Australian Government

Cotton Research and Development Corporation

ANNUAL OPERATING PLAN 2011 - 2012

THE QUEST FOR SUSTAINABLE COMPETITIVE ADVANTAGE

Australian Government

Cotton Research and Development Corporation

Responsible Minister

Senator Joe Ludwig, Minister for Agriculture, Fisheries and Forestry

Legislated representative industry body

Cotton Australia

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Executive Director	Bruce Finney
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Manager – Farming Systems Investment	Tracey Leven
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LETTER OF TRANSMITTAL

Australian Government
Cotton Research and Development Corporation

23 April 2011
The Hon. Senator Joe Ludwig
Minister for Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Minister

I am pleased to submit for your consideration and approval the Annual Operating Plan of the Cotton Research and Development Corporation for the 2011–2012 year, as required under sections 25 and 26 of the Primary Industries and Energy Research and Development (PIERD) Act 1989.

This represents the fourth year of operation under the Corporation's Strategic Plan 2008–2013.

As in previous years, the Australian Government National Research Priorities and Rural Research and Development Priorities are central to CRDC planning and execution.

We have indicated specifically where Government priorities are being addressed, and how we are responding to flood impacts, future preparedness for climate change and improving resilience.

Due to the integrated nature of our R&D investments, many of the priority areas are addressed in more than one place and this in part allows CRDC to deliver multiple strategic outcomes under our five-year plan.

In addition to the guidance provided by the Australian Government, our industry stakeholder, Cotton Australia, has been closely consulted in formulating the plan and ensuring it also addresses the industry's R&D priorities.

CRDC seeks to formulate its strategic plan, annual operating plans and annual reports in a manner that allows a clear and measurable accountability framework. This process has evolved and strengthened with input and assistance from our stakeholders and this Annual Operating Plan continues that evolution.

We look forward to implementing this plan and informing you of the benefits it has delivered to the Australian people, the Australian cotton industry and the regional communities within which it operates.

Yours sincerely

Mike Logan
CHAIR

ANNUAL OPERATING PLAN 2011 - 2012

THE QUEST FOR SUSTAINABLE COMPETITIVE ADVANTAGE

FOREWORD

Australian Government
Cotton Research and Development Corporation

2011–2012 marks the fourth year of operation under the 5-year Strategic R&D Plan 2008–2013. In collaboration with growers, researchers and the commercial sector, CRDC strives to achieve sustainable competitive advantage for Australian cotton.

CRDC, in early 2011, conducted a mid-term review of its Strategic R&D Plan with the assistance of its Australian Government and cotton industry stakeholders. An independent scan of publicly available reports and media that relate to the cotton industry and its R&D operating environment was conducted. The results highlighted that the CRDC Strategic R&D Plan assumptions and goals, with some changes in importance, remain highly relevant. In fact the importance of the quest for competitive advantage continues to increase within the context of the strategic challenges and opportunities arising for the Australian cotton industry and agriculture in general. The Corporation plans to invest $13.88 million in 2011–12 to further channel industry performance improvements typified by ongoing gains in productivity, resilience, improved energy and water use efficiency. Complementary improvements to environmental performance will be accompanied by a strong focus to enhance opportunities for best practices and technologies to be adopted across all sectors of the cotton industry. Achievement of these goals will be supported by the Corporation's commitment to collaborate broadly for greater impact and gains in efficiency.

