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 Program

Cotton Catchment Communities CRC

Cotton Catchment Communities

Cooperative Research Centre

Annual Report 2005—2006

PARTICIPANTS

COTTON CATCHMENT COMMUNITIES CRC

Locked Bag 1001
Narrabri NSW 2390
Australia

Phone +61 2 6799 1500
Fax +61 2 6793 1171

www.cotton.crc.org.au

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CHAIR'S REPORT

Cotton Catchment Communities CRC Chair DAVID ANTHONY

The Australian cotton industry and various community and catchment interests in cotton growing regions were delighted and very appreciative when the Australian Government awarded a third successive CRC associated with the cotton industry.

Since the Cotton Catchment Communities CRC ("CRC") was officially opened in November 2005 by the then Deputy Prime Minister, the Hon John Anderson MP, it has advanced rapidly. Although incorporation as a company took place in October 2005, the elected Board had been meeting and planning since May 2005 in preparation for taking over the running of the CRC once all legal formalities and agreements had been finalised. As a result the new CRC has some 150 projects under way, plus numerous associated activities.

The new CRC is very different to previous cotton related CRCs. It is important that researchers, research funding organisations and those looking to the CRC to undertake research appreciate that the CRC is an incorporated company limited by guarantee and not, as was the case with its predecessor, the Australian Cotton CRC, an unincorporated joint venture of research providers. The new company is subject to Corporations law and unlike the previous cotton CRC Boards, has an independent, skills-based Board and an independent Chair. The Board is very much focused on funding projects and programs that meet its strategic directions and expectations about the quality of science and on providing significant collaboration across research providers. It is also looking for opportunities to capture and utilise Intellectual Property (IP). The Board has produced a Strategic Plan document, *Prosperity through Innovation,* which is intended to be a dynamic and regularly reviewed guide to the CRC's activities.

The skills base of the Board covers a range of expertise including IP, science, extension and adoption, crop production, marketing, processing, administration, business management, research funding and administration and communications. The Board has been directing the activities of the CRC in line with the business case so successfully laid out for the Department of Education, Science and Technology's CRC selection process. The cotton industry is well aware that issues beyond the farm boundary are important to its sustainability. This CRC has a broader outlook than any previous cotton CRCs and is primarily focused on increasing the prosperity of the industry and enhancing the wellbeing and health of the communities and catchments in which the industry operates. This is reflected in the CRC's five key programs: The Farm, The Catchment, The Community, The Product and The Adoption.

The cotton industry is an ideal vehicle through which leadership and commitment to natural resource management can be achieved, while at the same time building economic improvements. Communication with other research and development providers is an important consideration of this CRC. Improving the efficiency and coordination of research effort is a key driver of the CRC Board. The Board has put in place three key advisory panels – Science, Catchment & Communities and End User – that report directly to it.

The task of these panels is to provide critical and constructive comments on the research programs, strategies and activities of the CRC. The CRC has appointed Program Leaders and some Sub-Program Leaders for each of the programs to provide significant input into guiding and managing the work required and undertaken.

The CRC recently conducted a Science Day where researchers funded by the CRC were able to present results or progress of their work to their peers, along with many industry, community and catchment people. Such interaction is highly valuable in ensuring high standards in the science undertaken and relevance to the end users of the research effort.

There are significant challenges for the cotton industry. The lengthy dry phase shows no signs of abating, thus severely reducing production. Market prices for cotton are in their lowest historical decile for many decades, while skills shortages in rural areas pose a much bigger long term threat. The CRC Board is determined to make a significant difference, even in these difficult times.

The Board has a great management and administrative team undertaking the day-to-day functions of the CRC. I look forward to reporting continuing significant progress towards our strategic goals in 2007.

DAVID ANTHONY

Chairman

Bruce Browne (General Manager Namoi CMA), Dr Bob Martin, (Research Leader, NSW Department of Primary Industries) and Barry Buffier (Director General, NSW DPI) at the official opening of the new CRC in November 2005. The Australian Cotton Research Institute, located between Narrabri and Wee Waa, which provides a home for the CRC administrative office, is part of the NSW Department of Primary Industries. ACRI also includes the Namoi Catchment Management Authority as part of the CRC office.

Cotton Catchment Communities CRC CEO GUY ROTH

CEO'S REPORT

The 30th June marked the end of the first nine months of the new Cotton Catchment Communities CRC and saw the wind up of the Australian Cotton CRC.

The 2005–06 cotton crop harvest is estimated **at** 2.6 million bales, with an average lint yield of 7.86 bales per hectare: a slight decrease on last year's world record yields. The outlook for 2006–07 is not as good due to the continuing drought with 150,000 ha the predicted planting area, which based on last season's results will result in about 1.2 million bales of cotton, almost a 100% reduction.

We have achieved a great deal in our first nine months of operations. We have had to set up new administration and research management systems, policies and charters during that time. We have been actively fostering the integration of our many new partners into the CRC and cotton industry activities and will aim to improve this in the 2006–07 year, now that many of the CRC start-up issues are behind us. The CRC has appointed key new staff to run its business and these appointments are outlined in another section of this report.

Our projects cover an area stretching from the Ord River in the north of Western Australia, through northern and central Queensland and the Darling Downs, and into the Macintyre, Gwydir, Namoi, Macquarie, Darling, Lachlan and Murrumbidgee River valleys in NSW. We are one of the most rural-based CRCs, with activities all over Australia.

The CRC's success is based not only on the disciplined, rigorous and relevant academic and applied research programs that it manages and monitors but also the leadership and standing of its scientific teams and the networks created and nurtured in ensuring that results are quickly made available and explained to industry.

It has never been the CRC's intention just to complete research and file it for future use. The task is not complete until adoption or adaptation occurs. Our aim is to concentrate on research that is relevant to both the short and long term future of the industry, and then to devote equal resources to transmitting the results of this research. In the first year of the CRC we have been focusing on getting our research projects under way. Looking ahead to the coming year we will increase our focus and attention on adoption and extension strategies so that the CRC is well positioned to see its research adopted by industry.

We will further consolidate and integrate our portfolio of projects. We will also review our operational plans and continue to consult with the cotton industry and other partners on R&D gaps and opportunities.

I would like to thank the Board, Participants and Affiliates, and our CRC program leaders and staff for their goodwill and tireless efforts to ensure a great first year for the Cotton Catchment Communities CRC.

GUY ROTH

Chief Executive Officer

Executive Summary

OUR FIRST YEAR

The Cotton Catchment Communities CRC company was incorporated on 20 September 2005 and began formal operations on 1 October 2005. The elected Board had been meeting and planning since May 2005, in preparation for taking over the running of the CRC once all legal formalities and agreements had been finalised by the participants.

The CRC was officially opened in November 2005 by the then Deputy Prime Minister, John Anderson MP. It has advanced rapidly since that time and currently has some 150 projects under way.

The CRC has produced a Strategic Plan executive summary document, "Prosperity through Innovation", which is intended to be a dynamic and regularly reviewed guide to the CRC's activities.

We have achieved a great deal in our first nine months of operations, including setting up and instituting new administration and research management systems, policies and charters.

We have been actively fostering the integration of our many new partners into CRC and cotton industry activities and, with many of the CRC start up issues behind us, will aim to improve this in the next year.

In the first year of the CRC, we have been focusing on getting our research projects under way. Looking ahead to the coming year, we will increase our focus and attention on adoption and extension strategies so that the CRC is well positioned to see its research outcomes bringing measurable benefits to the Australian cotton industry, its catchments and its communities.

We will further consolidate and integrate our portfolio of projects. We will also review our operational plans and continue to consult with the cotton industry and other partners on R&D gaps and opportunities.

Achievements

This was the first year of the Cotton Catchment Communities CRC so much of the focus has been on getting our people in place and the new projects under way.

Organisational Achievements

- The CRC commenced operations on 1 October 2005
- The Governing Board was appointed by Shareholders
- The Federal Member for Gwydir, Hon John Anderson MP, officially opened the CRC on 22nd November 2005

The CRC launch: CRC CEO, Guy Roth; Federal Member for Gwydir and then Deputy Prime Minister, the Hon John Anderson MP; CRC Chair, Dave Anthony

- Key Staff were appointed, enabling CRC operations to get into full swing
- The CRC has produced an Executive Summary Strategic Plan 2006–2012 and copies have been distributed to our stakeholders. This document outlines our purpose, our programs and our outcomes
- The CRC adopted a new corporate logo and by-line, “Prosperity through innovation”
- The CRC held an Annual General Meeting and Centre Forums with members and participants
- The CRC website www.cotton.crc.org.au is operational and acting successfully as a distribution point for CRC tools and products
- Advisory panels were established for Science, Catchment and Communities and End Users
- Program Leaders and Sub-program leaders were appointed
- Discipline groups were established in research areas such as cotton nutrition, water, IPM and Gwydir wetlands
- An inaugural Science Day reviewed and introduced the CRC, its programs and the research that Is under way
- Professor Peter Gregg of The University of New England was appointed the CRC’s Chief Scientist
- The CRC succeeded in attracting additional research funds to the CRC bid for new projects with the Australian Greenhouse Office, Monsanto Australia, the Condamine Alliance, Queensland Murray Darling Committee, and Land and Water Australia

The CRC uses exhibits to explain and publicise the benefits it delivers to the Australian cotton industry through its R&D: in this case, at the Australian Cotton Conference at Broadbeach in Queensland, attended by 1200 growers, researchers and industry personnel

Research and Extension Achievements

The Farm

- Transgenic cotton R&D performed very well under the high pest pressure conditions of 2005–06. Many of the CRC projects are helping with the adoption of genetically modified (GM) cotton in Australia.
- Application for registration of the Magnet® moth attractant technology to the Australian Pesticides and Veterinary Medicines Authority and initiation of field trials for Magnet® in Taiwan and Thailand
- An independent review of semiochemical technology led to new CRC investment in novel technology
- IPM research projects are under way
- 'High yielding irrigated grains project', a scoping report undertaken in collaboration with GRDC, was completed
- The CRC had input into key industry initiatives such as the Biosecurity plan, TIMS (pesticide resistance) and FUSCOM disease management committees.
- The CRC established a major water-related research and extension program aimed at "More crop per drop"
- A joint project with the Irrigation CRC and Polymers CRC aims to reduce surface water evaporation

The Catchment

- The CRC published a series of information sheets which will aid in natural resource management
- Scoping studies to prioritise groundwater management needs for industry commenced
- A major series of projects commenced in the Gwydir wetlands
- The CRC published on-farm water storage management guidelines, *Design Principles for healthy waterways on cotton farms*, which demonstrated how well designed irrigation storages and water courses on cotton farms can not only aid in bioremediation but also enhance biodiversity
- A completed scoping study of pesticide risks has resulted in new research to develop enzymes for bioremediation

Part of the CRC's major water research and extension effort: 'The Farm' Program Leader, Graham Harris of QDPI&F (right) with Jim Purcell of Aquatech (a CRC SME Partner) and Breeza cotton grower, John Hamperson

