an organisation that aims to provide support, information and resources to encourage women's role within the cotton industry, through information days, general interest field days and opportunities for skill building within the cotton industry.

These collaborations add value to the Cotton CRC, as they ensure that research is meeting the needs and priorities of the end-users. They enable researchers to query end-users on research applications and options as well as providing an action-learning environment for people involved. These processes help the Cotton CRC to avoid duplication and ensure efficient allocation of resources. Many of the challenges faced by the cotton industry are broad and involve a number of disciplines. In the year ahead our aim is to further consolidate and integrate our projects and programs.

The Cotton CRC held its first science forum in August 2006 prior to the 13th Australian Cotton Conference. This enabled participants, researchers and end-users to familiarise themselves with the wide range of projects underway and further help foster the development of stronger collaborative linkages.

The CRC is strengthening collaboration with end-users. End-users are represented on the Board Advisory Panels as well as many project steering committees. Regular seminars are conducted with end-user groups to inform them of the new projects.

International Collaborations

The Cotton CRC provides a scientific exchange program to enable researchers to interact with their international peers. This program allows researchers to travel overseas and, alternatively, for international visitors to spend time in Australia.

Cotton CRC researchers who undertook a scientific exchange overseas were Dr Nilantha Hulugalle (NSW DPI) Dr Peter McGee (University of Sydney), Dr Raphael Viscarra Rossel (University of Sydney), and Sam Buchanan (University of Sydney) David Perovic (Charles Sturt University), Dr Angus Crossan (University of Sydney), Dr Stephen Yeates (CSIRO). There were seven international scientific exchanges in 2006–07.

Several Cotton CRC researchers will be attending the World Cotton Conference in Texas, USA in September 2007.

The Cotton CRC and Dirk Richards (CSIRO) hosted visitor Dr Graham Thompson from ARC-IIC (Institute for Industrial Crops) in Pretoria, South Africa.

Linkages with other Cooperative Research Centres (CRCs) and research organisations

During the year the Cotton CRC, the CRC for Irrigation Futures and the CRC for Polymers agreed to combine their joint skills to try and find cost effective solutions for control of evaporation losses from on-farm irrigation storage dams. A number of possible solutions have been proposed such as floating covers, shade cloth and liquid monolayers that float on the water. Currently, all these have various technical problems such as life of the polymer, application techniques and the prohibitive costs.

The Cotton CRC and CRC for Irrigation Futures have agreed to jointly fund two new PhD students. The Cotton CRC also has a joint project with the Irrigation CRC, GRDC, CRDC and the National Program for Sustainable Irrigation on Knowledge Management for irrigation in cotton and grains.

A PhD project on Lippia, a weed found along riparian landscapes that has no effective control strategies is in its final stages with the Australian Weed Management CRC.

The Cotton CRC, in conjunction with the Beef CRC, Sheep CRC and Poultry CRC, hosted a Chief Executive Officers' workshop in Armidale in December 2006. This workshop aimed to provide insight into best practice corporate governance, assessment processes and evaluation techniques.

COMMERCIALISATION and UTILISATION

STRATEGIES AND ACTIVITIES

The Cotton Catchment Communities CRC Commercialisation and Technology Transfer Systems are now well established. The Cotton CRC has to deliver outcomes to a diversity of end-users, including cotton farmers, cotton consultants, agribusiness, cotton shippers, international and domestic spinners, local and state governments and the Australian Government, community organisations, indigenous groups and catchment bodies.

Pathways to adoption

The pathways to adoption will be multidirectional, with regular exchange of knowledge between stakeholders. Knowledge is communicated to end-users through a variety of mechanisms that also encourage reciprocal communication from end-users to researchers. The participation of end-users directly in the adoption loops (rather than at the end of the line) leads to greater ownership, which in turn leads to higher levels of adoption and, in many cases, a more innovative adoption of science. The feedback also enables targeting and practical adaptation of research to meet industry needs.

Partnering public and private sectors

Private sector consulting services are a key part of the Cotton CRC's adoption and commercialisation strategies. There are a large number of private small to medium enterprises (SMEs) serving the cotton industry and their peak representative body, Cotton Consultants Australia Ltd, with 300 members, is a partner in the Cotton CRC and is represented in specialist end-user Board advisory panels to ensure all members are aware of developments and are capable of delivering them. They also participate in a number of project steering committees and their annual Consultants Survey is a key component of the Cotton CRC's benchmarking and impact evaluation processes. Independent irrigation consultants are also involved in the Cotton CRC.

Building local capacity

In adopting new technologies, end-users will often require individual advice or monitoring services from specialised independent consultants. Where these specialised skills are not readily available in cotton regions, the Cotton CRC will work to encourage the demand for and build the supply of independent services. Encouraging demand includes raising awareness amongst end-users of new technologies, key issues and the value of making changes. This creates a viable consulting opportunity to attract skills to the regions to assist end-users to adopt proven technologies. This is one part of building the "supply" side of knowledge services. The other is in building regional capacity through training.

Kerry Watts (*Growth Agriculture* Pty Ltd,) and Guy Roth sign up for a $500,000 partnership

Participation and engagement

Participation and engagement are core values of the Cotton CRC. The diverse stakeholders are engaged through formal channels such as advisory panels, forums, program steering committees, conferences and joint projects. In many projects, Cotton CRC research and extension staff work closely with stakeholders in on-farm or in-region research.

Regional, trusted extension staff

Research into cotton knowledge systems highlights the importance of locally relevant and proven examples of new technologies, personal contact between growers (individually and in group learning situations), researchers and extension specialists and the use of short, concise, locally targeted information. The Cotton CRC, in conjunction with the Cotton Research and Development Corporation (CRDC) and industry representatives, reviewed extension needs in 2005–06 and the outcomes of that review were implemented in 2006–07.

These changes included:

- Reinvestment in regional extension officer positions with three new appointees in Queensland in 2006–07 and two new officers started in New South Wales in July 2007
- Additional specialist extension staff in water and resource management were also appointed during 2006–07
- A commitment to work more closely with the Cotton Australia staff on delivery of extension services to growers and industry
- Four National Extension Teams were established; Insects and Weeds; Water; Soils and Disease; and Nutrition and Fibre Quality.

Education

Education, a key strategy of technology transfer, is discussed on page 46.

Communication

Communication is discussed in detail on page 44.

Best Management Practices System

A key strategy for delivery will be via the cotton industry's Best Management Practices program, known as BMP. The cotton industry reviewed its BMP program in 2006 and the Cotton CRC is currently working with Cotton Australia and CRDC to implement new systems. A new General Manager has been appointed for the BMP program as a joint initiative of the Cotton CRC, CRDC and Cotton Australia.

Cotton Comparative Analysis

Economics is one of the most significant forces driving change. The Industry has identified that whilst benchmarking is valuable, it is difficult to do and they need a trusted, independent group such as the Cotton CRC to drive this. The widely recognised BOYCE Cotton Comparative Analysis reporting system was published again in 2007, using figures from the 2005–06 cotton crop. This report was funded by CRDC.

Evaluation of Investments

An evaluation of the impacts of Cotton CRC investments in industry will be conducted at a range of levels for all Cotton CRC research, education and extension using a strategic evaluation framework. Frameworks are being established and some benchmark data collected to monitor change in the future. We are in the process of appointing an economist to lead this work.

Commercialisation

The Cotton CRC now has nine research projects in which commercial partners are involved or are being sought. In several cases these projects are based

Commercialisation – Participants' Agreements

Project name	Agreement type	Partner	Partner funding	Progress
Chemical ecology of insects	Discrete IP	Ag Biotech	$150,000 cash plus in-kind	Registration of Magnet imminent. Royalties flowing. International licensing agreement under negotiation
Behaviour modifying plant extracts	Third party	*Growth Agriculture*	$250,000 plus in-kind	Project agreement signed
Managing green mirids with plant extracts	Discrete IP	Native Fire	$36,497 plus in-kind	Under negotiation
Fungal biopesticides	Discrete IP	Becker Underwood	Under negotiation	Under negotiation
Electrical imaging of soil water	Centre IP	Under discussion	None	IP protection being sought
Bioremediation enzymes	Centre IP	Orica	None	Licensing agreement signed
Measuring fibre maturity	Discrete IP	Under negotiation	Under negotiation	Under negotiation
New ginning technology	Discrete IP	Under discussion	Under discussion	Under negotiation

on discrete Intellectual Property (IP) or third party project agreements, and the partners are making significant cash and/or in kind contributions towards the development of commercial products.

Commercialisation of the moth attractant Magnet® continues. Barriers associated with the chemical regulatory process have been largely overcome and registration is expected in time for the 2007–08 cotton season. Magnet® will be the first such commercial product in the world, and expressions of interest in market development have come from North and South America, south-east Asia and New Zealand.

Other commercial projects aimed at developing environmentally friendly pest management products have received commercial support, with *Growth Agriculture* contributing to the development of semiochemicals for mirid and *Helicoverpa* control, and negotiations in progress with two other companies.

Other projects in the early stages of commercialisation include water accounting and measurement tools, nutritional diagnostics, fibre quality forecasting products, semiochemicals, hands free decision support tools and precision application technologies.

INTELLECTUAL PROPERTY MANAGEMENT

The Cotton Catchment Communities CRC has adopted policies for IP management at Board, Management and research project levels. Commercialisation and IP management plans are required of all project applications. The Board can approve as discrete IP projects those projects where significant background IP is present or where it is expected that significant IP will be generated from external sources; there are already five such projects. Developing IP is reported in six-monthly written project reports and at Board and management team meetings. The Cotton CRC maintains a register of actual and potential IP, which already has 209 items on it, derived from 103 different research projects.

National Principles of IP Management

There are nine national principles of intellectual property management for publicly funded research. The Cotton CRC has addressed these by the measures in the table below:

Wherever appropriate, IP will be licensed to Australian companies with track records in developing innovative

National Principles of Intellectual Property Management

National Principle	Cotton CRC action
Institutional Policies	Cotton CRC has policies approved by the Governing Board relating to the ownership, protection and exploitation of IP
Identification of IP	Cotton CRC has procedures that provide support to researchers so that they can recognise when their discoveries may have potential commercial value and provide for a review process to identify IP that can be protected and/or exploited
Protection of IP	Cotton CRC has policies to ensure participants have policies that make clear to staff their responsibilities in relation to IP protection including, where appropriate the maintenance of research laboratory records and the prevention of premature public disclosure of research results prior to obtaining IP protection
Ownership of IP	An IP ownership policy has been agreed by participants and is described in the participants' agreement
Assessment of Existing IP	Procedures are in place to guide researchers in assessing the existing IP in the field that is likely to affect their research in order to determine their freedom to operate in that field of research
Management of IP	Cotton CRC has procedures for the regular review of IP and associated commercial activities and outcomes arising from publicly funded research. Research institutions will have procedures in place to provide advice to the creators of the IP on the options that are available for commercialising IP
Sharing of Benefits	Cotton CRC has agreed policies that recognise the rights and needs of all stakeholders involved in the research supported by public funds. (These are described in detail in the participants' agreement on the previous page)
Transparency and Reporting	Cotton CRC reports annually on IP management to participants and DEST
Potential Conflict of Interest	Cotton CRC has policies and procedures that provide guidance in relation to potential conflicts of interest concerning ownership, management, protection and exploitation of IP

technology and transferring it to the Australian cotton industry. This will maximise the national benefits by increasing the productivity of the industry; however, licensees will be encouraged to develop export markets for the Cotton CRC technology where significant export income is possible.

During the year, a licensing agreement was signed with Orica Ltd in relation to enzymes for bioremediation of pesticides. Negotiations are continuing with Ag Biotech for an International Licensing Agreement for Magnet®.

COMMUNICATION STRATEGY

This year (2006–07) saw growth in all aspects of the Cotton CRC. Our research and extension portfolios expanded along with our target audiences and end users. This led to a strong need for a more focused and coordinated approach to communicating with our different audiences.