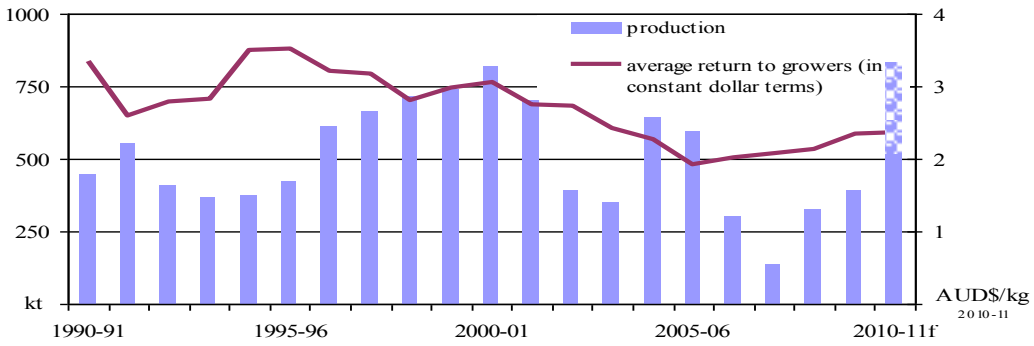
A resurgence in cotton production

In planning for the 2011-12 year, the Corporation has considered how it can best respond to the needs of a much-changed grower audience. The number of enterprises growing cotton, together with the area planted to cotton both doubled during the 2010-11 season – these surges were on the back of strong cotton prices and a return to water availability over much of the industry's production footprint.

The outlook for continued revival in cotton production remains strong and this comes immediately after protracted drought required CRDC to manage-down research intensity due to the financial constraints created by a number of years of significantly lower production. The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) forecasts Australian cotton production to be 839,000 tonnes (some 3.7 million bales) in 20010–11 (ABARES *Australian Commodities*, March quarter 2011). This would make the 2010-11 harvest a record crop for the Australian industry.

In the 2011–2012 operating year, CRDC shall draw income from both the 2010–11 and 2011–2012 crops. The Australian Government matching expenditure of levies on eligible R&D remains capped at 0.5 per cent of the three-year average gross value of production, or the cumulative

Differentiated Australian cotton successfully competing on global markets is a key priority of many future R&D investments planned by CRDC.



Source: CRDC by ABARES 2010b

Cotton growers face on-going market and environmental pressures which influence the level of return from growing cotton. This has led to cotton increasingly becoming a crop that is grown when conditions are suitable in a mixed farming system.

levy receipts, whichever is the lesser. There remains optimism for further increases in production in 2011–12 with the net effect of a strong financial position for rebuilding research intensity, capability and meeting the R&D needs of a mixed audience of new, returning and experienced growers.

Improving the performance of cotton

Cotton operates in an environment where there is an ever-increasing demand for land, water, food, energy and labour. Within this environment, consistent R&D gains spearheading greatly increased productivity has allowed the industry to make better use of scarce resources. Productivity in terms of yield per hectare has risen over the past decade at four percent per year. Maintaining this high rate of productivity growth remains a key challenge. A greater proportion of future production is expected to come from dryland (non-irrigated) production. CRDC's investments in 2011–12 will seek to sustain productivity growth for irrigated and dryland farming systems as well as improve routes to market for differentiated and premium Australian cotton products.

CRDC will invest in a third Cotton Industry Environmental Audit In 2011-12. This audit will assess industry progress since the most recent audit of 2003. It is intended to evaluate current performance and make recommendations for ongoing improvements. Environmental audits have provided a valuable benchmarking and planning framework for improvement in industry performance since 1990 when the inaugural audit was conducted.