- The CEO of Birds Australia, Dr Graeme Hamilton, launched the CRC's *Birds on Cotton Farms: a Guide to Common Species and Habitat Management* publication. It has been widely acclaimed, not only by the cotton industry but also by its critics

BIRDS ON COTTON FARMS

Above: *Birds Australia CEO, Dr Graeme Hamilton, with Greg Ford (Regional Ecologist, QMDBC, Nicci Thompson (Birds Australia southern Queensland Coordinator) and CRC CEO Guy Roth at the launch of* Birds on Cotton Farms

Below: *On behalf of ACGRA, the CRC is conducting a 12 month project to provide cotton growers in northern NSW and southern Queensland with information on the principles of habitat management and monitoring techniques for birds on cotton farms. The project received funding from the Australian Government Envirofund. Retired Goondiwindi cotton grower and bird enthusiast, Evan Cleland (below, right, with ACGRA Chair, Hamish Millar), will be involved in the project.*

The Community

- Three scoping studies have commenced to investigate future cotton industry-related opportunities
- The CRC had productive interaction with various community groups, including the NSW Country Women's Association State Conference and Local Government bodies

The Product

- New Field to Fabric research established the links crop and ginning management have with yam quality
- Field to Fabric training courses for industry personnel were oversubscribed
- A new project commenced to measure contamination in Australian cotton
- An 'aquaculture on cotton farm's planning workshop was conducted

A three-day Cotton Field to Fabric Training Course *at CSIRO Textile and Fibre Technology (CTFT) in Geelong provided participants with information on all aspects of post-harvest cotton production. Pictured, Rene van der Sluijs, (CSIRO) with course participants*

The Adoption

- CRC presentations and display presented the work of the CRC at the Australian Cotton Trade Show in Moree, which is attended by a large number of people across the cotton industry
- The CRC website, www.cotton.crc.org.au, is operational and acting as a valuable distribution point for CRC tools and R&D information for growers, consultants and other stakeholders
- A review of technology transfer needs highlighted the need for local staff who can address locally relevant issues
- A partnership established with regional NRM bodies is aiding in delivery of the industry's environmental management system, the Best Management Practices (BMP) program
- Cotton Australia and the CRC held a series of BMP Land and Water Management workshops

- Regular Cotton Tales newsletters and CRC eNews newsletters were distributed throughout the industry.
- A significant number of field days and seminars were held with industry

The CRC National Cotton Extension Team is involved in a wide range of industry field days, demonstrations and other activities, including this cotton growers' field day in St George, southern Queensland.

Extension team members Emma Carrigan (an extension officer for the Rural Water Use Efficiency 2 program) and Geoff MacIntyre (Queensland Department of Primary Industries and Fisheries) at the St George field day.

Education and Training Highlights

- 21 PhD student projects were underway in 2005–06, with 14 students continuing from the Australian Cotton CRC and seven new students. Four students completed their degrees during 2005–06 and another two have submitted their theses for examination.
- Five undergraduate students completed summer scholarships
- Four honours projects and one internship for undergraduate students are underway
- The CRC and CRDC conducted a 'Call on Cotton' Tour for post graduate students to familiarise them with the industry and help them to 'reality test' the relevance of their research to the industry
- The CRC Cotton Production Course was underway at The University of New England, with extensive content input by CRC researchers
- The CRC assisted Cotton Australia to implement its new vocational training program

Top: *Summer Scholarship holder, Rhiannon Smith (second from right), has moved on to become a CRC PhD student.*

For her Summer Scholarship project, Rhiannon looked at the benefits of planting additional trees and shrubs for bird and insect species diversity in the Namoi valley.

With her are cooperating cotton growers Mike Logan, Robyn Watson and Jack Warnock.

Below: One of the CRC's PhD students, David Pevoicke, of Charles Sturt University (left) and Assoc. Professor Geoff Gurr, also of Charles Sturt University

Strategies for Utilisation and Adoption

The CRC's enhanced commercialisation and technology transfer systems are being developed. Looking ahead, this will be the highest priority in the upcoming year now that the CRC has been established.

The CRC has to deliver outcomes to a diversity of end-users, including cotton farmers, cotton consultants, agribusiness, cotton shippers, international and domestic spinners, governments (Local, State and Commonwealth), community organisations, indigenous groups and catchment bodies.

The pathways for adoption will be multi-directional with regular exchange of knowledge between stakeholders. A variety of mechanisms are used to communicate knowledge to end-users and to 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) will lead to greater ownership, which in turn leads to higher levels of adoption and, in many cases, a more innovative adoption of science. This feedback also enables targeting and practical adaptation of research to meet industry needs.

Operational Risks and Impediments

The Australian cotton industry faces significant challenges. The lengthy dry phase shows no signs of abating, thus severely reducing production. The continuing drought means the outlook for 2006–07 is not bright, with a predicted planting area of 150,000 hectares which, based on last season's results, will result in about 1.2 million bales of cotton: less than half the 2005–06 estimated production of 2.6 million bales. Market prices for cotton are in their lowest historical decile for many decades, while skills shortages in rural areas pose a much bigger long-term threat. Even in the face of these difficult times, the CRC is determined to make a significant difference.

Both the cotton industry itself and the community in general are asking questions about climate change and the CRC was successful in bidding for funding from The Australian Greenhouse Office to undertake a scoping study on this issue.

Despite the difficulties the drought will create, it will also create opportunities for the CRC. Growing "more crop per drop" is a key goal of the CRC and there is nothing like a crisis to focus attention. The CRC has submitted four projects to the National Water Initiative and commenced a number of new projects targeting water management.

We have found commencing the new CRC very challenging. As the Australian Government Department of Education, Science and Training (DEST) and the CRC committee are aware, issues such as taxation, IP management and achieving agreement amongst participants on details in their constitution and participant agreements was a resource intensive process. Establishing the necessary administrative structures and company policies has also consumed a considerable amount of staff time, leaving less time for project development and management. Now that these issues are dealt with, we look forward to focusing our energy on project outcomes and adoption and commencing the few outstanding Year One projects.

Changes to Operations

Due to the delayed start of the CRC, variations are being sought to cash and in-kind contributions. To balance that, the CRC received additional cash contributions of $1.353 million.

Apart from these issues, the newness of the CRC meant there were no substantial changes. Rather, a large number of matters such as policies and procedures and staffing were set in place for the first time, with all the challenges and opportunities that presented. No doubt, as the CRC progresses through its term, we will make substantial changes in order to respond to, or proactively address, evolving circumstances and challenges. As part of this process, in late 2006 the CRC will be reviewing and planning for changes in future directions via a strategic planning process for The Farm program, and the implementation of numerous scoping studies in The Catchment and The Community programs.

Key Staff Appointments

A number of key CRC appointments set in place during the year have underpinned the achievement of operational readiness:

Guy Roth:	Chief Executive Officer
Professor Peter Gregg:	Chief Scientist
Letitia Cross:	Extension and Knowledge Manager
Kym Orman:	Company Secretary and Business Manager

Reviews

The CRC has not has any formal reviews in its first year; however, we have contributed to the DEST study on economic outcomes and other Government inquires on science, such as the Productivity Commission and a Parliamentary Inquiry on Rural Skills.

CRC STAFF

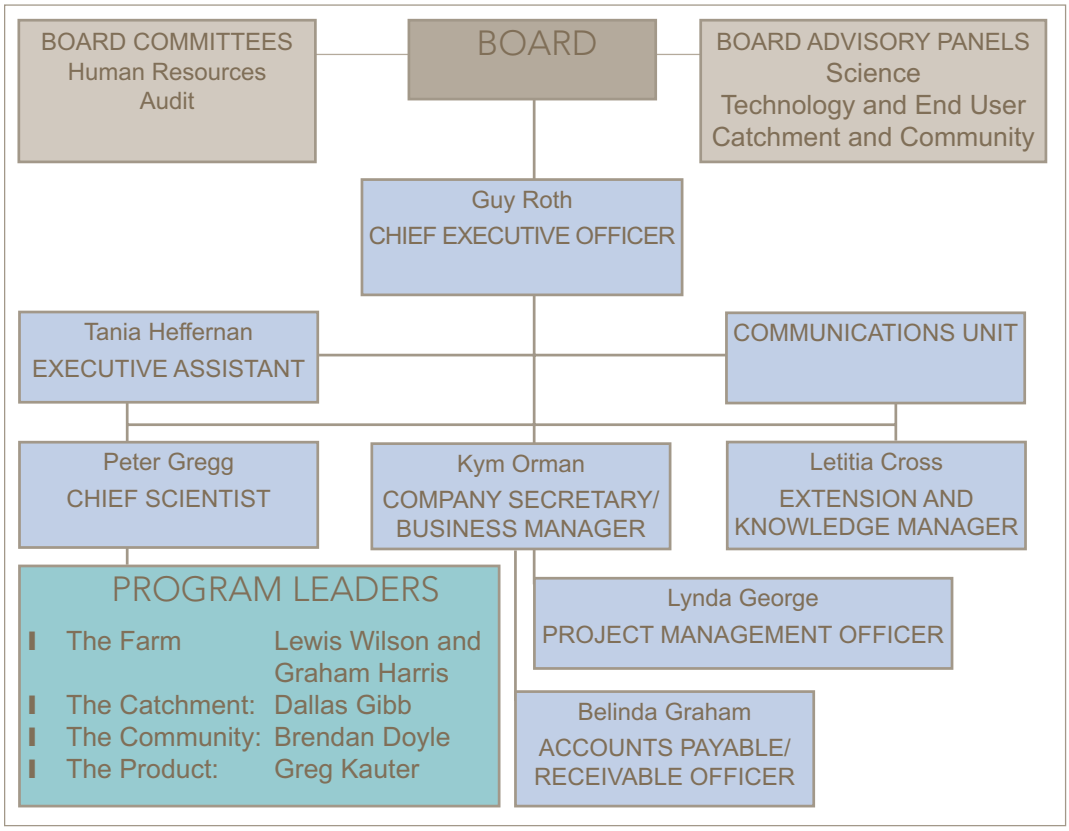
Professor Peter Gregg, Kym Orman, Lynda George, Tania Heffernan, Belinda Graham, Letitia Cross and Guy Roth

Governance, Structure and Management

STRUCTURE

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

The members have supported an incorporated company subject to tax, where the Intellectual Property (IP) will be held by the Cotton Catchment Communities CRC centre (Centre) 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 where the ownership needs to be restricted to identified providers or owners of the IP.