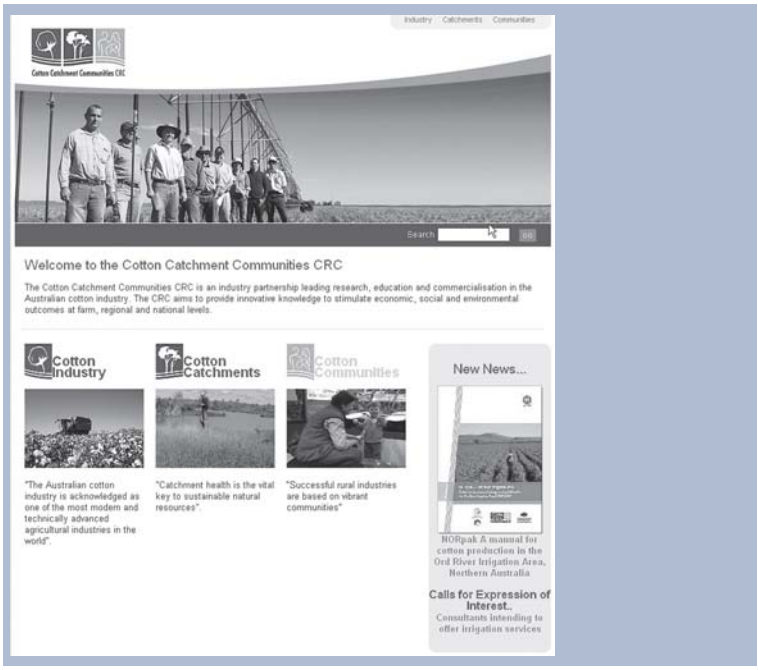
To address this, the Cotton CRC appointed a new Communications Officer, Yvette Cunningham. As a direct result of this appointment, Cotton CRC media output has increased significantly. A key component of this new role has been to develop a communications plan that builds stronger links between the Cotton CRC, its partners, industry, catchment and community groups.

Included in the communication strategy is an outline of the Cotton CRC communication objectives, strategies, implementation and evaluation methods. This will ensure future outcomes foster and improve collaboration and the delivery of knowledge.

The Cotton CRC took part in a number of major events during 2006–07, providing the Cotton CRC numerous opportunities to showcase science and extension achievements. Some of the events the Cotton CRC participated in included the Australian Cotton Trade Show (Moree), CRC Association School Fair (Perth), the Land & Water Australia Knowledge Bazaar (Gold Coast), Science Week schools activities (Armidale) and the ACGRA Australian Cotton Conference.

The first Cotton CRC Science Forum was held in August 2006 in conjunction with the 13th Australian Cotton Conference. The conference and Science Forum was well attended with over 1200 delegates present. Cotton CRC Scientists and Extension Officers played a major role at both functions, with a range of activities including scientific and extension presentations, 'hands on' workshops and a promotional stand with interactive displays and guest speakers. This Forum was an opportunity to share information, peer review activities and gain a greater awareness of Cotton CRC research across all five program areas.

Another highlight was the launch of NORpak by Western Australian Chief Scientist Professor Lyn Beazley at the CRC Association conference in Perth. NORpak is one of the Cotton CRC's new publications which brings together ten years of industry research investigating dry season cotton production in the Ord River Irrigation Area.



The new Cotton CRC website www.cotton.crc.org.au offers different, user-friendly portals for the industry, catchments and cotton communities

This year also saw the launch of the new and exciting Cotton CRC website, www.cotton.crc.org.au. The website has been restructured to reflect the interests of the varying Cotton CRC audiences and now has dedicated sites for Industry, Catchment and the Communities. The three separate web domains provide our different key audiences with relevant up-to-date information. Additionally, the new content management system allows our web managers to quickly and easily update the site, providing users with access to the latest information. The website contains a wealth of information, including researcher and extension staff profiles, final reports, brochures, fact sheets and case studies, as well as links to relevant Cotton CRC partners and affiliates, catchment bodies and community organisations.

This year also saw the development of two electronic newsletters; 'Cotton CRC Chat' and 'Cotton E-News'. The 'Cotton CRC Chat' monthly newsletter highlights projects, extension activities, upcoming events and research and extension achievements. This internal electronic newsletter is distributed to all Cotton CRC participants, affiliates, researchers and extension

staff. ‘Cotton E-News’ is a regular electronic newsletter aimed more specifically at industry organisations and cotton growers. It showcases research findings, upcoming workshops, field days, recent website updates and newly released publications.

To ensure cotton growers are kept informed of emerging research and how it relates to their specific region, the National Cotton Extension Team regularly produce and distribute several publications, one of which is ‘Cotton Tales’. This publication is highly regarded by the industry for its short, timely and relevant nature and a recent survey has shown that over 90 per cent of the industry considers ‘Cotton Tales’ to be a valuable resource.

Media releases are a key component of the Cotton CRC communication strategy. In the past 12 months the Cotton CRC has produced a range of media releases. These promote the research, extension and on-ground management change in the cotton industry that improves productivity and sustainability of cotton production systems.

A range of other avenues for communication is utilised, including field days, workshops, farm walks, school visits and community forums.

The Cotton CRC has worked closely with a range of small and medium enterprises (SMEs), including The Australian Cotton Grower magazine, Cotton Outlook magazine, The Northwest Courier Group, ABC and Radio 2VM, all of which have actively promoted Cotton CRC research and events.

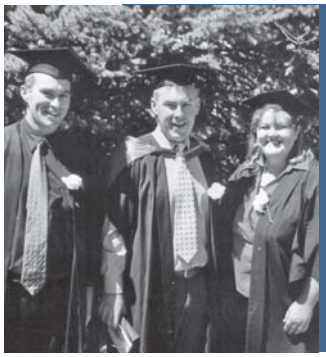
The Cotton CRC showcases and – most importantly – explains carefully its research and extension material at industry events such as the Cotton Trade Show in Moree

END-USER INVOLVEMENT

The involvement of end-users in the Cotton CRC’s activities during the reporting period and the extent and nature of benefits arising from their involvement is detailed in Table 5.

For* Commercialisation and Utilisation *Outputs and Milestones, see Table 4 on page 80.

Soils Extension specialist, Helen Squires, is interviewed by a regional television station about the Healthy Soils project



EDUCATION and TRAINING

THE EDUCATION AND TRAINING PROGRAM

- A PhD program
- Postgraduate Cotton courses
- Undergraduate student support
- Up-to-date specialist short courses and vocational training for Cotton consultants, cotton growers and their staff
- Promotion of science and agriculture in schools.

Undergraduate student Aman Daya (UTS) with Dr Michael Bange (CSIRO) is exploring potential options for hand-held decision support tools

A dynamic education and training program is essential in attracting and retaining the best new students and scientists for the long-term benefit of the Australian cotton industry. Flexible and innovative training courses for industry personnel will ensure the industry builds its internal technical skills so it can be well placed to retain its leadership in world's best practice cotton production.

The PhD program

This year saw a strong expansion of the PhD program with 16 new students starting with the Cotton CRC, 14 continuing studies and eight completing their theses. The Cotton CRC now has 38 postgraduate students enrolled, working in areas across all of the four research programs. Almost all of them have joint supervisors from non-university research organisations in the Cotton CRC and many are jointly supervised by industry personnel.

Among the PhD students who graduated were:

- Michael Rose from The University of Sydney, who studied the use of artificial wetlands for pesticide bioremediation
- Leonie Whiffen from The University of Sydney, who studied sequestration of carbon below ground in cotton fields by arbuscular mycorrhizal fungi and cotton roots
- Ingrid Rencken from The University of New England who studied the role of native vegetation in harbouring beneficial insects and reducing insect pest damage in cotton
- Kylie Dodd from The University of New England, who studied cotton production on sodic soils
- Andrew Davies from The University of Queensland who studied the role of parasites in integrated pest management in cotton in northern Australia.

"I will always be grateful for the support of the Cotton CRC during my PhD studies. I hope an opportunity to work collaboratively will arise once again in the future."

Dr Andrew Davies

"Thank you to everyone at the Cotton CRC for the help you have given me over the past four years, It had been great working in the cotton industry and I'll make sure I stay in touch"

Dr Mick Rose

The Cotton CRC works hard to make students feel part of a Cotton CRC research community. This is achieved by ensuring that they have adequate opportunities to present their work at scientific forums, by facilitating training in communication and leadership, including IP management, and by conducting meetings and teleconferences across all Cotton CRC programs to ensure that student needs are met. The Cotton CRC provides students with cheap accommodation while they are in Narrabri.

University courses

Cotton CRC Cotton Production Course

The Cotton CRC continues to develop and deliver the only specialised university level qualification in cotton production in Australia. The Cotton CRC's Cotton Production Course (undergraduate diploma and graduate certificate) is run through The University of New England and is highly regarded throughout the industry as a key avenue to gain essential skills in the production of cotton. Cotton Consultants Australia has recognised the course as a criterion for the accreditation of Certified Practicing Cotton Consultants. The course ran successfully throughout 2006–07 although student numbers have declined along with the diminishing cotton acreages due to the drought.

The first unit of the course (Applied Cotton Production) is also offered in several modes for students doing agriculture related degrees in The University of Sydney, The University of New England and The University of Queensland. This unit reaches approximately 50 new students each year, giving a relatively large proportion of Australia's agriculturally oriented graduates a good look at the Australian cotton industry before entering the workforce.

Nicola Cottee continues her PhD studies with CSIRO, The University of Sydney and the Cotton CRC. Nicola's project explores new methodologies for screening cotton cultivars for high temperature tolerance and is funded by CRDC

The cotton units all have a strong practical and scientific basis. There is keen involvement by cotton researchers, consultants and growers, providing relevant and up-to-date presentations and written material. The course coordinator endeavours to provide the material in a modern educational environment, taking advantage of new developments in adult learning, student centred learning and modern multimedia delivery systems.

The Class of 2007 in the Cotton CRC Cotton Production Course complete their final subject at The University of New England

The course attracts many who plan on working in the cotton industry but also a significant cohort of students with other agricultural interests who view cotton as an excellent example of advanced agricultural practices in water use practices, environmental management, pest management or the use of genetically modified crops.

Communication Exchange with Charles Sturt University

2007 saw a new partnership form between the Cotton CRC and the Communications Faculty of Charles Sturt University, Bathurst. Through this, students are able to gain practical experience whilst completing their Communication Exchange program.

Summer Scholarships and Honours programs for undergraduates

Eight University students were awarded summer scholarships to focus on the problems impacting on the cotton industry during the 2007 summer. The Cotton CRC invested $32,000 in these projects to foster student development and create opportunities for young people in the cotton industry. Students came from a variety of different universities including The University of New England, The University of Sydney, Deakin University, and The University of NSW.

Summer Scholarship students, Alice McDowell and James Terry from The University of Sydney

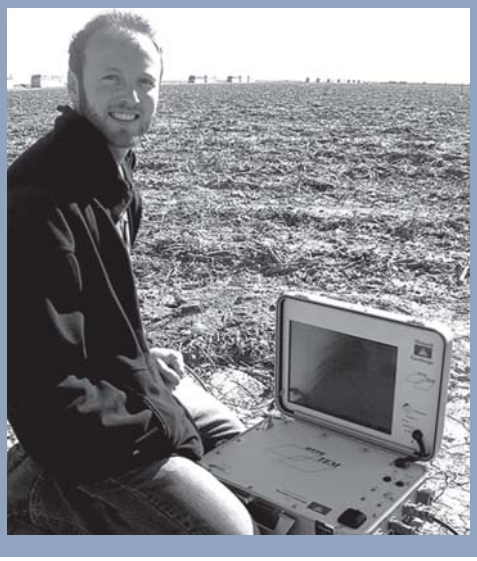
Five Honours scholarships were also awarded to students throughout 2006–07.

Cotton CRC scientist wins "Young Water Scientist of the Year"

Sam Buchanan, a young University of NSW scientist working on a Cotton Catchment Communities CRC water project, was named the 2006 Water Forum CRCs "Young Water Scientist of the Year". A national competition open to all Cooperative Research Centres students undertaking research into a water-related topic. Sam was presented the $2500 award at the ninth International River Symposium held in Brisbane.

His research has developed new technology that accurately predicts groundwater depth at a very high resolution (every 100m) using ancillary data sources (e.g. satellite data and geophysical data). The research took place in a 300 sq km area of the Bourke Irrigation District in Western NSW, a region which has highly saline sub-soils, hence a crucial need for management of groundwater depth.

> "The high-resolution groundwater maps will help farmers to provide enough water to sustain their crop while minimising the chances of bringing salts into the root zone"
>
> *Sam Buchanan*



Prizes

To help foster student achievements the Cotton CRC sponsors a number of prizes, including:

- A prize for 3rd year students at Sydney University in the Faculty of Agriculture and Natural Resources
- Contribution of $1500 to the Cotton Consultants Association to fund a student bursary as part of the Chris Lehmann Trust
- $1500 publication bonus for PhD students who have submitted and had accepted a scientific paper to a recognised scientific journal. There is also an addition $500 available for those PhD students who prepare a short four-page summary of their research in a style suitable for use in extension publications
- Several prizes for science and agriculture at Narrabri high school.