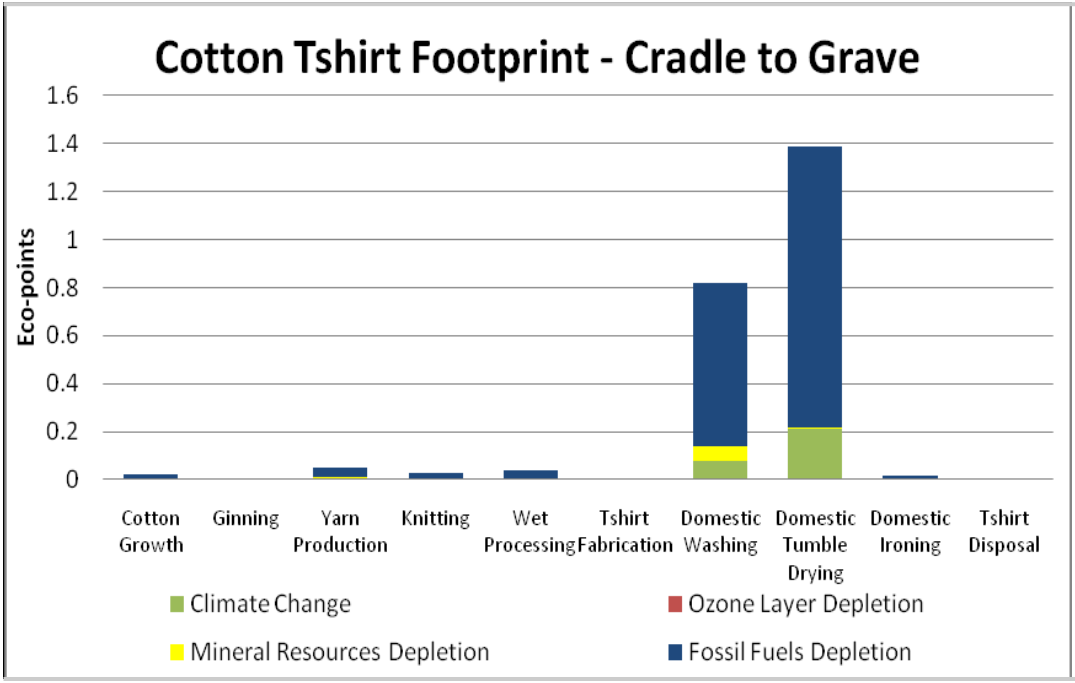
Resilience and climate change preparedness

Throughout drought and then the recent flood disaster, the importance of the capacity of people managing adaptive farming systems has been central to the resilience of growers and the industry at large. CRDC's investments in 2011-12 will continue to develop human capability. Among them, best practices and technologies can be better applied to assist growers improve risk management and flexible farming systems to prepare for and recover from climate change and natural disasters.

Energy Use and Carbon

CRDC has invested in research that has provided an improved understanding of energy use within irrigated cotton

CRDC's investment in a life-cycle analysis of a cotton T-shirt has provided useful contexts for future research.



"Once perceived by those outside the industry as an environmental vandal and water waster, Australian cotton is now valued for its credentials as the most environmentally friendly cotton production system on the globe with the lowest water use, carbon footprint and chemical use of any cotton producing region.

Source: Cotton Sector RD&E Strategy.

farming systems. Greater attention is applied to cost, efficiency and greenhouse gas emissions. The CRDC research revealed that average energy related greenhouse gas emissions (0.712 t CO_{2-e} per hectare from seven case study farms) appears to be equal to average emissions from fertiliser use (0.67 t CO_{2-e} per hectare based on Australian Greenhouse Gas Inventory and industry production data from 1990 to 2007). This preliminary study has informed further investments set for 2011-12 that focus on improving on-farm energy use efficiency coupled with continuing improvement in nitrogen use efficiency.

CRDC's investment in a life-cycle analysis of a cotton T-shirt has provided useful context for future research examining the possibilities for reducing cotton waste at the consumer level as this accounts for a high proportion of total GHG emissions. Additional research will commence in 2011-12 to better equip growers to understand and manage soil carbon in farming and natural systems on-farm so that they can develop ways to participate in a future carbon economy

Global food security

CRDC and the Australian cotton industry have identified three ways in which it can contribute to increasing food production:

1 Continuing to drive productivity gains in crop outputs: *For every two tonnes of cotton lint produced, three tonnes of cottonseed are also produced. For the 2010-11 crop, this represents cottonseed production at approximately 1.250m tonnes. Cottonseed and its by-products are major food and stock feed ingredients. During 2011–12 CRDC will continue to invest with CSIRO to investigate opportunities to further develop the yield and nutritional value of cottonseed.*

2 Continuing to drive the efficiency and resilience of the farming system:

Cotton is usually the most profitable crop on the farms where it is grown. This drives the economics of a complementary farming system that involves production of grains with cotton. In 2011–12, CRDC will continue to work collaboratively with other RDCs and research providers in this area.