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, NSW
- Department of Primary Industries and Fisheries, Queensland
- Department of Agriculture and Food, Western Australia

Universities

- The University of New England
- The University of NSW
- The University of Sydney
- University of Technology, Sydney

Affiliates

Also supporting the new CRC are a number of other companies and institutions known as Affiliates who formally supported the bid for the new CRC, either in cash or in-kind. A Centre Forum will be held each six months over the life of the CRC. This will be an important activity for communication and dialogue on key aspects of the CRC's progress, activities, commercialisation and other key issues as identified by the members, partners and board. The Affiliates are:

Industry

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

Universities

- The Australian National University
- Central Queensland University
- The University of Queensland

Education Centres

- Australian Cotton Exhibition Centre
- Australian Cotton Trade Show
- International Fibre Centre
- NSW TAFE

CMAs and NGOs

- Central West CMA
- Condamine Alliance
- Greening Australia
- Namoi CMA

Local Government

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

State Governments

- Department of Natural Resources, NSW
- Department of Natural Resources and Water, Queensland

Regional Media

- Greenmount Press
- Moree/Parkes Broadcasting
- Radio 4AK Toowoomba
- Rural Press
- The Courier Group

THE BOARD

The Board consists of eight directors, including the Chairperson. The CEO is not a director. The eight directors appointed to the new board are known as the initial directors and were appointed by the shareholders. The directors are classified as follows:

a. Chair independent of research providers: David Anthony
b. Research providers' (other than state governments) nominee: Dr Gary Fitt
c. State Government Departments' nominee: Helen Scott-Orr
d. Industry participants' nominee: Bruce Finney
e. Directors independent of research providers:
   - Kathryn Adams
   - Dianne Bentley
   - John Herbert (Deputy Chair)
   - Stuart Higgins

The board was chosen to provide a good balance and coverage of a range of skills and experience including:

a. Science research and development management
b. Finance and business management
c. Commercialisation and IP management
d. Catchment and/or community interests
e. Cotton growing
f. Cotton marketing
g. Education and training
h. Governance

Term of Office

The term of the directors will be three years and retiring directors will be eligible for re-election. The directors will elect the chairperson from the initial directors at the first meeting following incorporation.

Board Committees

Audit Committee

- Kathryn Adams (Chairperson)
- Bruce Finney
- Helen Scott-Orr

Human Resources Committee

- John Herbert (Chairperson)
- Stuart Higgins
- Dianne Bentley

Panels

Science & Education Panel

- Dr Gary Fitt (Chairperson)

Technology and End User Panel

- Stuart Higgins (Chairperson)

Catchment Community Panel

- Dianne Bentley (Chairperson)

2005–06 Board Meetings

Meeting Date	*Function*
6th June 2005	Company Setup
6th July 2005	Company Setup
16th August 2005	Company Setup
19th October 2005	Budgets
19th January 2006	General
20th April 2006	General
5th June 2006	General

THE CRC BOARD AND CEO

Back row: *Dr Gary Fitt; John Herbert; Guy Roth (CEO); Bruce Finney; Stuart Higgins and David Anthony*

Front row: *Kathryn Adams, Helen Scott-Orr and Dianne Bentley*

Context and Major Developments

Industry Context

The Australian cotton industry has recently been through a major production, economic and climatic trough. In the five years from 2001–02 to 2005–06, the area planted fell around 38 per cent and gross revenue slumped by around $2 billion dollars, or 27 per cent, compared with the five years from 1996–97 to 2000–01. In the peak planting year in 1998–99, 562,000 hectares was sown, compared with only 198,000 hectares in 2003–04 during the drought and 335,000 hectares last season. The continuing drought and lack of good run off catchment rains is likely to limit plantings this season to around 150,000 hectares. The Cotton CRC believes it will be able to meet its objectives; however, should these conditions prevail, it obviously will be very challenging.

The 2005–06 cotton crop harvest is estimated at 598,000 tonnes – 2.6 million (227 kilogram) bales – down 9 per cent on the previous year's 658,000 tonnes. The average Australian lint yield for 2005–06 season was excellent, at 7.86 bales per hectare; however, it was a slight decrease on the previous year's world record yields.

> *Speaking to cotton growers at the Australian Cotton Industry Council 2006 Annual General Meeting, Cotton Australia's Chairman, Bernie George, recently highlighted farm profitability, delivery of the National Water Initiative, environmental sustainability and community acceptance as the key issues facing the Australian cotton industry. A major challenge for growers is how to stay profitable when input costs such as fuel and fertiliser are accelerating on the one hand, and we've got poor commodity prices on the other. These market conditions dictate that high yields and good quality crops are critical to turning a profit and we will continue to rely on our world class research programs to produce varieties that contain both.*

Possibly providing some offset against the difficult seasonal conditions, world consumption of cotton is forecast to exceed production. Demand in China, India and Pakistan is expected to influence price movements so that, coupled with production problems in the USA, cotton prices may rise over the next twelve months.

Major Developments during the Year

This was the first year of the Cotton catchment Communities CRC, so much of the focus has been on getting our people in place and the new projects underway.

Organisational Highlights

- The CRC commenced operations on 1st October 2005
- The Governing Board was appointed by Shareholders
- The staff were appointed
- The official opening by Federal Member for Gwydir, the Hon John Anderson MP, took place on 22nd November 2005
- The CRC produced an Executive Summary Strategic Plan 2006–2012 and copies were distributed to our stakeholders. This document outlines our purpose, our programs and our outcomes
- The CRC adopted a new corporate logo and by-line, "Prosperity through innovation"
- The CRC held an Annual General Meeting and Centre Forums with members and participants.
- The CRC website www.cotton.crc.org.au is operational
- The CRC held its first Science day in August 2006, just prior to the Australian Cotton Conference
- Establishment of panels such as Science advisory panel, which have provided critical feedback for the R&D program
- The Management Team was established and has met bi-monthly to ensure progress
- Program Leaders and Sub-program leaders were appointed, where appropriate

- Discipline groups were established in areas such as cotton nutrition, water and Integrated Pest Management (IPM)
- The CRC held an inaugural Science Day to review and introduce the CRC, its programs and the research underway
- Professor Peter Gregg was appointed the CRC's Chief Scientist
- 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 and Land and Water Australia

Key Staff Appointments

The Board appointed Guy Roth as the Chief Executive Officer in September 2005. Mr Roth was the key driver of the successful bid for the Cotton Catchment Communities CRC. He brings to the position an understanding of how science can contribute to agricultural profitability and is well placed to mesh economic considerations with catchment and community issues.

Professor Peter Gregg, The University of New England commenced as the inaugural CRC's Chief Scientist on 1 January 2006. He is a Professor of Agronomy and has a lifetime experience in cotton research. Professor Gregg won a CRC Association Award for his research and commercialisation of Magnet®, an insect management product.

Letitia Cross was appointed as the new Extension and Knowledge Manager. The extension and knowledge programs will focus on farm trials, short courses, university courses, science for schools, information delivery systems, decision support tools, and technical support to the cotton industry's BMP system. The Cotton CRC and NSW Department of Primary Industries jointly fund the position.

The Board appointed Kym Orman as the inaugural Company Secretary and Business Manager of the CRC. Ms Orman has extensive CRC experience, having been the Business Manager of the Australian Cotton CRC for a number of years. She leads the new CRC Administration Team, which was also appointed during the year.

Administration Team appointments are Lynda George as Project Administration Manager, Belinda Graham as Accounts Officer and Tania Heffernan as Executive Assistant.

Purchases of Major Equipment

The CRC purchased computers and a photocopier for the CRC office.

TECHNOLOGY TRANSFER

The CRC distributes its R&D outcome tools and information both electronically through the website (with some 180,000 'hits' in the 2005–06 year) and in hard copy, as with the new or updated brochures pictured on the left

Commercialisation, Technology Transfer, Utilisation

The CRC Commercialisation and technology transfer systems are in development; this will be an even higher priority in the coming year, now that the CRC has established its research projects.

The 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 multi-directional, with regular exchange of knowledge between stakeholders. Knowledge is communicated to end-users via 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) will lead to greater ownership that 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 will be a key part of the CRC's adoption and commercialisation strategies. There are a large number of private SMEs serving the cotton industry and their peak representative body, Cotton Consultants Australia Ltd, with 300 members, is a new partner in the CRC. Cotton Consultants Australia is represented in specialist end-user Board advisory panel to ensure all members are aware of developments and are capable of delivering them. They also participate in a number of project steering committees. Independent irrigation consultants are also involved in the 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.

Participation and engagement

Participation and engagement are core values of the CRC. The diverse stakeholders are engaged through formal channels such as advisory panels, forums, program steering committees, conferences and joint projects. Specific projects will 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 CRC has reviewed extension needs in 2005–06 and will implement the outcomes in 2006–07.

Education

Education, a key strategy of technology transfer, is discussed on Page 54.

Communication

Communication is also a key strategy. The CRC does this in a number of ways, including media releases, displays, website and our *Cotton Tales* newsletters to industry.

The CRC produces *Cotton Tales* in each region. These fortnightly fax/email newsletters are highly regarded by industry for their short, timely, relevant nature. A survey showed they are considered highly worthwhile by over 90 per cent of industry, so they will be continued. The current CRC website will be converted to the new CRC format. Displays will be exhibited at key events to promote the CRC and its science. Field days, farm walks, workshops, seminars, school visits and community forums will provide more interactive communication channels.

Information Technologies

Information Technologies and Decision Support Systems are one of the strategies used by the CRC in technology transfer. A new business and operational plan has been commissioned and is due for completion in September 2006.

Best Management Practices System

A key strategy for delivery will be via the Cotton Industry's Best Management practices system, known as BMP. The cotton industry reviewed its BMP program in 2006 and the CRC is currently working with Cotton Australia and CRDC to implement new systems.

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 CRC to drive this. The widely recognised BOYCE Cotton Comparative Analysis reporting system was published again in 2006, using figures from the 2004–05 cotton crop.

Evaluation of Investments

An evaluation of the impacts of CRC investments in industry will be conducted at a range of levels for all 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.

Commercialisation

Commercialisation of Magnet® continues, although considerable barriers have to be overcome with the chemical registration process.

Some other projects have commenced that are in the early stages of commercialisation including water accounting and measurement tools, nutritional diagnostics, fibre quality forecasting products, semiochemicals, hands free decision support tools and precision application technologies.