Training Activities

In 2006–07, the development of 'The Cotton Field to Fabric Training Course: Managing for Quality' was finalised through the collaborative work of Rene Van der Sluij (CSIRO), Geoff Dunlop (NSW TAFE) and Mark Hickman (QDPI&F). This three-day course is held at Geelong (Victoria) CSIRO Textile and Fibre Centre. A total of 95 participants attending during the 12 months, with representation from most parts of the domestic production chain (from growers to spinners). There has also been a notable attendance of participants from south-east Asia. In recognition of this significant contribution to extension, the course and its development team were awarded the Cotton Catchment Communities CRC 'Impact on Adoption' prize in August 2007.

A Cotton and Grains Irrigation Management course has also been developed over the last 12 months. Funding for the project has come from the National Program for Sustainable Irrigation and David Wigginton (Knowledge Broker NSW DPI) is employed to lead the project. The course has been developed by David Wigginton, Peter Smith, David Williams (all NSW DPI), Emma Brotherton, Graham Harris and Mark Hickman (all Queensland DPI&F). This is an innovative course as it is mapped to national training competencies, an irrigation certification program and the Land and Water module of the Australian cotton industry BMP guidelines. This course is providing a good example of further training platforms.

Finally, during the 2006–07 season Mark Hickman was actively involved with Ralph Leutton (Cotton Australia) and Neil Jacobsen (Cotton Australia Project Manager) in developing a Skills Recognition, Training and Career Pathway model for the industry. This involved the alignment of national competencies from the Vocational and Technical Education sector into key areas known as Cotton Seed (Certificate II), Cotton Basics (Certificate II-III), Cotton Intermediate (Certificate IV) and Cotton Advanced Certificate (IV-Diploma). NSW Farrar Memorial Agricultural College delivered the Cotton Basics modules to 34 Year 11 students. As National Cotton Training Coordinator Mark, coordinated and presented at an event called 'Cotton Basics Train the Teacher' program. Teachers representing schools from Moree, Narrabri and Tamworth attended the event.

Narrabri Public School students enjoy Science week with Cotton CRC researchers – one of the Cotton CRC activities undertaken to encourage an interest in science at school level

Schools Program

The future of Australian science and agricultural lies with the youth of today. The Cotton CRC partnered with Primary Science Matters and provided science kits and training for teachers in primary schools in Northern NSW. Training was provided for teachers and follow up visits were made to the Australian Cotton Research Institute by all the Narrabri and Wee Waa Primary Schools.

The program with secondary school students saw the Cotton CRC host the Moree Rotary annual youth camp promoting science career opportunities for year 10 students. The Cotton CRC also provided sponsorship for 'Go Agro' and Rotary North West Region Science & Engineering Challenge. 'Go Agro' is a program based in Emerald, which enables students to see the range of agricultural career opportunities available in Queensland.

For* Education and Training *Outputs and Milestones, see Table 6 on page 98.

FINANCIAL INFORMATION

COTTON CATCHMENT COMMUNITIES CRC LIMITED

ABN 14 116 310 957

DIRECTORS' REPORT

The directors present their report together with the financial report of Cotton Catchment Communities CRC Limited for the financial year ended 30 June 2007 and the auditors' report thereon.

1 Directors

The directors at any time during or since the end of the financial year are:

	Period as Director
D Anthony (Chairman)	20 September 2005 to present
J Herbert	20 September 2005 to present
S Higgins	20 September 2005 to present
B Finney	20 September 2005 to present
G Fitt	20 September 2005 to present
K Adams	20 September 2005 to present
H Scott-Orr	20 September 2005 to present
D Bentley	20 September 2005 to present

2 Company Particulars

Cotton Catchment Communities CRC Limited, incorporated and domiciled in Australia, is a proprietary company limited by guarantee. The address of the registered office and principal place of business is:

21888 Kamilaroi Highway
NARRABRI NSW 2390

3 Company Secretary

Ms Kym Orman was appointed to the position of company secretary on 20 September 2005. Ms Orman previously held the role of Business Manager with the Australian Cotton CRC for 4 years and prior to that worked in administration for the Cotton Research and Development Corporation.

4 Principal Activity

The principal activities of the company during the financial year were: Conduct research and development for the Australian cotton industry, associated catchments and communities.

There was no significant change in the nature of this activity during the financial year.

5 Operating and Financial Review

The company continued to engage in its principal activity during the financial year.

The net profit of the company for the year ended 30 June 2007 was $32,010 (2006: net profit $126,737). This result represents a $94,727 decrease on the prior year result.

6 State of Affairs

No significant changes in the state of affairs of the company occurred during the financial year.

7 Events Subsequent to Reporting Date

There has not arisen in the interval between the end of the financial year and the date of this report any item, transaction or event of a material and unusual nature likely, in the opinion of the directors of the company, to affect significantly the operations of the company, the results of those operations, or the state of affairs of the company, in future financial years.

DIRECTORS' REPORT
(CONTINUED)

8 Likely Developments

The company will continue to pursue its principal activities at a surplus. It is not expected that the results in future years will be adversely affected by the continuation of these operations.

Further information about likely developments in the operations of the company and the expected results of those operations in future financial years has not been included in this report because disclosure of the information would be likely to result in unreasonable prejudice to the company.

9 Environmental Regulations

The company's operations are not subject to any significant environmental regulations under Australian Law.

10 Indemnification and Insurance of Officers and Auditors

Indemnification

Since the end of the previous financial year, the company has not indemnified or made a relevant agreement for indemnifying against a liability any person who is or has been an officer or auditor of the company.

Insurance Premiums

During the financial year the company has paid premiums in respect of directors' and officers' liability insurance contracts for the year ended 30 June 2007. Such insurance contracts insure against certain liability (subject to specific exclusions) persons who are or have been directors or executive officers of the companies comprising the company.

The directors have not included details of the nature of the liabilities covered or the amount of the premium paid in respect of the directors' and officers' liability insurance contracts, as such disclosure is prohibited under the terms of the contracts.

11 Lead Auditor's Independence Declaration

The lead auditor's independence declaration is set out on page 4 and forms part of the directors' report for the financial year ended 30 June 2007.

Signed in accordance with a resolution of the directors:

D Anthony
Director

J Herbert
Director

Dated: Oct 4/h 2007

COTTON CATCHMENT COMMUNITIES CRC LIMITED

ABN 14 116 310 957

INCOME STATEMENT
FOR THE YEAR ENDED 30 JUNE 2007

	Note	The Company 2007 $	2006 $
Continuing operations			
Revenue	5	28,104,805	22,318,209
Total income		28,104,805	22,318,209
Employee benefits expense	6	(536,387)	(511,194)
Depreciation and amortisation expense	6	(32,868)	(16,623)
Project expenses:			
- The Farm		(12,949,201)	(9,835,665)
- The Catchment		(4,217,902)	(2,661,153)
- The Communities		(126,330)	(458,907)
- The Product		(2,186,244)	(1,996,438)
- Adoption		(7,497,645)	(6,322,528)
Administration expenses		(584,594)	(379,693)
Total expenses		(28,131,171)	(22,183,633)
Net loss from operations		(26,366)	(134,576)
Financial income	8	121,897	46,476
Financial expenses	8	(3,280)	(1,432)
Net financing income		118,617	45,044
PROFIT BEFORE INCOME TAX		92,251	181,052
Income tax expense	9a	(60,241)	(54,315)
PROFIT FOR THE YEAR		32,010	126,737

The above income statement should be read in conjunction with the accompanying notes.

COTTON CATCHMENT COMMUNITIES CRC LIMITED

ABN 14 116 310 957

BALANCE SHEET
AS AT 30 JUNE 2007

	Note	The Company 2007 $	2006 $
CURRENT ASSETS			
Cash and cash equivalents	10	4,150,178	1,873,442
Trade and other receivables	11	1,414,051	2,102,718
Prepayments	12	33,052	16,618
TOTAL CURRENT ASSETS		5,597,281	3,992,778
NON-CURRENT ASSETS			
Property, plant and equipment	13	121,188	154,056
Deferred tax assets		-	46,686
TOTAL NON-CURRENT ASSETS		121,188	200,742
TOTAL ASSETS		5,718,469	4,193,520
CURRENT LIABILITIES			
Trade and other payables	15	1,785,158	2,441,319
Interest-Bearing liabilities	16	7,541	584,674
Employee benefits	17	18,909	23,483
Other Current liabilities	14	3,732,873	875,367
Current tax payable	9c	(5,975)	86,881
TOTAL CURRENT LIABILITIES		5,538,506	4,011,724
NON-CURRENT LIABILITIES			
Interest Bearing liabilities	16	13,412	19,778
Deferred Tax liabilities		-	14,120
Employee benefits	17	7,804	21,161
TOTAL NON-CURRENT LIABILITIES		21,216	55,059
TOTAL LIABILITIES		5,559,722	4,066,783
NET ASSETS		158,747	126,737
EQUITY			
Retained earnings	18	158,747	126,737
TOTAL EQUITY		158,747	126,737

The above balance sheet should be read in conjunction with the accompanying notes.

COTTON CATCHMENT COMMUNITIES CRC LIMITED

ABN 14 116 310 957

STATEMENT OF CHANGES IN EQUITY
FOR THE YEAR ENDED 30 JUNE 2007

	The Company	
	2007	2006
	$	$
TOTAL EQUITY AT THE BEGINNING OF THE FINANCIAL YEAR	126,737	-
Profit for the year attributable to equity holders	32,010	126,737
TOTAL EQUITY AT THE END OF THE FINANCIAL YEAR	158,747	126,737

The above statement of changes in equity should be read in conjunction with the accompanying notes.

NEXIA COURT & CO
NEXIA INTERNATIONAL
CHARTERED ACCOUNTANTS
ABN 71 502 156 733

INDEPENDENT AUDITORS' REPORT TO THE MEMBERS OF COTTON CATCHMENT COMMUNITIES CRC LIMITED

Level 29, Australia Square
264 George Street,
Sydney NSW 2000
PO Box H195,
Australia Square NSW 1215
T 61 2 9251 4600
F 61 2 9251 7138
info@nexiacourt.com.au
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Report on the financial report

We have audited the accompanying financial report of Cotton Catchment Communities CRC Limited (the 'company') which comprises the balance sheet as at 30 June 2007, and the income statement, statement of changes in equity, and cash flow statement for the year ended on that date, a summary of significant accounting policies and other explanatory notes (1 to 24) and the directors' declaration, (set out on pages 7 to 26), of the company.

Directors' responsibility for the financial report

The directors of the company are responsible for the preparation and fair presentation of the financial report in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Act 2001. This responsibility includes establishing and maintaining internal control relevant to the preparation and fair presentation of the financial report that is free from material misstatement, whether due to fraud or error, selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances. In note 2(a), the directors also state, in accordance with Australian Accounting Standard AASB 101 Presentation of Financial Statements, that the financial report of the company, comprising the financial statements and notes, complies with International Financial Reporting Standards.

Auditors' responsibility

Our responsibility is to express an opinion on the financial report based on our report. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditors' judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independence

In conducting our audit, we have complied with the independence requirements of the Corporations Act 2001.

INDEPENDENT AUDITORS' REPORT
TO THE MEMBERS OF
COTTON CATCHMENT COMMUNITIES CRC LIMITED
(CONTINUED)

Auditors' opinion on the financial report
In our opinion:

a the financial report of Cotton Catchment Communities CRC Limited is in accordance with the Corporations Act 2001, including:

i giving a true and fair view of the company's financial position as at 30 June 2007 and of its performance for the financial year ended on that date; and

ii complying with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Regulations 2001.

b the financial report of the company also complies with International Financial Reporting Standards as disclosed in note 2(a).