3 Continuing to build the industry culture of innovation and learning:

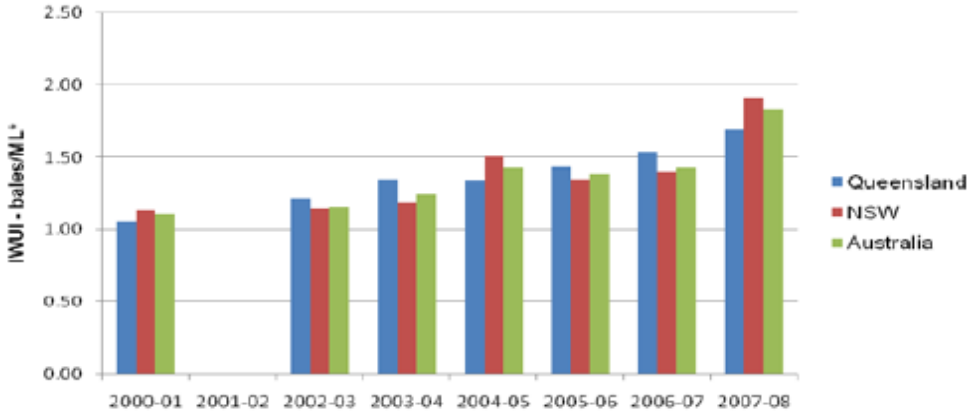
The cotton industry provides significant spill-over to the production of food crops. Spill-overs are derived from knowledge, practices and technology developed through cotton R&D for adaptation and application on farms where cotton is grown, and beyond to other crop production systems. In 2011–12, CRDC will continue to work closely with the cotton industry, its international partners and other rural RDCs to maximise opportunities for R&D knowledge and technology exchange.

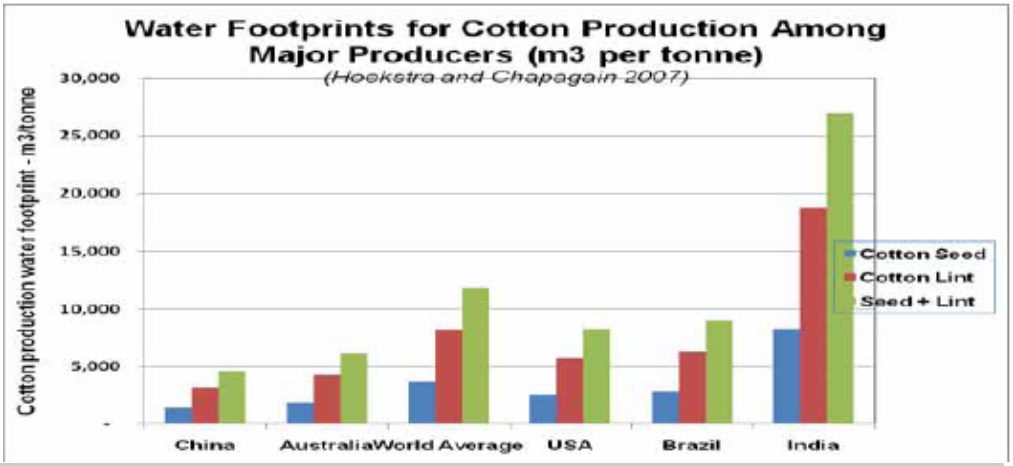
Water Use Efficiency

Water use is a key sustainability factor that CRDC will continue to tackle through R&D investment during 2011–12. Water use efficiency has improved as a result of improved yields and the adoption of more efficient irrigation technology and management practices. The following

Water is a crucial component of cotton growing, as illustrated by the prolonged drought of the 2000s where production was severely limited by water availability.
During that time, the water use efficiency of cotton production nearly doubled.
Globally, Australia is a world leader in water use efficiency.

Source: Cotton Sector RD&E Strategy





graph shows the estimated Irrigation Water Use Index (IWUI represents bales per megalitre of irrigation water extracted) based on national cotton crop irrigation water use and crop production data.

The IWUI provides a measure of how effectively irrigation water is converted into cotton lint and the trend over the 8 years shown indicates that improvement since 2000/01 has been over five percent per annum.