Table 1: Commercialisation Milestones and/or Outputs

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
1.1 Output Development of new tools or techniques to address current or future challenges to crop management and allow reduced use of inputs to maximise intellectual property for commercial returns	**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. (September 2006)	Yes/No	Progress has been achieved during the year with Telstra and Nutrient Management Systems, but the operational business plan needs to be completed and is due Sept 2006 Hands free project has commenced	Difficult to get agreement on the commercial opportunities due to the range of views	Meetings have been held with team. On target to achieve by December 2006
2.2 Output Improved understanding of the dynamics and connectivity of groundwater systems, their interaction with river flows, and mitigating the pollution of groundwater systems associated with deep drainage and pumping for irrigation	**2.2.1 Milestone** Published scoping report for stakeholders distributed on groundwater (June 2006)	No	Due for publication in second half of 2006	Late start to CRC and difficulty getting the data from State agencies. Project is proceeding well	Due for publication in late 2006. No major problems, work is proceeding well, just taking a little longer that first thought
3.1 Output Analysis of economic goods and services associated with the primary, secondary and tertiary level industry impacts at the regional level	**3.1.1 Milestone** Regional workshops completed and scoping study published and distributed (March 2006)	Yes	Report provided in September 2006		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
3.2 Output Identification of change pressures revealing the transforming technologies in the cotton industry and their impact on the socio-economic status of communities, the production capacity of the industry and the viability of both into the future	**3.2.1 Milestone** Regional attitudes benchmarked and reported. (December 2005)	Yes	Roy Morgan report completed by CRDC and Cotton Australia		
3.4 Output Demographic baseline studies including employment and migration profiles	**3.4.1 Milestone** Employment and regional migration baseline published and provided to community organisations (December 2006)	No	Indicators have been identified via a scoping study	Delayed with CRC start up.	New project will be commenced in late 2006
3.5 Output Document indigenous community involvement in the cotton industry to better understand changing employment roles, needs and opportunities.	**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 (June 2006)	No	Report is in draft form and due for completion in September 2006. A paper was presented at the 2006 cotton conference	Needed more time to consult with indigenous community	There has been consultation and report is due Sept 2006
3.6 Output Understanding social change and adjustment	**3.6.1 Milestone** Local stakeholders engaged and primary data collection commenced via action learning (December 2006)	No	Local stakeholders have been engaged, but not the data collection.	Needed to complete scoping study first	Will form part of 2006–07 work. CRC has funded a full time program leader to accelerate 3.4,3.5,3.6.
3.7 Output Developing governance frameworks and effective policy options to promote the understanding of changing water and natural resource management regulations on the cotton industry	**3.7.1 Milestone** Scoping study completed, including engagement with peak stakeholders as part of extension process and network establishment (December 2006)	Yes	CRC will be establishing new projects in this program in late 2006		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
4.2 Output Agronomic factors affecting fibre quality and processing performance identified and optimised	**4.2.1 Milestone** Completion of preliminary studies understanding of the effects of different climate, plant and management factors on fibre quality variations. (June 2008)	N/a	Due in 2008		
4.6 Output Value adding to existing cotton farm infrastructure through aquaculture	**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)	No	Project is underway	Delayed start to CRC	On track to complete in 2006
5.1 Output Knowledge transfer by national extension network	**5.1.1 Milestone** Plan implementation of recommendations from the 2005 Review of Extension in the Cotton Industry . (September 2005)	No		Delayed by CRC start-up.	Will be completed by October 2006. It is a high priority activity. Board approved additional funds in July 2006
	5.1.2 Milestone Appoint Education and Extension manager (October 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 will be enhanced in 2006–07		
5.2 Output CRC Information Centre delivery to markets information products and services	**5.2.1 Milestone** Information Centre established (August 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		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	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		
5.3 Output Decision Support tools in use by market clients	**5.3.1 Milestone** Decision Support System Business Plan developed (June 2006)	No	It is in draft form. Due September 2006		Board will review in Oct 2006 to ensure plan is on track
5.4 Output Web site for knowledge diffusion to CRC markets and general Australian public	**5.4.1 Milestone** New CRC web site established (December 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		
	5.4.3 Milestone New web based decision tools operating (June 2006)	Yes	A new water quality calculator is available on the CRC website		
5.5 Output Media release for knowledge diffusion to markets and Australian public	**5.5.1 Milestone** Communications Unit established (August 2005)	Yes	Communications Unit fully functional for meeting Output requirements		
	5.5.2 Milestone Communications strategy developed 20 media releases dispatched (June 2006)	Yes	24 media releases dispatched Milestone on target for coming year		
5.6 Output Cotton Exhibition Centre providing knowledge products to community	**5.6.1 Milestone** Fund water and catchment exhibit (Aug 2005)	Yes	Exhibit funded and is being constructed. Will continue in 2006–07		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	5.6.2 Milestone Water exhibit launched with other partners (March 2006)	No	Due in Nov 2006	Took longer to find an appropriate designer	It is under construction.
	5.6.3 Milestone Review exhibits for technical content (June 2006)	Yes	Technical content will be kept up-to-date		
5.7 Output Technical support provided for the adoption of the cotton industry's Best Management Practices program in collaboration with Cotton Australia	**5.7.1 Milestone** Cotton Australia team inducted to CRC (December 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		
	5.7.2 Milestone Business plan for technical support to BMP Land and Water developed (June 2006)	Yes			Cotton Industry is completing 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			

IP management

The 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 three such projects. Developing IP is reported in six-monthly written project reports and at Board and management team meetings. The CRC maintains a register of IP and there are already 56 projects on it.

National Principles of IP Management

There are nine national principles of intellectual property management for publicly funded research. The CRC will address these by:

National Principle	CRC action
Institutional Policies	CRC will have policies approved by the Governing Board relating to the ownership, protection and exploitation of IP
Identification of IP	CRC will have 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	CRC will have 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 will be put 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	The CRC will have 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	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)
Transparency and Reporting	CRC will report annually on IP management to participants and DEST
Potential Conflict of Interest	CRC will have policies and procedures that provide guidance in relation to potential conflicts of interest concerning ownership, management, protection and exploitation of IP

No new IP has been sold, transferred or licensed in 2005–06. Ag Biotech Pty Ltd. has been granted an extension to the license they hold for the Magnet® attractant technology to the south east Asian region, and negotiations are in progress for the license to be extended to other regions, and for related products to be used against other insect pests.

Wherever appropriate, IP will be licensed to Australian companies with track records in developing innovative 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 CRC technology where significant export income is possible.

End-user involvement

The involvement of end-users in the CRC's activities during the reporting period and the extent and nature of benefits arising from their involvement is detailed in Table 2.

Table 2: The Involvement of End-Users in CRC Activities

Industry or other research users and the basis of their Interaction (e.g. Core Participant)	Type of activity and location of activity	Nature and scale of benefits to end-users (e.g. increase in exports, productivity, employment etc)	Actual or expected benefit to user (where possible, include benefits accruing in $ terms)
Ag Biotech Pty Ltd (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 were generated in 2005/06. We can provide the exact figures to DEST if required as they are commercial in confidence. Sales in future years are likely to increase, providing regulatory decisions are favourable
Australian Cotton Growers Research Association (Core Participant)	Advising of research directions and strategy and providing on ground resources for grower trials	Increase in productivity, reduced costs and increased sustainability for growers	In the long term, increased productivity amounting to $1 billion is expected from CRC research. Triple bottom line monitoring is in progress to quantify benefits
Cotton Seed Distributors (Core Participant)	Adoption of CRC research	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
Monsanto Australia Inc (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 recognise the value of this and have increased their contribution to the CRC
Incitec Pivot Ltd Nutrient Monitoring Systems (Affiliate & project partner)	Adoption of CRC research	Increased revenue from more effective methods of soil testing and better decision support systems	Project is just beginning
Telstra Corporation Ltd (Affiliate)	Commercialisation	Increased use of Telstra infrastructure; enabling Telstra to meet regional service goals	Project is just beginning
Borders Rivers-Gwydir Catchment Management Systems (partner in CRC projects)	Adoption of CRC research	Ability to meet catchment targets	Projects are just beginning
Aboriginal Employment Strategy Pty Ltd (Affiliate Participant)	Adoption of CRC research	Improved ability to place aboriginal job seekers in cotton-related work	Project is just beginning
Aquaculture Association of Queensland Inc (Affiliate)	Adoption of CRC research	Increased revenue and greater sustainability from aquaculture on cotton farms; ability to utilise a large potential new water resource (farm storages)	Project is just beginning

Industry or other research users and the basis of their Interaction (e.g. Core Participant)	Type of activity and location of activity	Nature and scale of benefits to end-users (e.g. increase in exports, productivity, employment etc)	Actual or expected benefit to user (where possible, include benefits accruing in $ terms)
Australian Cotton Shippers Association (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
McVeigh Enterprises Pty Ltd (Non-Participant)	Adoption of CRC research	Increased revenue and greater sustainability from aquaculture on cotton farms; ability to utilise a large potential new water resource (farm storages)	Project is just beginning
Boyce Chartered Accountants (Affiliate)	Contracted research from CRC	Increased exposure to and credibility with cotton grower clients	Boyce have many clients derived from participation in the CRCs baseline monitoring and all cotton growers benefit from the knowledge
Cotton Australia (Core Participant)	Adoption of CRC research	Training programs of CRC will upskill operators in several sections of the industry	Many projects. Implementation of their BMP program, which as economic outcomes for growers
Cotton Consultants Australia Inc. (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
Oz Green (Non-Participant)	Financial assistance from CRC	My River Darling 2005	Education and knowledge of science in schools
Primary Science Matters (Non-Participant)	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
Sustainable Irrigation Systems (Affiliate)	Involvement in and adoption of CRC research	Increased industry profile and ability to service clients. Increased production of cotton per unit of water	Project has received extensive publicity, benefiting participant.
Namoi Catchment Management Authority (Affiliate Participant)	Adoption of CRC research	Ability to meet catchment targets	Projects are just beginning
Queensland Murray Darling Committee (Non-Participant)	Adoption of CRC research	Ability to meet catchment targets	Projects are just beginning
SACOA Pty Ltd (Non-Participant)	Adoption of CRC research	CRC research will enable the use of petroleum spray oils against new insect pests, thus increasing revenue	SACOA have recently increased their contribution to the CRC

Industry or other research users and the basis of their Interaction (e.g. Core Participant)	Type of activity and location of activity	Nature and scale of benefits to end-users (e.g. increase in exports, productivity, employment etc)	Actual or expected benefit to user (where possible, include benefits accruing in $ terms)
Inverell Shire Council (Affiliate Participant)	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Projects just beginning
Millmerran Shire Council (Affiliate Participant)	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Projects just beginning
Narrabri Shire Council (Affiliate participant)	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Projects just beginning
Narromine Shire Council (Affiliate Participant)	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Projects just beginning
Warren Shire Council (Affiliate Participant)	Adoption of CRC research	Improved ability to predict and target local government services to meet regional community needs	Projects just beginning
Dunavant Enterprises Pty Ltd (Affiliate Participant)	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
Aquatech Consulting Pty Ltd (Affiliate participant)	Contracted research to CRC	Participation in water use efficiency and water storage projects will raise profile and increase sales of monitoring equipment	Project just beginning

Research Collaboration

Key Research Activities and Achievements

2005–06 marked the first year of the CRC's operations, with much of the initial six months devoted to appointing a Board, establishing the legal and financial operating systems of the CRC and making key managerial appointments such as the Chief Scientist and Extension and Knowledge Manager. Most new research projects in the CRC have been operating for six months or less but a few key projects were carried over from the previous Australian Cotton CRC. Despite the delays involved in setting administrative structures in place, the CRC has reached many significant research milestones on or ahead of time. Key research achievements included:

- The establishment of several major new research projects in the areas of ground and surface water management and ecosystem services, with the participation and financial contribution of a number of regional NRM bodies
- The completion of many scoping studies and reviews which will guide future CRC investment in fields such as soil health, precision agriculture, groundwater management, bioremediation of pesticides, emerging insect pests, socioeconomic indicators for the cotton industry, natural resource governance and indigenous participation.