Nexia Court & Co

Nexia Court & Co
Chartered Accountants

Ian Stone
Partner

Sydney
Dated:

APPENDIX

Table 3 Research Programs Outputs and Milestones

Table 3.1 The Farm 58

Table 3.2 The Catchment 64

Table 3.3 The Community 70

Table 3.4 The Product 77

Table 4 Commercialisation and Utilisation Outputs and Milestones 80

Table 5 End-user Involvement in CRC Activities 95

Table 6 Education and Training Outputs and Milestones 98

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.1 Output	**Integrated Crop Protection ("the good guys and bad guys"). Improved integrated management systems for cotton pests (insects, weeds and diseases) that are profitable, sustainable and demonstrably less reliant on inputs**	June 2012	N/A	Output not due for completion until June 2012	Further projects will also be developed
1.1.1 Milestone	Final report submitted of ACCRC studies in Northern Australia	June 2006	Yes	NorPAK published in 2007 and launched by Western Australian Chief Scientist	
1.1.2 Milestone	Research initiated on emerging pest challenges for integrated pest management (IPM) of insects, weeds and diseases in transgenic and conventional crops	Dec 2005 recurring 2008	Yes	7 new research projects with total funding of approx. $615,000 in 2005–06 and planned funding of $937,000 in 2006–07 have been established	
1.1.3 Milestone	Study on risks of resistance to glyphosate in roundup ready cotton completed	June 2007	Yes	PhD completed	
1.1.4 Milestone	Review goals for research in soil function and ecology and develop future projects	Dec 2006	Yes	Report published	
1.1.5 Milestone	Outcomes of research into insect, weed and disease knowledge compiled and ready for extension	June 2008 Recurring June 2009 Recurring June 2012	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
1.1.6 Milestone	Initial IPM systems (insect, weeds, diseases) developed for Burdekin region and Ord Stage 2	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.1.7 Milestone	Links between farming systems, IPM and area-wide management explored, tools expanded, and guidelines enhanced	June 2011	N/A	Output not due for completion until June 2011	Several projects established to contribute to this milestone
1.1.8 Milestone	Economic analysis of IPM, IDM and AWM strategies	June 2012	N/A	Output not due for completion until June 2012	8 new projects in this field, funding $695,000 for 2005–06 and $1037,000 in 2006–07 (NB some are the same projects as for Milestone 1.1.2)CRC is also appointing an economist in late 2007
1.2 Output	**Water use efficiency ("more crop per drop"). Enhanced understanding of the water balance in cotton farming systems and tools developed and commercialised to maximise on-farm water use efficiency**	Dec 2010	N/A	Output not due for completion until December 2010	Several projects established to contribute to this milestone
1.2.1 Milestone	Complete initial study and report of irrigation management for West Kimberly	June 2006	Yes		
1.2.2 Milestone	Deep drainage Lysimeters established	Sept 2005	Yes	3 new research projects established, with funding of approx $285,000 in 2005–06 and $235,000 in 2006–07. Several lysimeters installed.	
1.2.3 Milestone	Research initiated with commercial partners to evaluate water application, measurement and irrigation scheduling technologies and integrate across levels (farm, field, furrow, plant)	June 2006 Recurring Dec 2006	Yes	3 new projects (funding $45,000 in 2005–06 and $270,000 in 2006–07) have been established. Further applications for additional NWI funding in preparation	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.2.4 Milestone	Establish two collaborative PhD projects with CRC Irrigation Futures	Dec 2006	Yes	CRC-IF leading first student project. A student has been enrolled. Cotton CRC is leading 2nd project, student has been enrolled	
1.2.5 Milestone	Develop projects to understand and complete water balance research established including deep drainage, nutrient and salt movements (links with Program 2)	Dec 2006 Recurring 2008	Yes	See Milestones 1.2.2 and 1.2.3	
1.2.6 Milestone	Review options to reduce losses and implications of deep drainage and nutrient / salt movement and to improve water management. (link with Program 2)	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
1.2.7 Milestone	Water losses from storages and channels (evaporation and seepage) characterised, and options for minimising explored	June 2010	N/A	Output not due for completion until June 2010	Several projects established to contribute to this milestone Additional funds obtained from NWI
1.2.8 Milestone	Economic assessment of the value of the CRC input into improving water use (links with Program 2)	June 2010	N/A	Output not due for completion until June 2010	Appointed of economist in progress
1.3 Output	**Plants and soils ("growing the crop"). Systems to improve the management of the plant and soil, commercialised where practical, that ensure profitable production and stewardship of the soil**	June 2012	N/A	Output not due for completion until June 2012	Further projects will also be developed

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.3.1 Milestone	Research on relationship between crop agronomy and fibre quality initiated (with Program 4)	Aug 2005	Yes	2 new projects commenced (funding $217,000 in 2005–06 and $287,000 in 2006–07)	
1.3.2 Milestone	Research on relationships between crop agronomy and fibre quality compiled and ready for extension	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
1.3.3 Milestone	Finalise research on minimum tillage systems for cotton in NW Australia and review future research needs	June 2006	Yes		
1.3.4 Milestone	Initiate integrated farming systems researcher in central Queensland and scope new Burdekin region needs with commercial partners	June 2007	Yes	New 3-year project underway. Researchers located in region	
1.3.5 Milestone	Research initiated into agronomic requirements of transgenic cotton for existing and new regions, including northern Australia, and new technology for nutritional assessment explored	June 2006 Recurring December 2008	Yes		
1.3.6 Milestone	Results from research in agronomic requirements of transgenic cotton in existing and new regions, including northern Australia, and new technology for nutritional assessment	June 2009 Recurring June 2011	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
1.3.7 Milestone	Research conducted to understand links between soil function, diversity, productivity and farming systems	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.3.8 Milestone	Review research requirements for cotton nutrition and develop new projects	June 2006 Recurring June 2009	Yes	New Post Doctoral position established	
1.3.9 Milestone	Farming systems scientist approved to research and coordinate high yield and profit systems R&D	June 2007	Yes	Scientist appointed	
1.3.10 Milestone	Cotton and grains farming systems inputs optimised for yields, economic returns and inputs	June 2011	N/A	Output not due for completion until June 2011	Several projects established to contribute to this milestone
1.4 Output	**Enabling technologies for precision farming ("smart farming"). Tools and technologies developed for more precise placement, timing or application to allow optimal use of inputs and resources**	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
1.4.1 Milestone	Research conducted with commercial partner(s), for linking crop data to yield maps, ground truthing, quality control and data sharing between electronic formats. Initiate research to explore the economic benefits of precision agriculture	June 2010	N/A	Output not due for completion until June 2010	Several projects established to contribute to this milestone
1.4.2 Milestone	Develop 'smart' science to interpret and use precision agriculture data to identify and manage problems	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.4.3 Milestone	Linkages developed to enable DSS to link with geographic information systems (GIS) to provide site-specific information	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
1.4.4 Milestone	Validation of remote sensing techniques for accurately assessing crop vigour and development of tools to apply smart science to provide diagnoses	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
1.5 Output	**New tools and technologies ("improving the tool kit"). Development of new tools or techniques to address current or future challenges to crop management and allow reduced use of inputs**	June 2012	N/A	Output not due for completion until June 2012	Several projects established to contribute to this milestone
1.5.1 Milestone	Targets and opportunities for novel products developed. Research initiated in priority areas both independently and with commercial partners	Dec 2006	Yes		
1.5.2 Milestone	Reporting on applications of molecular technologies and implications for cotton production	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
1.5.3 Milestone	Develop biopesticides and semiochemicals for mirids and other pests with commercial partners	Dec 2010	N/A	Output not due for completion until December 2010	Several projects established to contribute to this milestone

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
Output 2.1	**Knowledge to underpin the integrated management of river flows to ensure profitable irrigation industries and the sustainable ecological condition of floodplain river ecosystems**	June 2012	N/A	Output not due for completion until June 2012	A series of projects is now in place to address this output. Further projects will also be developed
Milestone 2.1.1	Growers, catchment management authorities and government agencies engaged, research plans finalized, field research sites and baselines established	Dec 2006	Yes	Projects involving the Namoi CMA, Border Rivers- Gwydir CMA, QMDC, Condamine Alliance, NSW DWE, QNR&W have been developed. Project applications have been approved, field sites established and research activities have commenced	
Milestone 2.1.2	River health indicators defined and key flow variability responses-variables identified	June 2008	N/A	Projects are in place to deliver on this milestone in the Border Rivers-Gwydir and Namoi Valleys	
Milestone 2.1.3.	Imaging technology used to describe riverine flow – habitat relationships	June 2008	N/A	Projects are in place to deliver on this milestone in the Border Rivers-Gwydir Valley	
Milestone 2.1.4	Mapping of sub-catchment water flows completed, salt balance assessed in key areas to improve efficiency in water delivery	Dec 2009	N/A	A project is in place to deliver on this milestone in the Condamine and QMDC catchment areas	
Milestone 2.1.5	Final research results reported on manipulation of flows and their impacts on cotton profits and river health in two floodplain catchments	Dec 2011	N/A	Projects addressing milestones 2.1.1 to 2.1.5 contribute to this milestone	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
Output 2.2	**An improved understanding of the current condition of groundwater systems in cotton catchments and the demonstration of best practice scientific approaches for determining sustainable groundwater yields**	June 2012	N/A	Output not due for completion until June 2012	A series of projects is now in place to address this output. Further projects will also be developed
Milestone 2.2.1	Growers, catchment management authorities and government agencies engaged, research plans finalised, field research sites and baselines established	June 2007	Yes	Projects involving the Namoi CMA, Border Rivers- Gwydir CMA, QMDC, Condamine Alliance, NSW DWE, QNR&W have been developed. Project applications have been approved, field sites established and research activities have commenced	
Milestone 2.2.2	Ground water health indicators defined	Dec 2006	Yes	Projects addressing this milestone are underway in the Namoi and Gwydir valleys	
Milestone 2.2.3	Imaging technology developed to assess ground water flow and interaction.	Dec 2008	N/A	A project addressing this milestone has commenced	
Milestone 2.2.4	Groundwater scoping study completed	June 2007	Yes	The groundwater scoping study for the Namoi catchment has been completed and several meetings held with key stakeholders to discuss the findings. Draft copies of the scoping studies for the Condamine Alliance, QMDC, Border Rivers-Gwydir, Lachlan and Macquarie have or are in the process of being reviewed. Delays have been due to relevant information not being readily available	Once the review process is complete, the remaining scoping studies will be distributed to key stakeholders in October 2007

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
Milestone 2.2.5	High risk groundwater sites selected for detailed assessment	June 2007	Yes	The groundwater scoping studies have identified areas within each region where further research is required. The Cotton CRC has begun a consultation process with the relevant catchment bodies, irrigators, industry representatives and state agencies to identify the key research priorities in each region. These priorities will form the basis for future groundwater research	
Milestone 2.2.6	Recharge and river flow interaction assessed for selected sites	June 2008	N/A	A number of projects addressing this milestone have been established in the Namoi valley. Further projects will also be developed in other regions	
Milestone 2.2.7	Demonstrated best practice approach for determining groundwater sustainable yield completed	June 2010	N/A	Projects addressing milestones 2.2.3, 2.2.4 and 2.2.6 will contribute to this milestone	
Milestone 2.2.8	Demonstration of 3D geological modelling and data representation capabilities to the Namoi CMA as part of improved aquifer management	June 2010	N/A	A project to address this milestone has been established in conjunction with the Namoi CMA, UNSW, UTS and National Water Commission	
Milestone 2.2.9	Advice to stakeholders responsible for the development of groundwater allocation plans	June 2011	N/A	Projects addressing milestones 2.2.1 to 2.2.8 contribute to this milestone	
Output 2.3	**Establish baseline for on-farm water quality and develop remediation processes with the capacity to deliver both farm and catchment benefits**	December 2011	N/A	Output not due for completion until December 2011	A series of projects is now in place to address this output. Further projects will also be developed