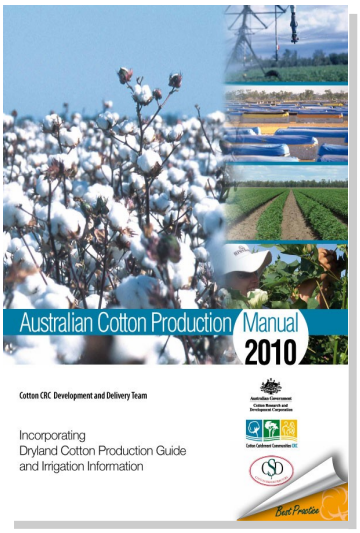
Ensuring a skilled workforce

Due in part to CRDC training investments in recent years, people working in the Australian cotton industry are on average more highly trained than those engaged in similar positions in other agricultural industries.[1] In 2011–12, CRDC will build on this base with a range of measures for those already in the industry and others who may be attracted to the industry. Measures include the University of New England/Cotton CRC Cotton Production Course, the Field to Fabric training course, the Cotton and Grains Irrigation Management course and Vocational Education Training in Schools (Certificates II to IV). We will also invest in travel and training opportunities for researchers and support a cotton industry scholarship in the Future Cotton Leaders Program and in the Australian Rural Leadership Program. With encouragement from CRDC, women continue to take up many of these opportunities. A schools-based traineeship program developed by CRDC with the support of the Aboriginal Employment Strategy and the Cotton CRC continues, with a new student undertaking paid work experience at the Corporation in 2011–12.

Increasing uptake of R&D outcomes

Under the Strategic R&D Plan 2008–2013, much thought went to devising a range of new and innovative methods for the delivery of knowledge and information. Since 2008, rapid emergence of the online environment as a new communications channel provides new opportunities. This, coupled with a need for closer engagement with agribusiness as the key advisory system for day to day on-farm questions are to be cornerstones of how CRDC expects to efficiently distribute its information. The 2011–12 year will see continued implementation of a new model for supporting adoption of industry R&D and the redevelopment of myBMP - the web-based version of the industry's Best Management Practices Program. Being flexible and user focused, this is positioning cotton growers as being equipped to self-assess their performance and practices against industry agreed standards. This environment is already reaping rewards, as seen in new demand and the new channels operating for enterprise performance and efficiency.

The industry's new Development and Delivery initiative is in the early stages of transforming efficient and timely development of R&D information.
The inaugural Cotton Production Manual 2010 is a key example of renewed focus for timely and focused information resources.



Biosecurity threats

CRDC will continue with a program of research that equips the industry to build its preparedness, undertake surveillance and respond to major exotic threats such as silver leaf whitefly, *Helicoverpa* and viruses. In 2011-12 further research conducted on management options for an exotic species of mealybug: Solenopsis mealybug, identified in cotton in Queensland during the 2009-10 season will advance biosecurity preparedness industry-wide.

Major collaborative activities

CRDC will engage and foster collaboration across the rural R&D system to deliver its strategic outcomes and efficiency gains. CRDC will once again collaborate with organisations such as the Grains R&D Corporation, Horti-

[1] *Source: Roth G. 2010*

Collaboration with other rural RDCs remains a cornerstone initiative of CRDC to sustain effective R&D outcomes.

culture Australia, the Rural Industries R&D Corporation and the Cotton Catchment Communities CRC. CRDC is a core partner and investor in the Cotton CRC and will co-invest up to $4 million in R&D during 2011-12. This is the last year of term of the current Cotton CRC. CRDC is assisting with the preparation of a 5-year Extension Bid which would commence from July 2012, should it be successful.

The Corporation will also collaborate internationally on important Value Chain research with Cotton Incorporated (the peak body for cotton R&D in the USA) and selected spinning mills in China, India and Indonesia. Other key collaborations in the coming year include:

Cotton and Grains

CRDC continues its Cotton and Grains collaboration with the Grains Research and Development Corporation (GRDC). CRDC and GRDC have conducted joint planning workshops and initiated a number of project co-investments. The intent is to build upon this collaborative R&D effort.