An initial planning meeting with GRDC, CRDC, CSIRO and NSW DPI for the 'High yielding irrigated grains' project

- The establishment of a major research project on high-yielding grains in cotton farming systems, in collaboration with GRDC
- The establishment of several projects which have potential to generate valuable IP for the CRC, in the areas of ginning technology and fibre measurement, and an expansion of work on semiochemicals which is already generating royalties and exports to southeast Asia.

Research and Extension Achievements

The Farm

- Transgenic cotton R&D performed very well under the high pest pressure conditions of 2005–06. Many of the CRC projects are helping with the adoption of GM cotton in Australia
- Application was made to the Australian Pesticides & Veterinary Medicines Authority for registration of the Magnet® moth attractant technology and initiation of field trials for Magnet® in Taiwan and Thailand

- An independent review of semiochemical technology led to new CRC investment in novel technology
- IPM research projects got underway
- A scoping report of 'High yielding irrigated grains project', in collaboration with GRDC, was completed
- The CRC had input into key industry initiatives such as the Biosecurity plan, TIMS and FUSCOM committees
- Major water-related research and extension program aimed at "More crop per drop" were established
- A joint project aimed at reducing surface water evaporation was commenced with the Irrigation CRC and Polymers CRC
- A report of R&D opportunities in the Burdekin region was compiled
- Advances were made in Northern Australia research
- A major Silver Leaf Whitefly review held in Toowoomba helped the industry to develop management strategies for this pest in Queensland
- A Soil Biology Research Review meant key R&D priorities were assessed for soil health
- A Precision Farming Systems forum was held with CRDC and ACGRA

The Catchment

- Launch of the publication *Birds on Cotton Farms*
- A series of natural resource management information sheets was published
- Scoping studies to prioritise groundwater management needs for industry commenced
- A new publication on farm water storage management guidelines was released to optimise on farm biodiversity and water quality.
- Scoping study of pesticide risks completed resulting in new research to develop enzymes for bioremediation of Diuron, a common herbicide of both cotton and grain crops

The Community

- Three scoping studies to investigate future opportunities related to the cotton industry commenced
- The CRC hosted a visit from the NSW CWA State Conference delegates, as well as a separate presentation to the Barwon region branch
- Meetings and discussions took place with Local Government representatives

The Product

- New Field to Fabric research established the link between crop and ginning management to yam quality
- Field to Fabric training courses for industry personnel were oversubscribed
- A new project on measuring contamination in Australian cotton commenced
- An 'Aquaculture on Cotton Farms' planning workshop was held

The Adoption

- The CRC had presentations and a display at the Australian Cotton Trade Show in Moree
- A significant number of field days and seminars were held with industry
- The website was operational
- A review of extension needs which highlighted needs for local extension staff was completed
- Partnerships were established with regional NRM bodies in delivery of the industry's BMP program
- The cotton industry's first "Fish Friendly Farms" field days were well attended by growers
- A series of nitrogen fertiliser and greenhouse gas field days

- A series BMP land and water management workshops with Cotton Australia
- *Envirodirectory 2006* provided a collation of environmental source information to aid implementation of the BMP Land And Water Management module
- Water extension field days generated considerable industry interest and attendance
- Regular Cotton Tales newsletters and CRC eNews were disseminated to industry

Achievement of Milestones

Most milestones due by June 2006 have been reached. A few have been reached ahead of time and significant progress has been made towards meeting many that are not due for some time. In the few cases, milestones have not been achieved for the following reasons:

Milestones 1.1.1, 1.2.1 and 1.3.2

Research projects in northern Australia were affected by a Northern Territory Government moratorium on cotton research and a Western Australian Government moratorium on GM crops, both imposed in response to pressure from environmental groups. This led to the loss of key research staff and delays in completing the final reports and publications from this research; however, it is anticipated that these milestones will be reached by December 2006 as the CRC has appointed a former PhD student to complete the task.

Milestone 1.1.3

An independent report by the Centre for Pesticide Application and Safety, University of Queensland, made this milestone redundant.

Milestone 1.4.1

This was not achieved because of a lack of high quality research project applications. Continuing efforts are being made to rectify this situation.

Milestone 4.6.2

This was not achieved because of an inability to recruit a suitable postgraduate student. Continuing efforts are being made to recruit a suitable applicant.

External consultancies

The CRC has not entered into any major consultancies with external organisations. Its focus is on meeting the needs of the cotton industry and its participants and affiliates, through cooperative research projects.

Additional Grants and Funding

The CRC has received external grants and additional funding (beyond that indicated in the Participants Agreement):

- Additional funding from the Australian Greenhouse Office to conduct research on the level of awareness of greenhouse issues in the industry, and the industry's preparedness for climate change
- Additional funding from Monsanto Ltd, to research economic thresholds for insect pests on transgenic cotton
- Additional funding from the Queensland Murray-Darling Commission and the Condamine Alliance, to research on ecosystem health in Queensland
- Additional funding from Land and Water Australia to accelerate adoption of integrated soil management practices in irrigated cotton and grain.

Contribution to the National Research Priorities

The CRC's research program contributes to all four National Research Priorities:

An Environmentally Sustainable Australia

CRC projects aimed at improving water use efficiency, monitoring and improving soil health, and maintaining biodiversity in these riparian zones will assist regional bodies such as Catchment Management Authorities for the Namoi, Central West, Border River-Gwydir and Condamine regions, as well the Murray-

Darling Basin Commission, to achieve their targets. Our projects will contribute to priority national goals including water, transforming existing industries, sustainable use of biodiversity, and responding to climate change and variability.

Promoting and Maintaining Good Health

The CRC's Community program will help meet the priority goal of strengthening Australia's social and economic fabric by providing local government organisations in regional areas (often those which most need strengthening) with critical information on how their socio-economic wellbeing will be influenced by changes in a key regional industry.

Frontier Technologies for Building and Transforming Australian Industries

The CRC has initiated research on breakthrough science, including the development of new semiochemical technology for pest management, and on fitting frontier technologies such as new transgenic cotton varieties to Australian production systems. It has projects on smart information use, through the development of new decision support systems and the combination of wireless internet technology and smart hand-held devices for crop scouting.

Safeguarding Australia

The CRC is contributing to the goal of protecting Australia from invasive diseases and pests by developing management systems for new and emerging pests and diseases and establishing the infrastructure required to cope with new incursions.

Changes to future directions

The CRC will be reviewing and planning for changes in future directions via a strategic planning process for The Farm program, and the implementation of numerous scoping studies in The Catchment and The Community programs, in late 2006.

Integrated Pest Management (IPM) involves choosing a locally suitable combination from a range of measures used to control insect pests with a minimum use of chemicals while maintaining the quality of the crop at the same time.

This photograph shows an example of an IPM component, farmscaping, on the Darling Downs – with other crops (sorghum in this case) planted near cotton to supplement protein requirements for 'beneficial' insects so they remain nearby.

Table 3: Research milestones and/or Outputs

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
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	**1.1.1 Milestone** Final report submitted of ACCRC studies in Northern Australia (June 2006)	No		Delays associated with loss of staff from NT DBIRD which is not a member of the new CRC	Reports are in advanced draft stage. A consultant will be employed to complete them. Expect completion by Oct 2006
	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 (December 2005)	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 Scoping report due for research needs into improving application of pesticides and other inputs (June 2006)	No		An independent report done by the Centre for Pesticide Application and Safety (UQ) removed the need for this milestone	Future projects will be considered in the light of the CPAS review
	1.1.7 Milestone Initial IPM systems (insect, weeds, diseases) developed for Burdekin region and Ord Stage 2 (June 2008)	Yes	Burdekin scoping study completed and Ord R&D underway. Approval from OGTR to grow transgenic cotton in northern Australia will be critical for further progress on this milestone		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	1.1.8 Milestone Links between farming systems, IPM and area-wide management explored, tools expanded, guidelines enhanced (June 2010)	N/a		Milestone not due until 2010	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)
	1.1.9 Milestone Economic analysis of IPM, IDM and AWM strategies (June 2012)	N/a		Milestone not due until 2012	Baseline data to evaluate CRC outcomes are being collected
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	**1.2.1 Milestone** Complete initial study and report of irrigation management for West Kimberly (June 2006)	No		Delays associated with loss of staff from Western Agriculture Ltd, which is not a member of the new CRC	Reports are in advanced draft stage. A consultant will be employed to complete them. Expect completion by Oct 2006
	1.2.2 Milestone Deep drainage Lysimeters and other tools established (September 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. Further applications for additional NWI funding in prep		
	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)	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		

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	1.2.4 Milestone Establish two collaborative PhD projects with CRC Irrigation Futures (December 2006)	Yes	CRC-IF leading first student project. A student has been selected. Cotton CRC to lead 2nd project, to be advertised in late 2006		
	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) (December 2006)	Yes	See Milestones 1.2.2 and 1.2.3		
	1.2.6 Milestone Research knowledge compiled for suitable use in new water accounting tools. (June 2007)	N/a		Milestone not due until 2007	2 new projects (funding $254,000 in 2006–07) have been established. A revision of HYDROlogic is underway
	1.2.7 Milestone Outcome of major trial sites reported and future research identified. (June 2008)	N/a		Milestone not due until 2008	
	1.2.8 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		Milestone not due until 2009	
	1.2.9 Milestone Economic assessment of the value of the CRC input into improving water use (Links with Programs 2) (June 2010)	N/a		Milestone not due until 2010	