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
Milestone 2.3.1	Research plans finalised; growers engaged and field sites established	June 2006	Yes	Scoping study completed. Targets for bioremediation identified. Project applications have been approved, field sites established and research activities have commenced	
Milestone 2.3.2	Develop guidelines and technical resources for assessing on-farm water quality options for remediation	June 2008	N/A	Several projects addressing this milestone have commenced	
Milestone 2.3.3	Establish the commercial feasibility of applying bioremediation enzymes for use on cotton farms	January 2009	N/A	A project addressing this milestone has commenced	
Milestone 2.3.4	Obtain research results on managing water levels and aquatic biodiversity in storages	June 2009	N/A	A PhD project addressing this milestone has commenced	
Milestone 2.3.5	Develop an improved understanding of nutrient and pesticide transport pathways on irrigated fields and farms	June 2011	N/A	Project addressing milestones 2.3.2 contribute to this milestone. Further projects will be developed	
Milestone 2.3.6	Incorporate research outcomes and risk analysis into best management practices.	December 2011	N/A	Projects addressing milestones 2.3.2, 2.3.4 and 2.2.5 will contribute to this milestone.	
Output 2.4	**Best practice guidelines for managing terrestrial biodiversity and ecosystem services on farms enabling growers to sustain production and assisting catchment bodies achieve catchment targets**	June 2011	N/A	Output not due for completion until June 2011	A series of projects is now in place to address this output. Further projects will also be developed
Milestone 2.4.1	Research plans finalised; growers, area-wide groups and catchment management authorities engaged and field research sites and baselines established	June 2006	Yes	Projects involving the Namoi CMA, Border Rivers-Gwydir CMA, QMDC and Condamine Alliance have been developed. Project applications have been approved, field sites established and research activities commenced	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
Milestone 2.4.2	Review and evaluate indicators and impacts on the terrestrial biodiversity of cotton farms and catchment	June 2008	N/A	Projects addressing this milestone have been established and research activities have commenced	
Milestone 2.4.3	Develop and test techniques and guidelines for assessing, managing and monitoring biodiversity and ecosystems services on cotton farms	June 2010	N/A	Projects addressing milestone 2.4.3 will contribute to this milestone	
Milestone 2.4.4	Apply condition assessments and ecologically based landscape design principles at farm and catchment scales	June 2011	N/A	Projects addressing this milestone will be developed in the next 12 months	
Output 2.5	**Development of science-based information resources for cotton growers and catchment bodies which promote well informed, best practice natural resource management decisions and activities in cotton catchments**	March 2012	N/A	Output not due for completion until March 2012.	A series of projects is now in place to address this output. Further projects will also be developed.
Milestone 2.5.1	Engage stakeholders (research groups, growers, area-wide groups, catchment management authorities and government agencies) to define land and water use problems and finalise research plans	June 2006	Yes	Meetings with relevant stakeholders have been held and a project is in place which will continue to engage stakeholders	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
Milestone 2.5.2	Development of best practice, science-based farm and catchment scale management tools in consultation with, and for use by key stakeholders including industry, catchment management authorities and government agencies	June 2010	N/A	The research findings generated from Outputs 2.1 to 2.4 contribute to this milestone. Several extension projects have been established that will ensure this milestone is achieved	
Milestone 2.5.3	Deliver and support the application of tools and best practice science-based natural resource management strategies to key stakeholders including industry, catchment management authorities and government agencies	June 2011	N/A	The research findings generated from Outputs 2.1 to 2.4 contribute to this milestone. Several extension projects have been established which ensure this milestone is achieved	
Milestone 2.5.4	Use best science as a basis for updating and developing information resources and training material for enhancing industry knowledge of natural resource management	March 2012	N/A	The research findings generated from Outputs 2.1 to 2.4 contribute to this milestone. Several extension projects have been established which ensure this milestone is achieved	
Milestone 2.5.5	Report on the impact of the science and tools developed for natural resource management and decision making processes by key stakeholders in cotton growing catchments	March 2012	N/A	Information relevant to this milestone is constantly being collected by the Cotton CRC and a report addressing this milestone will be generated in the final year of the Cotton CRC	
Milestone 2.5.6	Report on the contribution of the cotton industry in assisting catchment management authorities reach catchment targets	March 2012	N/A	Information relevant to this milestone is constantly being collected by the Cotton CRC and a report addressing this milestone will be generated in the final year of the Cotton CRC	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.1 Output	**Detailed socio-economic analysis examining the impact of the cotton industry in key cotton growing regions**	June 2012	N/A	Output not due for completion until June 2012	Further projects will also be developed
3.1.1 Milestone	Parameters of study area and data sources and Local Government Area (LGA) personnel involvement established. Research coordinator commissioned and primary data collection underway	Dec 2005	Yes	Meetings with LGAs conducted, workshops on scoping study held	
3.1.2 Milestone	Analysis, preliminary reporting and regional workshops to verify results	Dec 2006	Yes	The scoping study has been completed and the report distributed to LGA and industry representatives. Meetings have been held to discuss findings and establish research requirements	
3.1.3 Milestone	Detailed socio-economic analysis undertaken in key cotton growing communities benchmarking the impact of the cotton industry	June 2008	N/A	Based on the findings from the scoping study and feedback from LGA and industry representatives, the parameters for the proposed socio-economic study have been defined and a project will be commissioned in August 2007	
3.1.4 Milestone	Work with industry, LGAs and government agencies to assist them in understanding the implications of the socio-economic analysis and how this information can be integrated into future strategic planning process	March 2012	N/A	The study commissioned to address milestone 3.1.3 will contribute to this milestone. A second, follow-up socio-economic study to be commissioned in 2011 will also contribute to this milestone	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.2 Output	**Document the past impact of changing agricultural technologies, emerging industries and drought on employment patterns in cotton communities**	March 2012	N/A	Output not due for completion until March 2012	
3.2.1 Milestone	Regional employment baselines, including an understanding of the contribution of the cotton industry to regional employment, investigated and documented	June 2008	N/A	The socio-economic scoping study has contributed to this milestone. Discussions have been held with key stakeholders to define regions of interest and to establish research requirements. These will be included in the research brief due for release in October 2007	A large project to address this output and its associated milestones will be commissioned in October 2007 following further input from key stakeholders
3.2.2 Milestone	Research to establish the past impact of changing agricultural technologies, emerging industries and drought on employment opportunities in the cotton industry and key cotton communities undertaken	June 2009	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.2.3 Milestone	Research to establish current skills, availability and capacity of workers in existing jobs in cotton communities	June 2009	N/A	The socio-economic scoping study has contributed to this milestone. A large research project to address this milestone will be commissioned in October 2007	
3.2.4 Milestone	Develop information resources and scenarios for industry, local businesses and LGA's which outline the likely impact and management implications of the issues addressed in 3.2.1, 3.2.2, 3.2.3	March 2012	N/A	A large research project to address this milestone will be commissioned in October 2007	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.3 Output	**Identification of emerging industries and transforming technologies, and their likely impact on the socio-economic status of communities and the productive capacity of the cotton industry**	March 2012	N/A	Output not due for completion until March 2012	A large project to address this output and its associated milestones will be commissioned in October 2007 following further input from key stakeholders
3.3.1 Milestone	Database of technology developers/providers focusing on the cotton and irrigation industries. Development of protocols for cataloguing technologies and impacts	Dec 2005	Yes	The Cotton CRC has a database which has been integrated into the Adoption Program projects	
3.3.2 Milestone	Identify and undertake investigation into the likely impact of emerging industries and transforming technologies in specific cotton communities	Dec 2008	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.3.3 Milestone	Undertake research to establish the necessary skills, availability and capacity of workers required to fill jobs in cotton communities	June 2010	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.3.4 Milestone	Finalise investigations and develop information resources outlining the likely future impact of these industries and technologies on employment and socio-economic conditions for regional communities and the cotton industry	June 2011	N/A	A large research project to address this milestone will be commissioned in October 2007	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.3.5 Milestone	Work with industry, local business and LGA's to assist them integrate the information generated in Output 3.2, 3.3.2, 3.3.3 and 3.3.4 into their future management plans	March 2012	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.4 Output	**Identify innovative regional businesses and options for economic growth in cotton communities**	March 2012	N/A	Output not due for completion until March 2012	A project to address this output and its associated milestones will be commissioned in October 2007. Additional projects addressing this output will also be established
3.4.1 Milestone	Engage with LGA stakeholders to identify potential opportunities to stimulate and/or attract new industry development	June 2006	Yes	Meetings have been held with LGAs and other key stakeholders to define regions of interest and to establish research requirements. These will be included in the research brief due for release in October 2007	
3.4.2 Milestone	Identify local examples of innovative and successful businesses that have been able to adjust to changing social, economic and environmental conditions	Dec 2007	N/A	The research project commissioned in October 2007 will address this milestone	
3.4.3 Milestone	Document and develop information resources that outline those technologies which have enabled the businesses identified in 3.4.2 to remain successful	Dec 2010	N/A	The research project commissioned in October 2007 will address this milestone	
3.4.4 Milestone	Work with industry, local business and LGAs to assist them to integrate the information generated into future business management plans	March 2012	N/A	The research project commissioned in October 2007 will address this milestone	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.5 Output	**Work with regional indigenous communities and the cotton industry to undertake joint projects which foster a greater cultural understanding, especially in relation to employment, needs and opportunities**	March 2012	N/A	Output not due for completion until March 2012	
3.5.1 Milestone	Consultation with Indigenous community across regions and steering committee established and research priorities set. Documentation of the process and thematic research areas disseminated. Cross-program collaboration investigated	Dec 2006	Yes	Consultation with several indigenous community groups has occurred. A scoping study identifying opportunities for indigenous participation in the cotton industry has been completed and the results disseminated	
3.5.2 Milestone	Initiate and pilot joint projects which actively engage both the industry and indigenous community.	June 2008	N/A	A PhD project has been funded along with a Schools-Based Traineeship project with the Aboriginal Employment Strategy. Further projects addressing this milestone will also be established	
3.5.3 Milestone	Extend results and key learnings of the research to the industry and wider community	June 2011	N/A	The findings from those projects addressing milestone 3.5.2 will be collated and then extended through a range of mediums including information resources, workshops etc.	
3.5.4 Milestone	Work with industry and the wider community to increase their capacity in the area of indigenous engagement and assist in the adoption of key principles, learning's or pilot programs.	March 2012	N/A	The findings from those projects addressing milestone 3.5.3 will be collated and then extended through a range of mediums including information resources, workshops etc.	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.6 Output	**Understanding the barriers and drivers to collective natural resource management by industry, community and government**	December 2011	N/A	Output not due for completion until December 2011	A large project to address this output and its associated milestones will be commissioned in October 2007 following further input from key stakeholders
3.6.1 Milestone	Undertake research into the barriers and drivers for industry, community and government to collectively achieve natural resource management outcomes	June 2008	N/A	A scoping study examining natural resource governance in the cotton industry has been completed. Discussions have been held with key stakeholders to define regions of interest and to establish research requirements. These will be included in the research brief due for release in October 2007	
3.6.2 Milestone	Identify examples of where the cotton industry, the community and key stakeholders have successful and unsuccessfully worked together to achieve natural resource management outcomes	June 2009	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.6.3 Milestone	Document and develop information resources that outline the lessons learnt and the techniques that will foster future successful outcomes	Dec 2011	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.7 Output	**Identify the likely impact of future water and natural resource management policies on the cotton industry and the socio-economic consequences for regional communities**	March 2012	N/A	Output not due for completion until March 2012	A large project to address this output and its associated milestones will be commissioned in October 2007 following further input from key stakeholders

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.7.1 Milestone	Conduct a detailed analysis of the current suite of policy instruments and governance frameworks	Dec 2006	Yes	A scoping study examining natural resource governance in the cotton industry has been completed. Discussions have been held with key stakeholders to define regions of interest and to establish research requirements. These will be included in the research brief due for release in October 2007	
3.7.2 Milestone	Undertake research into the socio-economic impacts of current natural resource management policies on cotton communities	Dec 2009	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.7.3 Milestone	Develop a range of scenarios which identify how changing environmental, social and policy issues may impact on cotton communities in the future	Dec 2010	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.7.4 Milestone	Illustrate through a range of scenarios, how changes associated with natural resource management policies will impact on regional communities, along with state-wide and national impacts	Dec 2011	N/A	A large research project to address this milestone will be commissioned in October 2007	
3.7.5 Milestone	Demonstrate to the community, industry, LGAs, state and federal government the likely impacts and adjustments that these policies may require	March 2012	N/A	A large research project to address this milestone will be commissioned in October 2007	