Premium Cotton Initiative

Last year saw the launch of 100% premium Australian cotton shirts and towels by Australian brand owners, Fletcher Jones and Australian Weaving Mills, as CRDC, in collaboration with Cotton Australia and the Australian Cotton Shippers Association sought to better understand the supply chain for Australian cotton, its unique market value proposition and test differentiated marketing approaches. In 2011-12 CRDC will be collaborating to further test and evaluate market development approaches that recognise the industry's Best Management Practise program and textile value of Australian premium quality cotton.

Sustainable irrigation

With the closure of Land and Water Australia, CRDC took on the role of Managing Agent for the National Program for Sustainable Irrigation (NPSI) in 2009. Whilst this collaboration formally ceases at 30 June 2011, the CRDC and other NPSI participants are actively promoting discussion of options for a future direction in irrigation R&D that would complement the Council of Australian Governments National Water Knowledge and Research Strategy and the Primary Industries Standing Committee cross-sector Water Use in Agriculture initiative. CRDC believes that a long-term plan and commitment to irrigation R&D that services the broad needs of agriculture is of national significance. CRDC is committed to supporting collaboration in irrigation R&D into the future.

Looking Forward

The short to medium term outlook for Australian cotton production, industry competitiveness and the wellbeing of associated regional communities is much improved. CRDC welcomes the challenges of meeting the R&D needs of a resurgent industry through the development and implementation of this Annual Operating Plan.

Equally, CRDC is focussed on attending to the R&D needs that will underpin the long term strategic direction of the industry and as articulated in the industry Vision 2029. During the latter half of 2011-12 the CRDC will commence the development of its next 5-year Strategic R&D Plan.

Vision2029

Australian Cotton • Carefully Grown • Naturally World's Best

Vision 2029—the cotton industry looks forward

In years leading up to 2009, the industry experienced particularly hard conditions.

Drought plagued many regions and government reforms ensured water security was at an all time low. The cotton labour force was being 'mined', while climate change and the carbon pollution reduction scheme were big challenges knocking on the door.

Industry rationalisation, public and political perceptions towards farming had all taken a toll. Industry confidence, profitability and resilience were waning. Some people felt the industry was in dire straits while others were cautiously optimistic that it would again rebound when conditions improved. The industry needed to find a way past the current major challenges to create a preferred future.

The leaders identified that the challenges could be overcome through a combination of repositioning the industry in the global marketplace and achieving superior industry performance underpinned by science, technology and the passion and innovative nature of people within the industry. Clearly this would involve every link in the industry from seed and chemical distributors, growers, consultants, researchers, pickers, truckers, ginners, classers, merchants, spinners and brand owners

This first step in developing a shared vision now makes it possible to identify our future challenges and create opportunities for the cotton industry.

Most importantly, we can better align our thinking, improve our planning and work collectively.

Achieving that performance will arise from a shared vision and the unified actions which result. Acceptance from every person that they make a direct contribution to the future of the industry by responding to this vision is how we all achieve the outcome we seek.

Towards 2029, the Australian cotton industry will be:

- **Differentiated** - world leading supplier of an elite quality cotton that is highly sought in premium market segments
- **Responsible** - producer and supplier of the most environmentally and socially responsible cotton on the globe
- **Tough** - resilient and equipped for future challenges
- **Successful** - exciting new levels of performance that transform productivity and profitability of every sector of the industry
- **Respected** - an industry recognised and valued by the wider community for its contribution to fibre and food needs of the world
- **Capable** - an industry that retains, attracts and develops highly capable people.

Cotton research, development and extension sector plan

The PISC Cotton Sector RD&E Plan is presently being finalised for implementation in 2011-12. Development of the RD&E plan was significantly assisted by the cotton industry vision process that received industry-wide support. CRDC will continue to provide impetus for industry to inform its RD&E needs, strategies and priorities.

The Cotton Sector RD&E Strategy was developed as part of the National Primary Industries Research Development & Extension (RD&E) Framework. Implementation of the framework is embedded within the future R&D investments of CRDC.