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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.	**1.3.1 Milestone** Research on relationship between crop agronomy and fibre quality initiated (with Program 4) (August 2005)	Yes	2 new projects commenced (funding $217,000 in 2005–06 and $287,000 in 2006–07)		
	1.3.2 Milestone Finalise research on minimum tillage systems for cotton in NW Australia and review future research needs (June 2006)	No		Research completed but final report not completed and review of future research needs not done	Expedite final report submission. CRC has allocated additional resources
	1.3.3 Milestone Initiate integrated farming systems researcher in central Queensland and scope new Burdekin region needs with commercial partners (December 2005)	Yes	Scoping report completed. Discussions held with Qld Cotton and Monsanto. Future progress will depend on outcome of application to OGTR for transgenic cotton in northern Australia		
	1.3.4 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)	Yes	3 new projects established (funding $273,000 in 2005–06 and $293,000 in 2006–07)		
	1.3.5 Milestone Research to understand links between soil function, diversity, productivity and farming systems (June 2006)	Yes	Review of soil health research completed. One new project (funding $86,000 in 2005–06 and $156,000 in 2006–07) established		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	1.3.6 Milestone Review research requirements for cotton nutrition and develop new projects (June 2006)	Yes	Nutrition advisory group established. Two new PhD projects started		
	1.3.7 Milestone Farming systems scientist approved to research and coordinate high yield and profit systems R&D (June 2006)	Yes	Role of farming systems scientist has been much discussed with CRDC and end users. Now have approval but awaiting a project application from CSIRO.		
	1.3.8 Milestone Cotton and grains farming systems inputs optimised for yields, economic returns and inputs (June 2010)	N/a		Milestone not due until 2010	New project established in collaboration with GRDC (funding $48,000 in 2005–06, $304,000 in 2006–07)
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.	**1.4.1 Milestone** Research developed 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 2006)	No		Forum on precision agriculture held in Dec 2005 with CRDC. There was a lack of suitable high-quality project applications reflecting the priorities established in this forum	Currently negotiating with commercial partner and researchers to commission a better project.
	1.4.2 Milestone Develop 'smart' science to interpret and use precision agriculture data to identify and manage problems (June 2008)	N/a		Milestone not due until 2008	See Milestone 1.4.1
	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		Milestone not due until 2009	See Milestone 1.4.1

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	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		Milestone not due until 2009	See Milestone 1.4.1
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.	**1.5.1 Milestone** Develop and validate electrical imaging for measuring water infiltration and to develop enhanced software to support the MESS system (June 2009)	Yes	Project has commenced and is collaborating with other research projects		
	1.5.2 Milestone Targets and opportunities semiochemicals, biopesticides and molecular technologies (eg microsatellites, RNAi, genomics) developed. Research initiated in priority areas both independently and with commercial partners (December 2006)	No		Milestone not due until Dec 2006. Good progress with semiochemical work, little with biopesticides. New project on microsatellites (in mirids) established	Two new projects in semiochemical established (funding $236,000 in 2005–06, $275,000 in 2006–07). Ongoing negotiations on licensing agreements and commercial partners for both projects
	1.5.3 Milestone Reporting on applications of molecular technologies and implications for cotton production (June 2008)	N/a		Milestone not due until 2008	
	1.5.4 Milestone Develop biopesticides and semiochemicals for mirids and other pests with commercial partners (December 2010)	N/a		Milestone not due until 2010	2 new projects established (see Milestone 1.5.2). New international rights agreement being negotiated with Ag Biotech

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
2.1 Output Integrated management of river flows for irrigation allocation and environmental releases that are profitable for the cotton industry and demonstrably benefit river health.	**2.1.1 Milestone** Growers, catchment management authorities and government agencies engaged, research plans finalized, field research sites and baselines established (December 2006)	Yes	Gwydir and Namoi CMAs QMDC Condamine Alliance involved in projects. Project applications approved, most field sites established. PhD student enrolled		
	2.1.2 Milestone River health indicators defined, (June 2007)	N/a		Milestone not due until 2007	Project established (Funding $199,000 in 2005–06, $210,000 in 2006–07)
	2.1.3 Milestone Imaging technology developed to assess river flow (June 2008)	N/a		Milestone not due until 2008	See above project, which also contributes to this milestone
	2.1.4 Milestone Mapping of sub-catchment water flows completed, salt balance assessed in key areas to improve efficiency in water delivery (December 2010)	N/a		Milestone not due until 2010	New project established (funding $130,000 in 2006–07)
	2.1.5 Milestone Final research results reported on manipulation of flows and their impacts on cotton profits and river health (December 2010)	N/a		Milestone not due until 2010	See Milestone 2.1.2 – project also contributes to this milestone
2.2 Output Improved understanding of the dynamics and connectivity of groundwater systems, their interaction with river flows, and mitigating the pollution of groundwater systems associated with deep drainage and pumping for irrigation.	**2.2.1 Milestone** Growers, catchment management authorities and government agencies engaged, research plans finalized, field research sites and baselines established (June 2007)	Yes	Underway. Namoi and Gwydir CMAs QMDC and Condamine involved. Two projects (funding $401,000 in 2006–07) established		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	2.2.2 Milestone Ground water health indicators defined (December 2006)	N/a		Milestone not due until Dec 2006	Project established (funding $31,000 in 2006–07), PhD student enrolled
	2.2.3 Milestone Imaging technology developed to assess ground water flow and interaction (December 2008)	N/a		Milestone not due until 2008	See Milestone 2.2.1. Those projects also contribute to this milestone
	2.2.4 Milestone Groundwater scoping study completed (March 2006)	Yes	Scoping report received and will guide further research in this area		
	2.2.5 Milestone High risk groundwater sties selected for detailed assessment (June 2007)	N/a		Milestone not due until 2007	Scoping studies (Milestone 2.2.4) will help define sites
	2.2.6 Milestone Recharge and river flow interaction assessed for selected sites (June 2008)	N/a		Milestone not due until 2008	See Milestone 2.2.1. Those projects also contribute to this milestone
	2.2.7 Milestone Groundwater sustainable yield assessment completed in selected sites (June 2009)	N/a		Milestone not due until 2009	See Milestone 2.2.1. Those projects also contribute to this milestone
	2.2.8 Milestone New groundwater management plans developed and socio-economic evaluation completed (June 2010)	N/a		Milestone not due until 2010	See Milestone 2.2.1. Those projects also contribute to this milestone
	2.2.9 Milestone New ground water allocation plans including; recharge and water quality guidelines, promoted to industry, catchment management authorities and government agencies (June 2011)	N/a		Milestone not due until 2011	See Milestone 2.2.1. Those projects also contribute to this milestone

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
2.3 Output Development of design criteria for on-farm storages to bioremediate irrigation tail-water and knowledge to manage water levels in storages and on-farm wetlands for irrigation and environmental purposes.	**2.3.1 Milestone** Research plans finalised; growers engaged and field sites established (June 2006)	Yes	Scoping study completed. Targets for bioremediation identified. One project (funding $101,000 in 2006–07) established, involving Orica Ltd		
	2.3.2 Milestone Final research results on storage design criteria for pesticide bioremediation reported. Commercial feasibility of enzyme application completed with Orica Ltd (June 2008)	N/a		Milestone not due until 2008	See Milestone 2.3.1 – project will contribute to this milestone. Industry publication on storage design guidelines released.
	2.3.3 Milestone Final research results on managing water levels in storages and wetlands for production and conservation (June 2009)	N/a		Milestone not due until 2009	Project established (funding $68,000 in 2006–07)
2.4 Output Best-practice for managing terrestrial biodiversity and ecosystem services on farms enabling growers to sustain production and increase profits and assisting catchment authorities set and achieve blueprint targets	**2.4.1 Milestone** Research plans finalised; growers, area-wide groups and catchment management authorities engaged and field research sites and baselines established (June 2006)	Yes	Two projects initiated (funding $43,000 in 2005–06, $214,000 in 2006–07. Condamine Alliance involved. Two PhD students enrolled. Book on Birds on Cotton Farms published		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	2.4.2 Milestone Review and evaluate indicators and impacts on the terrestrial biodiversity of cotton farms and environs and the industry's contribution to meeting catchment targets for water, salinity, vegetation cover and biodiversity (June 2007)	N/a		Milestone not due until 2007	See Milestone 2.4.1. Those projects will also contribute to this milestone. Also two PhD projects begun in the AC-CRC will be completed
	2.4.3 Milestone Pilot techniques and guidelines for assessing, managing and monitoring biodiversity and ecosystem services with area-wide management groups (June 2010)	N/a		Milestone not due until 2010	See Milestone 2.4.1. Those projects will also contribute to this milestone. Also two PhD projects begun in the AC-CRC will be completed
2.5 Output Develop integrated planning and decision support tools to guide on-farm and area-wide investments in land and water management.	**2.5.1 Milestone** 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	Discussions have been held.	Many meetings have been held but negotiations are complex, with many stakeholders. Good progress has been made in some areas, eg river health	Continue discussions.
	2.5.2 Milestone Spatially explicit land and water process models developed and integrated (June 2009)	N/a		Milestone not due until 2009	Several established projects will contribute to this milestone
	2.5.3 Milestone Land and water use scenarios investigated interactively with stakeholders (June 2010)	N/a		Milestone not due until 2010	Several established projects will contribute to this milestone

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
2.6 Output Development of scientifically based sustainability indicators to monitor the cotton industry's environmental impact at farm and catchment scale and measure its performance in meeting catchment targets through BMP (the cotton industry's environmental management system) while underpinning the industry's 'eco-labelling' initiative.	**2.6.1 Milestone** Report on indicators for soil, vegetation, water and biodiversity (June 2009)	N/a		Milestone not due until 2009	Several established projects will contribute to this milestone
	2.6.2 Milestone Report on the cotton industry's contribution to meeting catchment targets for water, salinity, vegetation cover and biodiversity (June 2010)	N/a		Milestone not due until 2010	Several established projects will contribute to this milestone
	2.6.3 Milestone Report on impact of cotton industry on catchment health against National priorities (June 2012)	N/a		Milestone not due until 2012	Several established projects will contribute to this milestone
3.1 Output Analysis of economic goods and services associated with the primary, secondary and tertiary level industry impacts at the region level.	**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 (August 2005)	Yes	Meetings with LGAs conducted, workshop on draft scoping study held, scoping reports completed		
	3.1.2 Milestone Analysis, preliminary reporting and regional workshops to verify results and scoping study completed (December 2006)	N/a		Milestone not due until Dec 2006	Scoping study completed

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	3.1.3 Milestone Workshops with State and Federal departments and other stakeholders to raise awareness of results and evaluate macro-economic level impacts. Micro level research scoped (March 2007)	N/a		Milestone not due until 2007	Hold workshops
	3.1.4 Milestone LGAs will independently compile data for a second round analysis and update results. Their outputs scrutinised to ensure that this process is robust and that the analysis can be repeated in-house by LGAs beyond the life of the CRC on a periodic basis (December 2010)	N/a		Milestone not due until 2010	
3.2 Output Identification of change pressures revealing the transforming technologies in the cotton industry and their impact on the socio-economic status of communities, the productive capacity of the industry and the viability of both into the future.	**3.2.1 Milestone** Database of technology developers/providers focusing on the cotton and irrigation industries. Development of protocols for cataloguing technologies and impacts (December 2005)	Yes	CRC has database. In 2006–07 CRC will be integrating this into its adoption projects		
	3.2.2 Milestone Workshop the technologies and impacts with stakeholders arriving at proposed impacts for individual regions. Regional impacts aggregated, scaled up to industry level and modelled. These outputs become data for output 1.1 and output 1.3 (June 2006)	Yes	Some workshops have been done, more in will be done in the future		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 2005–06 and planned activities in 2006–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	3.2.3 Milestone Finalise the development of the interactive database for modelling impacts from new and emerging technologies beyond the end of the CRC (June 2010)	N/a		Milestone not due until 2010	
3.3 Output Identify innovative regional development options for economic growth.	**3.3.1 Milestone** Engage with LGA stakeholders to identify potential opportunities to stimulate and/or attract new industry development (June 2006)	Yes	Meetings held with LGAs, scoping study completed		
	3.3.2 Milestone Identify examples of new industries that could be possible new entrants in cotton regions. Identify flow-on benefits from investment and the business case needed to attract new investment (December 2007)	N/a		Milestone not due until 2007	
	3.3.3 Milestone Develop an understanding of the data and information needed by new and innovative industries to make their assessments of investment in the cotton growing regions (June 2009)	N/a		Milestone not due until 2009	
3.4 Output Demographic baseline studies including employment and migration profiles	**3.4.1 Milestone** Employment and regional migration baseline investigated and documented (Dec 2006)	Yes	Demographic baseline studies included in scoping report		
	3.4.2 Milestone Attitudinal research to understanding employment expectations in different sectors of the community including direct or indirect employment opportunities (June 2007)	N/a		Milestone not due until 2007	