	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
4.1 Output	**Objective measurement system for fibre fineness and maturity adopted internationally for trading cotton**	June 2011	N/A	Output not due for completion until June 2011	Further projects will also be developed
4.1.1 Milestone	Develop novel fibre measurement technology specifically for targeting direct assessment of fibre maturity	June 2007	Yes	Business case for technology has been developed and final product testing	
4.1.2 Milestone	Completion of extension and training to key Australian and overseas mill customers demonstrating the value of the new measurements	December 2011	N/A	Output not due for completion until December 2011	Several projects established to contribute to this milestone
4.2 Output	**Agronomic factors affecting fibre quality and processing performance identified and optimised**	June 2009	N/A	Output not due for completion until June 2009.	Several projects established to contribute to this milestone
4.2.1 Milestone	Development of guidelines on acceptable variation in fibre quality parameters for acceptable textile processing performance	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
4.2.2 Milestone	Development of guidelines on acceptable variation in fibre quality parameters for acceptable textile processing performance	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
4.3 Output	**Improved harvesting and ginning processes to preserve fibre length**	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
4.3.1 Milestone	Undertake a desk top study of the fibre damage that occurs during harvesting and assess potential for improvements to preserve fibre quality	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
4.3.2 Milestone	Identification of new technology to preserve fibre quality during ginning/ harvesting (fibre length preserved with corresponding reductions in short fibre content and neps)	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
4.4 Output	**Technical requirements to support marketing an Australian Cotton Brand or eco label**	June 2009	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
4.4.1 Milestone	Identification of the key R&D requirements along the international supply chain for this marketing initiative	June 2006	Yes	Through the Environmental Management Systems project funded by CRDC, discussions with international merchants, spinners, marketers and brand owners are well advanced	Future work in this area will be continued by CRDC
4.4.2 Milestone	Examination of the supply chain and development of any necessary technical or auditing protocols to meet marketing/labelling requirements	June 2007	Yes	Ginning sector and classing sector have been assessed and BMP guidelines developed. Audits conducted EMS pathways project completed by CRDC	
4.4.3 Milestone	In conjunction with supply chain partners identify and assist to develop best practice procedures for cotton processing	June 2009	N/A	Output not due for completion until June 2009	Several projects established to contribute to this milestone
4.5 Output	**Contamination in Australian cotton reduced by at least 50%**	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
4.5.1 Milestone	Quantify the extent and nature of contamination of Australian cotton	June 2007	Yes	Level of contamination determined	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
4.5.2 Milestone	Assist in the identification of appropriate practices and systems to minimise contamination in Australian cotton	June 2008	N/A	Output not due for completion until June 2008	Several projects established to contribute to this milestone
4.6 Output	**Aquaculture products from cotton farms**	June 2012	N/A	Output not due for completion until June 2012	Two projects established to contribute to this milestone
4.6.1Milestone	Construct resource inventory of land, water and infrastructure suitable for aquaculture on cotton farms in NSW and Queensland with commercial partners	June 2006	Yes	Two projects established (funding $65,000 in 2005–06, $163,000 in 2006–07) have done inventories	Several projects established to contribute to this milestone
4.6.2 Milestone	Define projects and appoint students to investigate appropriate issue	June 2006	Yes	PHD student appointed	
4.6.3 Milestone	Reports of research complied and ready for extension	June 2009	N/A	Output not due for completion until June 2009.	
4.6.4 Milestone	Studies completed and industry targets for aquaculture on cotton farms achieved	June 2012	N/A	Output not due for completion until June 2012	Two projects established to contribute to this milestone

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.1 Output	**Development of new tools or techniques to address current or future challenges to crop management to maximise intellectual property for commercial returns**	June 2012	N/A	Output not due for completion until June 2012	Further projects will also be developed
1.1.1 Milestone	Review and scope commercial opportunities, with potential commercial partners, to use technology to improve data acquisition and use, including hands-free direct to DSS data recording, use of high-speed mobile phone technology for downloading data	Sept 2006	Yes		
1.1.2 Milestone	Initiate business plan with commercial partners on biopesticides and semiochemicals for mirids and other pests with commercial partners. Path for future development and validation defined	Dec 2007	N/A	Milestone not due until Dec 2007	Several agreements with commercial partners have been signed or are under negotiation
1.1.3 Milestone	Negotiations with commercial partners for development of 'hands-free' and high speed downloading tools for crop checking	Dec 2008	N/A	Milestone not due for completion until June 2008	Student working on project
1.1.4 Milestone	Initiate discussions with commercial partner for electrical imaging	Dec 2008	N/A	Milestone not due for completion until June 2008	Provisional patent being examined
1.1.5 Milestone	Negotiations with commercial partners for evaporation polymer product	Dec 2008	N/A	Milestone not due for completion until Dec 2008	Joint project with CRC Polymers and CRC-IF is well advanced