Under the influence of Vision 2029, the Cotton Sector RD&E Strategy sets out priorities for the sector's RD&E organisations and industry to cooperate on a national basis to address the strategic needs of the cotton industry by:

- Identifying key drivers for the cotton industry and associated RD&E
- Defining a national set of priorities to guide RD&E investment
- Analysing cotton RD&E capability against the priorities, and
- Considering and recommending options to improve cotton RD&E.

The five RD&E priorities

Within the RD&E Framework, there are five distinct RD&E priorities for the cotton sector over the next 10-20 years which are discussed in no particular order of priority below. The priorities have the potential to individually and collectively improve the cotton sector while needing to be flexible to dynamically meet a range of social, climatic, market and regulatory conditions. There are challenges with maintaining a balanced portfolio of investment, focus (R vs. D&E) and capabilities across the priorities.

The first priority lies around better cotton plant varieties which have significantly contributed to the sector's successes to date and is an area of considerable RD&E capability. Improved plant varieties have the potential to improve the productivity, sustainability and quality of cotton into the future.

The second priority focuses on farming systems to improve production sustainability and the quality of cotton produced. This includes RD&E focused on crop production and protection; water use efficiency; natural resource management; and systems integration at crop, farm and catchment scales. Improved farming systems have the potential to improve the productivity and profitability of cotton as well as minimising environmental impact and enhancing the natural resource base.

Innovative, resilient and adaptive people, businesses and communities is crucial to the future success of the cotton sector. Building and sustaining the capacity of individuals and institutions and working with them to adapt to change will contribute to providing the future social fabric of the sector. This is an emerging RD&E priority with strong links to vocational training, regional development and structural adjustment.

There is a distinct RD&E priority around product and market development. The priority includes fibre processing; development of new cotton products (quality) and markets; and providing quality assurance that integrates fibre quality and sustainability. This priority will become increasingly important to maintain market/resource access, improve industry reputation and differentiate Australian cotton.

The final priority is RD&E development and delivery. This explicitly recognises that considerable and sustained effort is required to ensure that research knowledge is developed to deliver a range of products and services to cotton farmers, communities, markets and government.

Industry stakeholder panels continue to play a key role in guiding and supporting CRDC investment decisions.

CRDC DIRECTION AND COMMITMENT

VISION

A globally competitive and responsible cotton industry

MISSION

The quest for sustainable competitive advantage

PURPOSE

Enhancing the performance of the Australian cotton industry and community through investing in research and development, and its application.

OUTCOME

A more sustainable, profitable and competitive cotton industry, providing increased environmental, economic and social benefits to regional communities and the nation.

OUR BACKGROUND

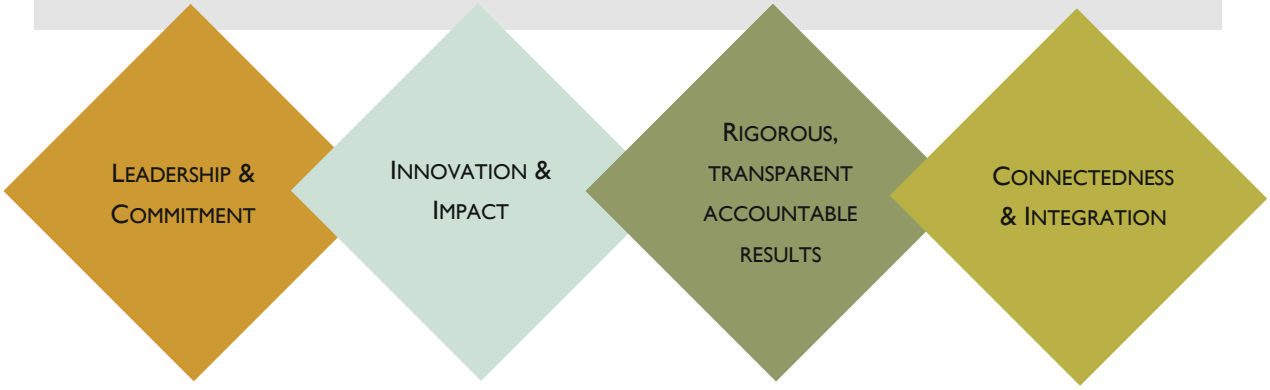
CRDC was established in 1990 under the *Primary Industries and Energy Research and Development* (PIERD) Act 1989, which outlines its accountability to the Australian Government and to the cotton industry, through Cotton Australia. CRDC invests in and manages a portfolio of research, development and extension projects that seek to enhance the environmental, social and economic values associated with cotton production systems and to increase benefit to cotton industry participants, regional communities and the Australian people.