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	3.4.3 Milestone research to establish future trends in in/out migration for cotton producing regions (June 2008)	N/a		Milestone not due until 2008	Some data available from scoping studies
	3.4.4 Milestone Finalisation of demographic modelling, gap analysis and future scenario building (June 2010)	N/a		Milestone not due until 2010	
3.5 Output Document indigenous community involvement in the cotton industry to better understand changing employment roles, needs and opportunities.	**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 (December 2006)	Yes	Consultation with several indigenous community groups. Scoping study in advanced draft		
3.6 Output Understanding social change and adjustment through a social network analysis of cotton regions.	**3.6.1 Milestone** Northern, central and southern case study regions selected. Local stakeholders engaged and primary data collection commenced (December 2006)	N/a		Milestone not due until Dec 2006	Scoping study will guide case study selection
3.7 Output Developing governance frameworks and effective policy options to promote the understanding of changing water and natural resource management regulations on the cotton industry	**3.7.1 Milestone** Conduct a detailed analysis of the current suite of policy instruments and governance frameworks (December 2007)	N/a		Milestone not due until Dec 2006	Some information available in scoping study

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4.1 Output Objective measurement system for fibre fineness and maturity adopted internationally for trading cotton.	**4.1.1 Milestone** Completion of international validation trials verifying the performance of the technology (in conjunction with key international collaborators including The US Department of Agriculture, Texas Tech University and The Bremen Fibre Institute.) (June 2007)	N/a		Milestone not due until 2007	Some comparative instrument tests with international collaborators were done in 2005–06 but more are required
	4.1.2 Milestone Ratification of the instrumentation by the ITMF - Fibre Fineness and Maturity Working Group (June 2009)	N/a		Milestone not due until 2009	Project established, (funding $161,000 in 2005–06, $116,000 in 2007–08)
	4.1.3 Milestone Completion of extension and training to key Australian and overseas mill customers demonstrating the value of the new measurements (December 2010)	N/a		Milestone not due until 2010	See Milestone 4.1.2. Project will also contribute to this milestone
4.2 Output Agronomic factors affecting fibre quality and processing performance identified and optimised	**4.2.1 Milestone** Completion of preliminary studies understanding of the effects of different climate, plant and management factors on fibre quality variations (June 2008)	N/a		Milestone not due until 2008	See Milestone 1.3.1. 2 new projects commenced (funding $217,000 in 2005–06 and $287,000 in 2006–07). These projects cross two programs
	4.2.2 Milestone Development of guidelines on acceptable variation in fibre quality parameters for acceptable textile processing performance (June 2008)	N/a		Milestone not due until 2008	Several projects established to contribute to this milestone
4.3 Output Improved harvesting and ginning processes to preserve fibre length	**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 2007)	N/a		Milestone not due until 2007	2 projects established (funding $194,000 in 2006–07)

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	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 2008)	N/a		Milestone not due until 2008	See Milestone 4.3.1. Those projects will also contribute to this milestone
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.	**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)	N/a		Milestone not due until 2007	
	4.4.3 Milestone In conjunction with supply chain partners identify and assist any critical best practice procedures for textile processing including colouration and fabric finishing (June 2009)	N/a		Milestone not due until 2009	
4.5 Output Contamination in Australian cotton reduced by at least 50%	**4.5.1 Milestone** Quantify the extent and nature of contamination of Australian cotton (June 2007)	N/a		Milestone not due until 2007	Project established (funding $70,000 in 2005–06, $86,000 in 2006–07). Some initial data already available

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	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 until 2008	See above project – it will also contribute to this milestone
4.6 Output Value adding to existing cotton farm infrastructure through aquaculture	**4.6.1 Milestone** 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		
	4.6.2 Milestone Define projects and appoint students to investigate appropriate issue (June 2006)	No		Projects have been defined, but a student could not be found	Further efforts to recruit student
	4.6.3 Milestone Reports of research complied and ready for extension (June 2009)	N/a		Milestone not due until 2009	See Milestone 4.6.1. These projects will contribute to this milestone
	4.6.4 Milestone Studies completed and industry targets for aquaculture on cotton farms achieved (June 2012)	N/a		Milestone not due until 2009	See Milestone 4.6.1. These projects will contribute to this milestone

RESEARCH COLLABORATIONS

Collaboration within Australia

The CRC has entered into a wide range of formal and informal collaborations during its first year. Cooperation with and between our participating organisations and with our cotton industry stakeholders and the wider community has been a key strategy of getting the new CRC off to a good start. The 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.

The Board established a series of core values for the CRC – one of which is collaboration, consultation and communication.

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

Discipline groups also operate to enable researchers and industry to discuss the fine details of projects and opportunities. These groups cover topics like water, decision support tools, soils, nutrition, and crop protection issues. The CRC is moving to increase small to medium enterprises involved in these groups. An example is the new nutrition group, coordinated by Nutrient Management Systems Pty Ltd.

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:

- Precision Farming Systems forum
- Deep Drainage forum
- Aquaculture on Cotton Farms planning workshop
- Mirid workshop
- Gwydir Wetlands workshop

Cotton Australia and the Australian Cotton Growers Research Association (ACGRA), representing cotton growers, provide direction and contribute extensive networks to the 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, 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 new 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.

These collaborations add value to the CRC, as they ensure that CRC 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 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 CRC held its first "whole of CRC" science day in August 2006 prior to the 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 will hold another science forum during 2006–07 to build on this initiative.

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

International Collaborations

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

There were nine international scientific exchanges in 2005–06. Dan Monk, a cotton specialist from the University of California, undertook a two-month visit to Australia with the CSIRO. CRC researchers who undertook a scientific exchange overseas were Dr Oliver Knox (CSIRO), Dr Tony Horn (NSW DPI), Dr Nilantha Hulugalle (NSW DPI), Dr Mike Bange (CSIRO), Derek Collinge (CSIRO), Dr Peter Mcgee (University of Sydney), Dr Raphael Viscarra Rossel (University of Sydney), and Stella Locke (University of Sydney).

Ag Biotech Pty Ltd has initiated field trials for Magnet®, a pest management product of the CRC, in Taiwan and Thailand. Possibilities in other countries are also being examined.

Linkages with other CRCs

During the year the Cotton Catchment Communities 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 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. All these have various technical problems such as life of the polymer, application techniques and the prohibitive costs.

It is estimated that there are 22,000 enterprises with on-farm storages in Australia with a surface area of around 278,000 hectares, holding some 12,500,000 megalitres of water. Annual evaporation losses from these on-farm storages can potentially exceed 40 per cent of the storage volume. The three CRCs see opportunities to improve the performance of current monolayers by development of new formulations that enhance the resistance of the monolayer to wind stress, reduce frequency (and cost) of application and substantially improve the evaporation-saving potential. The next step is to gain further industry support and funding for the research and development. The CRCs have each invested in a project to look at some new possibilities and develop a longer-term research plan.

A collaborative effort is seeking cost effective solutions for controlling evaporation losses from irrigation storage dams. Back Row: *Graham George (QUT), Geoff Barnes (UQ, retired), Ian Dagley (CEO CRC for Polymers), David Solomon (Melbourne University), Graham Harris (QDPI&F and Cotton CRC).* Front Row: *Erik Schmidt (Director, NCEA and Program Leader Irrigation Futures, Cotton CRC), Guy Roth (CEO, Cotton CRC)*

The Cotton CRC and Irrigation Futures CRC also agreed during the year to jointly fund two new PhD students on projects of common interest. These projects will commence in 2006–07. The 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 being undertaken with the Australian Weed Management CRC.

Education and Training

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 CRCs education and training program covers the following areas:

- Education opportunities that provide a flexible path for skills and knowledge development at all levels of the industry including:
  - 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.

Education and Training Highlights

The CRC had:

- 21 PhD student projects underway: 14 students continuing from the Australian Cotton CRC and seven new students in 2005–06. Four students completed their degrees during 2005–06 and another two have submitted their theses for examination
- Five summer scholarship undergraduate students
- Four honours projects and one internship for undergraduate students
- A 'Call on Cotton' Tour for postgraduate students, conducted with CRDC
- The cotton production course at UNE underway
- Interaction to help Cotton Australia implement its new vocational training program

The PhD program

The CRC is on target in terms of recruiting and supervising PhD students. The CRC inherited 14 students from the Australian Cotton CRC and has also recruited 7 new students in 2005–06. Therefore, the CRC has 21 students during 2005–06. Of these students, almost all have co-supervisors from non-university participants in the CRC, including some industry partners. Another call for student projects is scheduled for October 2006.

One of the challenges faced by the CRC is attracting PhD students, which appears to be a problem for many CRCs. The CRC offers stipends of $26,000 and operating support of $6000 for student projects, which is very competitive with university awards.

During 2005–06 4 PhD students completed their degrees, and another 2 have submitted their theses for examination. Of the four students who completed their PhDs, three are employed by participant organisations on cotton-related research, and one is working for a museum.

In conjunction with CRDC, a "Call on the Cotton Industry Tour" was arranged for the postgraduate students associated with the CRC. This enabled them to visit and meet with a range of end-users in the cotton industry. It also helped them foster a spirit of collaboration with each other and many of the people they met.

During the 2006 'Call on Cotton' Tour, postgraduate students visited a cotton farm, gin and classing rooms and toured the ACRI (where the CRC is located) and the Cotton Exhibition Centre in Narrabri

University courses

The CRC's Cotton Production Course (Graduate Certificate), run through The University of New England, is highly regarded throughout the industry as a key avenue for consultants to gain essential skills. Cotton Consultants Australia has recognised it as a criterion for the accreditation of Certified Practicing Cotton Consultants. This course is currently experiencing enrolment difficulties associated with the continuing drought and rising costs of education.

A unit of cotton undergraduate teaching is also provided at The University of New England, The University of Sydney and The University of Queensland. A dozen students majoring in agronomy at The University of Sydney included the Cotton Production unit in their final year. The Cotton CRC provides lecture material and workshops to support this course. Through The University of Queensland (Gatton Campus), this unit attracted six students. At The University of New England, twelve agricultural students undertook the Cotton Production elective.