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.1.6 Milestone	Commercialisation of new technologies with identified royalty flows to the CRC. Re-investment in enhancement of existing or discovery of new opportunities	June 2010	N/A	Milestone not due for completion until June 2010	
1.1.7 Milestone	Royalties flow to CCC CRC	June 2012	N/A	Milestone not due for completion until June 2012	
2.1 Output	**Knowledge to underpin the integrated management of river flows to ensure profitable irrigation industries and sustainable ecological condition of floodplain ecosystems**	June 2012	N/A	Output not due for completion until June 2012	
2.1.1 Milestone	Published system maps and current knowledge of environmental flows in Gwydir catchment extended to stakeholders	June 2008	N/A	Milestone not due for completion until June 2008	Project underway
2.1.2 Milestone	Packaged flows model in tool kit and presented to stakeholders	June 2010	N/A	Milestone not due for completion until June 2010	
2.1.3 Milestone	River health indicators defined and distributed to stakeholders	June 2012	N/A	Milestone not due for completion until June 2012	
2.2 Output	**An improved understanding of the current condition of groundwater systems in cotton catchments and the demonstration of best practice scientific approaches for determining sustainable groundwater yields**	June 2012	N/A	Output not due for completion until June 2012	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
2.2.1 Milestone	Published scoping report for stakeholders distributed on groundwater	June 2007	Yes	The groundwater scoping study for the Namoi catchment has been completed and several meetings held with key stakeholders to discuss the findings. Draft copies of the scoping studies for the Condamine Alliance, QMDC, Border Rivers-Gwydir, Lachlan and Macquarie have or are in the process of being reviewed. Delays have been due to relevant information not always being readily available	Once the review process is complete, the remaining scoping studies will be distributed to key stakeholders in October 2007
2.2.2 Milestone	Demonstration of 3D geological modelling and data representation capabilities and advice to irrigators and stakeholders responsible for the development of groundwater allocation plans	June 2010	N/A	Milestone not due for completion until June 2010	Additional funds have been obtained from National Water Initiative
2.2.3 Milestone	Ground water and surface water interactions models completed and extended to stakeholders	June 2012	N/A	Milestone not due for completion until June 2012	
2.3 Output	**Establish baselines for on-farm water quality and develop remediation processes with the capacity to deliver both farm and catchment benefits**	Dec 2011	N/A	Output not due for completion until Dec 2011	
2.3.1 Milestone	Published guidelines for growers on storage design criteria for biodiversity outcomes completed	June 2007	Yes	Guidelines addressing this milestone have been developed and the resulting information distributed via an industry wide mailout	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
2.3.2 Milestone	Published guidelines for growers on storage management for irrigation and biodiversity outcomes	June 2010	N/A	Milestone not due for completion until June 2010	
2.3.3 Milestone	Commercial feasibility of bioremediation products for use in on-farm water ways and storages completed	December 2011	N/A	Milestone not due for completion until Dec 2011	
2.4 Output	**Best-practice guidelines for managing terrestrial biodiversity and ecosystem services on farms enabling growers to sustain production and increase profits and assisting catchment bodies achieve catchment targets**	June 2012	N/A	Output not due for completion until June 2012	
2.4.1 Milestone	Published guidelines for management of remnant vegetation and re-vegetation options on cotton farms and the implications for terrestrial biodiversity and ecosystem services	June 2008	N/A	Milestone not due for completion until June 2008. 'Birds on Cotton Farms' book published, which included guidelines	
2.4.2 Milestone	Calculator for some aspects of ecosystem services completed	June 2009	N/A	Milestone not due for completion until June 2009	
2.4.3 Milestone	Packaged techniques and extension services on values of ecosystem services and monitoring terrestrial biodiversity to cotton growers and catchment communities completed	June 2011	N/A	Milestone not due for completion until June 2011	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
2.5 Output	**Development of science-based information resources for cotton growers and catchment bodies which promote well informed, best practice natural resource management decisions and activities in cotton catchments**	June 2012	N/A	Output not due for completion until June 2012	
2.5.1 Milestone	Developed property and catchment planning tools and process-oriented to integrate land and water use decision making	June 2012	N/A	Milestone not due for completion until June 2012	
3.1 Output	**Detailed socio-economic analysis examining the impact of the cotton industry in key cotton growing regions**	June 2012	N/A	Output not due for completion until June 2012	
3.1.1 Milestone	Regional workshops completed and scoping study published and distributed	March 2006	Yes	The scoping study has been completed and the report distributed to LGA and industry representatives Meetings have been held to discuss findings and establish research requirements	
3.1.2 Milestone	Major report completed. Report figures distributed via regional media	June 2008 Recurring Dec 2007	N/A	Milestone not due for completion until June 2008	
3.1.3 Milestone	Major analysis report completed. Participatory action project involving stakeholders	Dec 2010	N/A	Milestone not due for completion until Dec 2010	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.2 Output	**Work with regional indigenous communities and the cotton industry to undertake joint projects in which foster a greater cultural understanding, especially in relation to employment needs and opportunities**	June 2012	N/A	Output not due for completion until Dec 2012	
3.2.1 Milestones	Consultation with indigenous community across regions and steering committee established and research priorities set. Documentation of the process and thematic research areas disseminated	Dec 2006	Yes	Consultation with several indigenous community groups has occurred. A scoping study identifying opportunities for indigenous participation in the cotton industry has been completed and the results disseminated	
3.2.2 Milestone	Results and key learning's from projects extended to the industry and wider community	June 2011	N/A	Milestone not due for completion until June 2011	
3.2.3 Milestone	Extension phase to work with industry and the wider community to increase their capacity in the area of indigenous engagement and assist in the adoption of key principles, learnings or pilot programs	March 2012	N/A	Milestone not due for completion until March 2012	
3.3 Output	**Identify the likely impact of future water and natural resource management policies on the cotton industry and the socio-economic consequences for regional communities**	June 2012	N/A	Output not due for completion until June 2012	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
3.3.1 Milestones	Scoping study completed, including engagement with peak stakeholders as part of extension process and network establishment	Dec 2006	Yes	A scoping study examining natural resource governance in the cotton industry has been completed. Discussions have been held with key stakeholders to discuss findings and to establish networks and identify opportunities for further joint projects	
3.3.2 Milestone	Develop a range of scenarios which illustrate how changes associated with natural resource management policies will impact on industry and regional communities	December 2011	N/A	Milestone not due for completion until Dec 2011	
4.1 Output	**Objective measurement system for fibre fineness and maturity adopted internationally for trading cotton**	June 2011	N/A	Output not due for completion until June 2011	
4.1.1 Milestone	Ratification of the instrumentation by the ITMF Fibre Fineness and Maturity Working Group for commercialisation development	June 2007	Yes		
4.1.2 Milestone	Ratification of the instrumentation by the ITMF Fibre Fineness and Maturity Working Group for commercialisation development	June 2009	N/A	Milestone not due for completion until June 2009	
4.1.3 Milestone	Completion of extension and training to key Australian and overseas mill customers demonstrating the value of the new measurements	June 2011	N/A	Milestone not due for completion until June 2011	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
4.2 Output	**Agronomic factors affecting fibre quality and processing performance identified and optimised**	June 2012	N/A	Output not due for completion until June 2012	
4.2.1 Milestone	Delivery of an industry extension initiative that links with all related industry information initiatives, focusing on management for enhanced fibre quality	June 2012	N/A	Milestone not due for completion until June 2012	
4.3 Output	**Improved harvesting and ginning processes to preserve fibre length**	June 2010	N/A	Output not due for completion until June 2010	
4.3.1 Milestone	Undertake a desk top study of the fibre damage that occurs during harvesting and assess potential for improvements to preserve fibre quality	June 2008	N/A	Milestone not due for completion until June 2008	
4.3.2 Milestone	Identification of new technology to preserve fibre quality during ginning/ harvesting (fibre length preserved with corresponding reductions in short fibre content and neps)	June 2009	N/A	Milestone not due for completion until June 2009	
4.3.3 Milestone	Development and technology transfer of a package appropriate to the wider Australian harvesting and ginning industry	June 2011	N/A	Milestone not due for completion until June 2011	
4.4 Output	**All technical requirements in place to support a marketing initiative (Eco-label cotton) for environmentally friendly consumer products if industry business plan is viable**	June 2009	N/A	Output not due for completion until June 2009	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
4.4.1 Milestone	In conjunction with supply chain partners identify and assist to develop best practice procedures for cotton processing	June 2009	N/A	Milestone not due for completion until June 2009	
4.5 Output	**Contamination in Australian cotton reduced by at least 50%**	June 2008	N/A	Output not due for completion until June 2008	
4.5.1 Milestone	Quantify the extent and nature of contamination of Australian cotton	June 2007	Yes	Level of contamination determined	
4.5.2 Milestone	Assist in the identification of appropriate practices and systems to minimise contamination in Australian cotton	June 2008	N/A	Milestone not due for completion until June 2008	
4.6 Output	**Value adding to existing cotton farm infrastructure through aquaculture**	June 2012	N/A	Output not due for completion until June 2012	
4.6.1 Milestone	Inventory of land, water and infrastructure suitable for aquaculture on cotton farms in NSW and Queensland with commercial partners to generate potential market providers	June 2006	Yes	Inventories completed work progressing in NSW only	Aquaculture projects were reviewed April 2007. Queensland project related to this milestone was cancelled owing to shift in priorities of commercial partner
4.6.2 Milestone	Develop guidelines for developing aquaculture on cotton farms	June 2009	N/A	Milestone not due for completion until June 2009	
4.6.3 Milestone	Extension sites established	June 2010	N/A	Milestone not due for completion until June 2010	
4.6.4 Milestone	Guidelines, including economic assessment of aquaculture on cotton farms completed	June 2010	N/A	Milestone not due for completion until June 2010	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
5.1 Output	**Knowledge transfer by national extension network**	June 2012	N/A	Milestone not due for completion until June 2012	
5.1.1 Milestone	Plan implementation of recommendations from the 2005 Review of Extension in the cotton industry	Sept 2005	Yes	Re-investment and re-establishment of the National Cotton Extension Team Completed in 2007	
5.1.2 Milestone	Appoint Education and Extension manager	Oct 2005	Yes	Extension and Knowledge manager appointed	
5.1.3 Milestone	Initial national extension programs developed and implemented	June 2006	Yes	Extension programs operational, however have been enhanced in 2006–07	
5.1.4 Milestone	Evaluate effectiveness and targets and implement revised strategies	June 2007	Yes	NCET approach re-developed around a regional and national framework aligned to regional priorities identified by a Regional Advisory Panel and core industry issues as aligned to key industry research areas	
5.1.5 Milestone	Evaluate outcomes and effectiveness and compile business plan in relation to end of CRC life	June 2010	N/A	Milestone not due for completion until June 2010	
5.1.6 Milestone	Knowledge and utilisation transfer by national extension network achieved	June 2012	N/A	Milestone not due for completion until June 2012	
5.2 Output	**CRC Information Centre delivery to markets information products and services**	June 2012	N/A	Milestone not due for completion until June 2012	
5.2.1 Milestone	Information Centre established	Aug 2005	Yes	Officer appointed and project will continue into the future	
5.2.2 Milestone	Information and knowledge needs strategies completed	June 2006	Yes	Ongoing process of CRC	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
5.2.3 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	June 2006	Yes	New Cotton Paks CD released	
5.2.4 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	June 2007	Yes	Ongoing process of CRC	
5.2.5 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	Dec 2008	N/A	Milestone not due for completion until Dec 2008	
5.2.6 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	June 2009	N/A	Milestone not due for completion until June 2009	
5.2.7 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	June 2010	N/A	Milestone not due for completion until June 2010	
5.2.8 Milestone	Evaluate benefits of resource centre and plan exit strategy and review	June 2010	N/A	Milestone not due for completion until June 2010	
5.2.9 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	June 2011	N/A	Milestone not due for completion until June 2011	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
5.2.10 Milestone	Information suite of products (CDs, paks, publications, video, etc) produced from synthesized data from research projects	June 2012	N/A	Milestone not due for completion until June 2012	
5.2.11 Milestone	Key products (packs, CDs, brochures etc) and services delivered	June 2012	N/A	Milestone not due for completion until June 2012	
5.3 Output	**Decision Support tools in use by market clients**	June 2012	N/A	Output not due for completion until June 2012	
5.3.1 Milestone	Decision Support System Business Plan developed	June 2006	Yes	Business plan reviewed by investors (CSIRO& CRDC)	
5.3.2 Milestone	Opportunities from business plan progressed and enhanced decision support tools and packages developed and released. Markets monitored	June 2007	Yes	Decision made to end some projects	A programmer has been retained by the Cotton CRC to deliver web-based tools
5.3.3 Milestone	New suite of tools released	June 2009	N/A	Milestone not due for completion until June 2009	
5.3.4 Milestone	Decision support systems and information packages developed and delivered to industry	June 2012	N/A	Milestone not due for completion until June 2012	
5.4 Output	**Web site for knowledge diffusion to CRC markets and general Australian public**	July 2012	N/A	Milestone not due for completion until June 2012	
5.4.1 Milestone	New CRC web site established	Dec 2005	Yes	www.cotton.crc.org.au	
5.4.2 Milestone	Website use and effectiveness reviewed	June 2006	Yes	Review underway and plans in place to enhance website for new technologies	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
5.4.3 Milestone	New web based decision tools operating	June 2006	Yes	A new water quality calculator is available on the CRC website	
5.4.4 Milestone	Website use and effectiveness reviewed and restructured with new features. Major update	June 2008	Yes	A review of the prior website was undertaken and a scoping across several forums and all participants was undertaken to understand evolving requirements of the CRC	
5.4.5 Milestone	Website use and effectiveness reviewed	June 2010	N/A	Against these needs a new website based on a content management system was developed and launched on 29June 2007, to better cater to the expansion of the CRC's information and knowledge management	
5.4.6 Milestone	Website delivered CRC knowledge	June 2012	N/A	Milestone not due for completion until June 2012	
5.5 Output	**Media release for knowledge diffusion to markets and Australian public**	June 2012	N/A	Milestone not due for completion until June 2012	
5.5.1 Milestone	Communications Unit established	Aug 2005	Yes	Milestone not due for completion until June 2012	
5.5.2 Milestone	Communications strategy developed. 20 media releases dispatched	June 2006	Yes	Communications Unit fully functional for meeting Output requirements 24 media releases dispatched	
5.5.3 Milestone	20 media releases dispatched	June 2007	Yes	40 media releases dispatched	
5.5.4 Milestone	20 Media releases dispatched	June 2009	N/A	Milestone not due for completion until June 2009	
5.5.5 Milestone	20 Media releases dispatched	June 2010	N/A	Milestone not due for completion until June 2010	
5.5.6 Milestone	20 Media releases dispatched	June 2011	N/A	Milestone not due for completion until June 2011	
5.5.7 Milestone	20 Media releases dispatched	June 2012	N/A	Milestone not due for completion until June 2012	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
5.6 Output	**Cotton Exhibition Centre providing knowledge products to community**	June 2012	N/A	Milestone not due for completion until June 2012	
5.6.1 Milestone	Fund water and catchment exhibit	Aug 2005	Yes	Exhibit funded and constructed	
5.6.2 Milestone	Water exhibit launched with other partners	Mar 2006	Yes	Hon. John Cobb MP, Assistant Minister for the Environment and Water Resources, officially launched water exhibit on 7th August 2007	
5.6.3 Milestone	Review exhibits for technical content	June 2006	Yes	Technical content will be kept up-to-date	
5.6.4 Milestone	Review exhibits for technical content	June 2007	Yes	A major technical review and scoping for new exhibits is occurring on the 27thSeptember 2007 by multiple partners	
5.6.5 Milestone	Review exhibits for technical content. Upgrade Water exhibit	June 2009	N/A	Milestone not due for completion until June 2009	
5.6.6 Milestone	Review exhibits for technical content	June 2011	N/A	Milestone not due for completion until June 2011	
5.7 Output	**Technical support provided for the adoption of the cotton industry's Best Management Practices program in collaboration with Cotton Australia**	June 2012	N/A	Output not due for completion until June 2012	
5.7.1 Milestone	Cotton Australia team inducted to CRC	Dec 2005	Yes	Partnership with regional NRM bodies is aiding in delivery of BMP program Series of BMP Land and Water Management workshops held with Cotton Australia. Joint activity will continue in 2006–07	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
5.7.2 Milestone	Business plan for technical support to BMP Land and Water developed	June 2006	Yes		Cotton industry completed a major review of BMP in 2006
5.7.3 Milestone	Publication products and technical service networks to support BMP Land and Water Management module operating	June 2006	Yes		
5.7.4 Milestone	General Manager BMP appointed	June 2007	Yes	Cotton Australia Growers Service Managers are involved in the regional planning and National Priority Teams to provide practical integration of BMP and Extension Services	A BMP General Manager has been jointly funded by industry to drive the implementation of a 'new' way of delivering the BMP Program. Baseline reports collected in 2006 and 2007
5.7.5 Milestone	New BMP Business Plan and Product operating	June 2008	N/A	Milestone not due for completion until June 2008	
5.7.6 Milestone	Products and technical service network s to support BMP operating	June 2009	N/A	Milestone not due for completion until June 2009	
5.7.7 Milestone	Products and technical service network s to support BMP operating	June 2010	N/A	Milestone not due for completion until June 2010	
5.7.8 Milestone	Products and technical service network s to support BMP operating	June 2011	N/A	Milestone not due for completion until June 2011	
5.7.9 Milestone	Publication products and technical service network s to support BMP operating	Delivery date June 2012	N/A	Milestone not due for completion until June 2012	
5.9 Output	**Establish and maintain key data sets for monitoring practice change and evaluating Triple Bottom Line outcomes**	2010	N/A	Milestone not due for completion until 2010	
5.9.1 Milestone	Major report published and distributed	June 2008	N/A	Milestone not due for completion until June 2008	
5.9.2 Milestone	Major report published and distributed	June 2010	N/A	Milestone not due for completion until June 2010	

End-user name	Relationship with CRC	Type of activity and end-user location	Nature/scale of benefits to end-user	Actual or expected benefit to end-user
Ag Biotech Pty Ltd	Industry Affiliate	Commercialisation	Licence to use CRC research Project 1.05.02 'Chemical ecology of insects' for a period of time to undertake product development	Royalties generated. The figures are commercial in confidence
Australian Cotton Growers Research Association	Industry Participant	Advising of research directions and strategy and providing on ground resources for grower trials. Implementation of research	Increase in productivity, reduced costs and increased sustainability for growers	In the long term, economic benefits amounting to $1 billion is expected from CRC research
Aquatech	Industry Affiliate	Contract research to the CRC	Participation in water use efficiency and water storage projects will raise profile and increase sales of monitoring equipment	Project just beginning
Cotton Seed Distributors	Industry Participant	Adoption of CRC research. Assistance with extension of research outputs	Increased sales of cotton seed through a more productive and expanded cotton industry	Current limitations in the availability of water make it difficult to assess long term benefits at this stage
Dunavant Enterprises Pty Ltd	Industry Affiliate	Adoption of CRC research	Reduced contamination in Australian cotton will mean fewer quality discounts and a better reputation in the marketplace	Project has already identified areas in which contamination can be reduced
Incitec Pivot Ltd Nutrient Monitoring Systems	Industry Affiliate Project partner	Adoption of CRC research	Increased revenue from more effective methods of soil testing and better decisions	Fertisliser sales and cost savings for growers
Monsanto Australia Inc	Industry Affiliate	Adoption of CRC research	Increased use of transgenic cotton, generating more license revenue and improved sustainability of GM technology	Approximately 90% of the Australian crop is now transgenic, and CRC research underpins the sustainability. Monsanto have increased their contribution to the CRC
Telstra Corporation Ltd	Affiliate	Commercialisation	Increased use of Telstra infrastructure; enabling Telstra to meet regional service goals	Product sales
Growth Agriculture Pty Ltd	Project partner	Commercialisation	New product and sales	Product Sales
Borders Rivers-Gwydir Catchment Management Systems	Project partner	Adoption of CRC research	Ability to meet catchment targets	Improved water use efficiency Improved farm practice