Internally enrolled students see the cotton production unit as vocationally oriented. The unit attracts those undergraduates planning to work in the cotton industry but also a significant cohort of students with other agricultural interests but who view cotton as an excellent example of advanced agricultural practices.

The CRC has a planning meeting scheduled in late 2006 to review the cotton course and examine further opportunities.

Summer Scholarships and Honours programs for undergraduates

Five summer scholarships were awarded for undergraduate students to work on a cotton research project during the 2006 summer. These included two students from Toowoomba High School who worked with Dave Murray on a pest management model. Other scholarships were awarded to students at UNE and Sydney University.

Four Honours scholarships were awarded to students from Sydney University and The University of Queensland.

An internship was provided to Emma Williams from Mungindi, a student from the University of Queensland who spent four months with Dr Ian Rochester and Dr Greg Constable of CSIRO Plant Industry at the ACRI, near Narrabri. Her project examined the economics of crop rotations.

CRC Summer Scholarship student, Nick Duckmanton, with Professor Ivan Kennedy of Sydney University

Industry Short Courses

Irrigation Training

Irrigation training is being developed as part of the Irrigation Knowledge Management project, which is expected to be rolled out in future years of the CRC. The development team has taken an innovative approach, aimed at maximising the linkages that can be achieved between the training activities and other activities that are occurring: notably BMP/Land and Water Management plans and irrigation drainage management plans and local trial activities. By building the training to support these activities and using these activities as demonstrations and potentially assessment tasks within the training, it is hoped that a high level of integration will be achieved. Furthermore, it is hoped that, where possible, the training will be conducted in a format more closely resembling an in-field workshop or field day rather than a traditional training course. In this respect, the training package can be delivered in a manner similar to the way in which local workshops are currently being delivered, with the added advantage that the material will be largely readily available and standardised across the industry (with local content added as appropriate).

It is anticipated that the package will not only provide competencies that can be attributed towards existing qualifications (such as Certificate IV in Irrigation or Agriculture, or the proposed Cotton Advanced course, but will largely, if not wholly, provide the competencies needed to satisfy the requirements for the Irrigation Association of Australia's Certified Irrigation Manager certification program. A similar link with the proposed Certified Irrigation Advisor has also been investigated.

Field to Fabric Grower Short Course

The post-harvest training course, *"Managing for Quality within the Production Chain",* was developed to inform cotton producers about customer needs and expectations and the quality-control requirements of the industry. Two courses were offered during the year, with the majority of participants from the ginning, marketing, classing and seed company sectors and the remainder comprising growers, extension officers and researchers. The three-day course, presented at CSIRO Textile and Fibre Technology's facilities in Geelong, provides participants with the opportunity to interact with leading researchers on all aspects of the cotton production pipeline from agronomy to fabric formation to dyeing and finishing.

The training program is aligned with several national competencies for vocational training and education, thereby allowing participants to undertake a short course that provides a formal qualification. The courses have been developed with funding and support from: the Cotton Research and Development Corporation, The International Fibre Centre, NSW TAFE, the Australian Cotton Shippers Association, CSIRO, the Cotton Classers Association of Australia and the National Heritage Trust.

Researcher Rene van der Sluijs is part of the CSIRO team delivering the post-harvest Field to Fibre short course for participants across the cotton industry growing and processing spectrum

Vocational training and skill development

A review of vocational training was conducted with Cotton Australia, CRDC, NSW TAFE, QDPI&F, NSW DPI and some other organisations. The CRC will build on this in its future years.

The Cotton CRC's National Cotton Training Coordinator (QDPI&F) is working in collaboration with Cotton Australia on a unique initiative that addresses the development of the future and current workforce for the industry. This project, the *Skills Recognition, Training and Career Pathway strategy,* is funded through the Rural Skills Shortage project of the Department of Education, Science and Training (DEST). It was established in early 2006 and complements the review of vocational training.

The project's purpose is to develop an industry-specific skills set, collated from various National Training Packages on offer under the Australian Qualification Training Framework. Industry has identified a unique skill set that is required to meet the current industry trends of staff retention, progression and seasonal staff. The main focus of these strategies is on providing a basic range of production skills for people entering the industry (Cotton Basics and Cotton Seed) and business planning and human resources management at the owner/manager level (Cotton Advanced).

Cotton Basics is registered as a Certificate II in Agriculture (specialising in Cotton Production). This course will have pilot courses delivered at Tamworth's Farrer Agricultural High School in term 1, 2007. Recently, primary production/agricultural teachers from both Farrer High School, Moree Secondary school, and Narrabri High school attended a 'train the trainer' day, coordinated and implemented by the CRC. This DEST project addresses development of skills desired by industry in senior years of schooling under the Vocational Education Training in schools program.

Additional pilots of the Cotton Basics course are planned in 2007 for two groups of long-term unemployed participants from the Narrabri and Moree cotton production regions. This training will also be aligned to Certificate II level.

Cotton Advanced is targeted at the decision makers of the enterprise and aligned to Certificate V to diploma levels. November 2006 will see the first of the business management training offered to the industry. The topic being addressed is labour management: the attraction and retention of high quality staff. Due to current generational trends in the emerging workforce, financial rewards are not the major nor only incentive that attracts staff to rural areas. This labour management course will assist the cotton industry to best capitalise on these emerging trends to facilitate building of the future workforce.

Schools Program

In its first year, the CRC sponsored five projects to increase the interest in science and agriculture in both primary and secondary schools in cotton regions. In 2006, the schools work will be further enhanced and options are currently being discussed. Projects to date include:

- Primary Science Matters "Science in a box" in Narrabri and Wee Waa schools
- Go Agro: a program of the Emerald cotton growers and schools
- The Rotary Science Challenge
- My River Darling: a program along the Darling River
- School Science prizes

Dr Rose Roche completed her cotton-related PhD with the help of a scholarship from CRC Partner, CRDC, and is now undertaking a postdoctoral project through the CRC on the effect of row configurations on yield

Table 4: Education and Training Milestones and/or Outputs

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 06–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
Output 50 post graduate students graduated	**Milestone** Commence 15 PhD and Masters scholarships (February 2006)	Yes	Ongoing. Planning a further call in Oct 2006		
Output Honours/Internships scholarships completed	**Milestone** 1 internship completed. (December 2005)	Yes	Emma Williams, UQ/ CSIRO PI. Hope to have another one in 2006–07		
	Milestone 2 Honours/ internships completed. (December 2006)	Yes	4 students. Having a call for more in Sept 2006		
Output Summer Scholarships completed for undergraduate students from partner universities	**Milestone** 5 Summer scholarships completed (March 2006)	Yes	Having a call for more in Sept 2006		
Output 125 Graduates of Post Grad Certificate and Certificate in Cotton Production	**Milestone** Develop and progress course business plan (December 2006) **Milestone** 10 course graduates (June 2006)	Yes	Business Plan will be reviewed in late 2006	Ongoing drought may create problems in the future	
Output Tailored cotton short-courses to Agribusiness groups	**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/No	Plans are still being developed Irrigation short course done Nutrition/soils short course underway	Required more time	Plans are being developed
	Milestone Complete short course pilots courses for 30 people (June 2006)	Yes	CRC has a number of short courses planned through various projects		
Output Vocational education courses for growers and consultants.	**Milestone** Establish working group of partner vocational education providers to scope existing training and develop new resources. (December 2005)	Yes	Working group established. Discussions will be ongoing		

Type of Milestone and/or Output	Description of all 2005–06 milestones and/or outputs incl. past milestones which have not been met (and date)	Achieved (yes/no)	If achieved, progress during 05–06 and planned activities in 06–07	Reasons why milestones and/or outputs have not been achieved	Strategies to achieve milestones which have not been met
	Milestone Appoint a Vocational Education Training coordinator (June 2006)	Yes	Ongoing		
Output Relevant cotton related science in syllabus of primary and high schools	**Milestone** Contribute to Primary Science matters at 3 schools (June 2006)	Yes	5 schools supported		
	Milestone Develop business strategy for schools (December 2006)	N/a	Due Dec 2006		
Output Scientific exchanges	**Milestone** 5 completed. (June 2007)	Yes	Completed 7 Another call planned in 2006		

Communication Strategy

The CRCs communication strategy is very closely linked to The Adoption program and all extension activities. The communications strategy is multi-directional with regular exchange of knowledge between stakeholders. Knowledge is communicated to end-users through a variety of mechanisms that also encourages reciprocal communication, from end-users to researchers.

Communication strategies are being developed for each program to target the relevant community sectors including cotton growers, cotton consultants, agribusiness, the general community, NRM groups, schools, marketers, spinners, buyers, government and the scientific community. In 2006–07 the CRC intends to recruit a communications officer to enhance the delivery of its communications.

Communication media include print, TV, radio, electronic media, conference and scientific papers, as well as interactive forums. Information is delivered through industry avenues, regional media or broader public media via news releases and regular liaison.

The CRC produces a *Cotton Tales* fact sheet in each region. These fortnightly fax/email newsletters are highly regarded by industry for their short, timely, relevant nature. A survey has shown that they are considered highly worthwhile by over 90 per cent of industry.

The CRC website www.cotton.crc.org.au (will be upgraded on 2006–07 into a new format that reflects changes in technology.

The CRC had a major display at the Australian Cotton Trade Show in May 2006 to promote the CRC and its science.

The CRC has a number of SMEs involved in its communication strategy. These include media organisations such as The Cotton Grower Magazine, Cotton Outlook Magazine, The Northwest Courier Group and Radio 2VM have actively promoted CRC research and events.

The CRC distributed 24 media releases, covering various aspects of CRC research, extension and general activities.

'Cotton Tales' and NRM newsletters have proven an effective and popular means of distributing information specific to each region to growers and consultants. The newletters are distributed within the region but can also be downloaded from the CRC website www.cotton.crc.org.au. A total of 83 such newsletters were distributed during 2005–06

Specified Personnel

Specified Personnel	Title	Time	Position in CRC	Organisation	Any Changes during the year
CROSS, Letitia	Ms	80%	Program Leader Key Staff in Commercialisation	NSW DPI	N/a
DOYLE, Brendan	Mr	40%	Program Leader	UNE	N/a
GIBB, Dallas	Mr	100%	Program Leader	CRDC	N/a
GREGG, Peter	Professor	100%	Chief Scientist	UNE	N/a
HARRIS, Graham	Mr	80%	Program Leader Key Staff in Commercialisation	QDPI&F	N/a
KAUTER, Greg	Mr	25%	Program Leader	ACGRA	N/a
ROTH, Guy	Mr	100%	Chief Executive Officer	CRC	N/a

Glossary

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
CRC	Cooperative Research Centre
CRC, the	Cotton Catchment Communities CRC
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	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