End-user name	Relationship with CRC	Type of activity and end-user location	Nature/scale of benefits to end-user	Actual or expected benefit to end-user
Aboriginal Employment Strategy Pty Ltd	Community Affiliate	Employment	Improved ability to place Aboriginal job seekers in cotton-related work	Project is just beginning
Australian Cotton Shippers Association	Industry Affiliate	Adoption of CRC research	Reduced contamination in Australian cotton will mean fewer quality discounts and a better reputation in the marketplace	Project has already identified areas in which contamination can be reduced
Boyce Chartered Accountants	Industry Affiliate	Contracted research from CRC	All cotton growers benefit from the knowledge	Report on profitability of cotton published
Cotton Australia	Industry Participant	Adoption of CRC research	Training programs will upskill operators in several sections of the industry	Implementation of their BMP program, which has economic outcomes for growers
Cotton Consultants Australia Inc	Industry Affiliate	Adoption of CRC research, contracted research from CRC	CRC adoption projects will transfer knowledge to consultants, who are key agents in knowledge transfer to growers. CCA also contracted to survey growers for triple bottom line monitoring	Increased knowledge and capacity
Primary Science Matters (Non-Participant)	Community Project partner	Financial assistance from CRC	Science in a Box	CRC contributed $10,900 to this schools-based education program Education and knowledge of science in schools
Namoi Catchment Management Authority	Catchment Affiliate	Adoption of CRC research	Ability to meet catchment targets	Improved water use efficiency Improved farm practice
Central West Catchment Management Authority	Project partner	Adoption of CRC research	Ability to meet catchment targets	Improved water use efficiency Improved farm practice
Condamine Alliance	Catchment Affiliate	Adoption of CRC research	Ability to meet catchment targets	Improved water use efficiency Improved farm practice
Queensland Murray Darling Committee	Catchment Affiliate	Adoption of CRC research	Ability to meet catchment targets	Improved water use efficiency Improved farm practice
SACOA Pty Ltd	Project partner	Adoption of CRC research	CRC research will enable the use of petroleum spray oils against new insect pests, thus increasing revenue	Product sales

End-user name	Relationship with CRC	Type of activity and end-user location	Nature/scale of benefits to end-user	Actual or expected benefit to end-user
Inverell Shire Council	Community Affiliate	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Socio Economic study understanding of benefits of a cotton to the community
Millmerran Shire Council	Community Affiliate	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Socio Economic study understanding of benefits of a cotton to the community
Narrabri Shire Council	Community Affiliate	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Socio Economic study understanding of benefits of a cotton to the community
Narromine Shire Council	Community Affiliate	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Socio Economic study understanding of benefits of a cotton to the community
Warren Shire Council	Community Affiliate	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Socio Economic study understanding of benefits of a cotton to the community

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.1 Output	**50 post graduate students graduated**	June 2012	N/A	Output not due for completion until June 2012	Currently have 40 student projects underway with further projects to be start in year 3
1.1.1 Milestone	Commence 15 PhD and Masters scholarships Rnd 1	Feb 2006	Yes		
1.1.2 Milestone	Commence 15 PhD and Masters scholarships Rnd 2	Feb 2007	Yes		
1.1.3 Milestone	Commence 15 PhD and Masters scholarships Rnd 3	Feb 2008	N/A	Milestone not due for completion until Feb 2008	
1.1.4 Milestone	Commence 5 PhD and Masters scholarships Rnd 4	Feb 2009	N/A	Milestone not due for completion until Feb 2009	
1.1.5 Milestone	Graduate 10 PhD and Masters Students Rnd 1	June 2009	N/A	Milestone not due for completion until June 2009	
1.1.6 Milestone	Graduate 15 PhD and Masters Students Rnd 2	June 2010	N/A	Milestone not due for completion until June 2010	
1.1.7 Milestone	Graduate 15 PhD and Masters Students Rnd 3	June 2011	N/A	Milestone not due for completion until June 2011	
1.1.8 Milestone	Graduate 10 PhD and Masters Students Rnd 4	June 2012	N/A	Milestone not due for completion until June 2012	
1.2 Output	**13 Honours/Internships scholarships completed**	Dec 2011	N/A	Output not due for completion until Dec 2011	
1.2.1 Milestone	1 internship completed	Dec 2005	Yes		
1.2.2 Milestone	2 Honours/ internships completed	Dec 2006	Yes		
1.2.3 Milestone	2 Honours/ internships completed	Dec 2007	N/A	Milestone not due for completion until Dec 2009	
1.2.4 Milestone	2 Honours/ internships completed	Dec 2008	N/A	Milestone not due for completion until Dec 2008	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.2.5 Milestone	2 Honours/ internships completed	Dec 2009	N/A	Milestone not due for completion until Dec 2009	
1.2.6 Milestone	2 Honours/ internships completed	Dec 2010	N/A	Milestone not due for completion until Dec 2010	
1.2.7 Milestone	2 Honours/ internships completed	Dec 2011	N/A	Milestone not due for completion until Dec 2011	
1.3 Output	**38 Summer Scholarships completed for undergraduate students from partner universities**	Mar 2012	N/A	Output not due for completion until Mar 2012	
1.3.1 Milestone	5 Summer scholarships completed	Mar 2006	Yes		
1.3.2 Milestone	6 Summer scholarships completed	Mar 2007	Yes		
1.3.3 Milestone	6 Summer scholarships completed	March 2008	N/A	Milestone not due for completion until Mar 2008	
1.3.4 Milestone	6 Summer scholarships completed	March 2009	N/A	Milestone not due for completion until Mar 2009	
1.3.5 Milestone	6 Summer scholarships completed	March 2010	N/A	Milestone not due for completion until Mar 2010	
1.3.6 Milestone	6 Summer scholarships completed	March 2011	N/A	Milestone not due for completion until Mar 2011	
1.3.7 Milestone	4 Summer scholarships completed	March 2012	N/A	Milestone not due for completion until Mar 2012	
1.4 Output	**Pathways for articulation towards a Masters of Agriculture Course in Cotton Production through partner Universities and professional doctorate (PhD status) following masters program**	June 2008	N/A	Output not due for completion until June 2008	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.4.1 Milestone	Develop a course of appropriate units from specialist disciplines offered by partner universities for study in cotton production at Masters level	Jan 2007	No	This process has commenced and will be completed in 2007	Meeting of past students scheduled for September 2007 Business plan due to the Board in December 2007
1.4.2 Milestone	Offer a pathway to a Professional Doctorate through cotton related units appropriate to cotton industry employment objectives	June 2008	N/A	Milestone not due for completion until June 2008	
1.5 Output	**125 Graduates of Post Grad Certificate and Certificate in Cotton Production**	June 2012	N/A	Output not due for completion until June 2012	
1.5.1 Milestone	Develop and progress course business plan	Dec 2006	No	Business plan is being developed in 2007	A meeting is being held with past students in September A business plan consultant has been engaged. Business plan due to the Board in December 2007
1.5.2 Milestone	10 course graduates	June 2006	No	3 graduations, demand reduced due to drought	
1.5.3 Milestone	15 course graduates	June 2007	No	4 graduations, change in UNE regulations means delay in graduation	A large number of graduations is expected in 2008 following regulation changes
1.5.4 Milestone	15 course graduates	June 2008	N/A	Milestone not due for completion until June 2008	
1.5.5 Milestone	20 course graduates	June 2009	N/A	Milestone not due for completion until June 2009	
1.5.6 Milestone	20 course graduates	June 2010	N/A	Milestone not due for completion until June 2010	
1.5.7 Milestone	20 course graduates	June 2011	N/A	Milestone not due for completion until June 2011	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.5.8 Milestone	20 course graduates	June 2012	N/A	Milestone not due for completion until June 2012	
1.6 Output	**Tailored cotton short-courses to Agribusiness**	June 2011	N/A	Output not due for completion until June 2011	
1.6.1 Milestone	Develop a business plan for tailored short-courses for growers and agribusiness in irrigation, nutrition, pest management, fibre quality or other topics	June 2006	Yes		
1.6.2 Milestone	Complete short course pilots courses for 30 people	June 2006	Yes	CRC has a number of short courses planned through various projects	
1.6.3 Milestone	Complete short course pilots courses for 60 people	June 2007	Yes	CRC has a number of short courses planned through various projects	
1.6.4 Milestone	Complete short course pilots courses for 60 people	June 2009	N/A	Milestone not due for completion until June 2009	
1.6.5 Milestone	Complete short course pilots courses for 60 people	June 2011	N/A	Milestone not due for completion until June 2011	
Output 1.7	**Vocational education courses for growers and consultants**	June 2012	N/A	Output not due for completion until June 2012	
1.7.1 Milestone	Establish working group of partner vocational education providers to scope existing training and develop new resources	Dec 2005	Yes	Working group established Discussions will be ongoing	
1.7.2 Milestone	Appoint a Vocational Education Training coordinator	June 2006	Yes	Ongoing	
1.7.3 Milestone	Establish articulation-learning pathways for certificate trade level students to achieve higher education qualifications	June 2007	Yes	Ongoing	

Output / Milestone Number	Description	Contracted Achievement Date	Achieved (Yes or No)	Reasons why not achieved (if applicable)	Strategies to achieve unmet milestones
1.7.4 Milestone	Relevant course operating and people completing	June 2008	N/A	Milestone not due for completion until June 2008	
1.7.5 Milestone	Relevant course operating and people completing	June 2009	N/A	Milestone not due for completion until June 2009	
1.7.6 Milestone	Relevant course operating and people completing	June 2010	N/A	Milestone not due for completion until June 2010	
1.7.7 Milestone	Relevant course operating and people completing	June 2011	N/A	Milestone not due for completion until June 2011	
1.7.8 Milestone	Relevant course operating and people completing	June 2012	N/A	Milestone not due for completion until June 2012	
Output 1.8	**Relevant cotton related science in syllabus of primary and high schools**	June 2011	N/A	Output not due for completion until June 2011	
1.8.1 Milestone	Contribute to Primary Science matters at 3 schools	June 2006	Yes	5 schools supported	
1.8.2 Milestone	Develop business strategy for schools	Dec 2006	Yes	Strategy completed September 2007	
1.8.3 Milestone	Integrate CRC outputs into Primary Schools	June 2008	N/A	Milestone not due for completion until June 2008	
1.8.4 Milestone	Integrate CRC outputs into High Schools	June 2009	N/A	Milestone not due for completion until June 2009	
Output 1.9	**Scientific exchanges**	June 2011	N/A	Output not due for completion until June 2011	
1.9.1 Milestone	5 completed	June 2007	Yes	Completed 9. Another call planned in 2008	
1.9.2 Milestone	5 completed	June 2008	N/A	Milestone not due for completion until June 2008	
1.9.3 Milestone	5 completed	June 2009	N/A	Milestone not due for completion until June 2009	
1.9.4 Milestone	5 completed	June 2010	N/A	Milestone not due for completion until June 2010	
1.9.5 Milestone	5 completed	June 2011	N/A	Milestone not due for completion until June 2011	

GLOSSARY of TERMS

ACGRA	Australian Cotton Growers Research Association
ACRI	Australian Cotton Research Institute
ACSA	Australian Cotton Shippers Association
ANU	Australian National University
AWA	Department of Agriculture and Food, Western Australia
BMP	Best Management Practices Program
CCAA	Cotton Classers' Association of Australia
CTFT	CSIRO Textile and Fibre Technology
CMA	Catchment Management Authority
Cotton CRC	Cotton Catchment Communities Cooperative Research Centre
CRC	Cooperative Research Centre
CRDC	Cotton Research and Development Corporation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSU	Charles Sturt University
CWA	Country Women's Association
DBIRD	Northern Territory Department of Business, Industry and Resource Development
DEST	Australian Government Department of Education, Science and Training
FUSCOM	Fusarium Committee
GM	Genetically modified
GRDC	Grains Research and Development Corporation
IPM	Integrated Pest Management
LGA	Local Government Authority
NCEA	National Centre for Engineering in Agriculture
NHT	National Heritage Trust
NRM	Natural resource management
NSW DPI	New South Wales Department of Primary Industries
NSW TAFE	New South Wales Technical and Further Education
QDPI&F	Queensland Department of Primary Industries and Fisheries
QNRM&W	Queensland Department of Natural Resources, Mines and Water
QUT	Queensland University of Technology
TIMS	ACGRA Transgenic and Insect Management Strategy Committee
UCQ	University of Central Queensland
UNE	The University of New England
UNSW	University of New South Wales
UQ	University of Queensland
US	The University of Sydney
UTS	University of Technology, Sydney
Wincott	Women in Cotton Inc.

CRC Participants

ACGRA
Australian Cotton Growers Research Association

CSD
Cotton Seed Distributors

Australian Government
Cotton Research and Development Corporation

Cotton Australia

NSW Department of Primary Industries

Queensland Government
Department of Primary Industries and Fisheries

Government of Western Australia
Department of Agriculture

CSIRO

Scientia
Manu et Mente

UNE
The University of New England

University of Technology Sydney

www.cotton crc.org.au