CRDC funds and coordinates the development of technical and non-technical documents, guides and other information tools and coordinates workshops, seminars and field days for a range of purposes including research review and progression, information sharing or technology transfer to industry.

CRDC produces a range of publications about corporate activities and operations and to disseminate research outcomes. It acts as a formal and informal information source for stakeholders and client groups (facilitated by its location in a major cotton growing centre), through general industry media activities and the Corporation's website, www.crdc.com.au.

CRDC researchers are actively involved in the dissemination of research results, working through a range of mechanisms such as the CRDC-supported Development and Delivery Team (D&D).

VALUES CRDC EMBRACES TO EXECUTE ITS STRATEGIC R&D PLAN 2008-2013



OUR UNDERLYING PRINCIPLES

To implement our objectives and outcomes using a triple bottom line framework for planning, implementation and reporting.

ECONOMIC
Profitability and international competitiveness

ENVIRONMENTAL
Sustainable production systems and catchments

SOCIAL
Empowered people and communities

CRDC OUTCOME

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

During 2011–12, CRDC will continually review performance and achievement against the strategic R&D Plan goals and measures of success and will set directions for 2012–13. At the same time, CRDC will monitor and consider the strategic importance of changes in the operating environment. In forming decisions, the advice of industry and Australian Government stakeholders will remain of critical importance.

While the emphasis of investment is in applied research, the goal of transformational change requires that CRDC invest in some higher risk blue sky research. In these instances, detailed business cases evaluating the risks, the pathway to adoption and the benefit to industry and Australia will be undertaken. CRDC research programs will be implemented through a combination of open call and commissioned projects. Implementation will also involve investment through collaborative joint ventures or cross-primary industry initiatives where CRDC identifies synergies and cost benefits. In implementing this plan, CRDC will seek to achieve a balance between shorter term and longer term strategic investment.

The R&D investment process

CRDC has relied on a two-part process to evaluate and make R&D investment decisions. This process continues to evolve as implementation of investment in value chain and human capacity research requires new collaborations and the attraction of new partners and research providers. Hence, commissioning of R&D investments is of increasing importance.

An online database system, Clarity, supports assessment and management of R&D investments. This system allows CRDC to manage all existing and future investments with the highest levels of probity whilst providing for in-depth analysis of its investment portfolios against a wide range of economic and management criteria to the benefit of industry stakeholders.

The two-part process begins with calls for Preliminary Research Proposals (PRPs) nationwide in August.

The deadline for receipt of proposals is 1 September.

In the second phase, the PRP is assessed against the Corporation's strategic priorities, based on Government Research Priorities and industry policy. Applicants who satisfy Stage I criteria are then invited to submit a full proposal by late January. All project proposals are assessed and performance -reviewed by CRDC's industry stakeholder, Cotton Australia, who also assess and offer recommendations on commissioned research.

At an annual budget meeting in March, the CRDC Board of Directors makes final decisions regarding investments for nominated projects based on proposals for commissioned research and applications for new projects, together with report from continuing projects.

Beyond these processes, where necessary, CRDC may commission research to fill any identified gaps in the research program, where additional research projects may meet the needs of industry. The Board also sets aside an amount for contingencies so that urgent R&D projects can proceed without undue delay.

Measures of Success and Reporting

The CRDC Strategic R&D Plan 2008–2013 and Annual Operating Plans are formulated to implement the Corporation's objectives and outcomes, using a triple bottom line framework for planning, implementation and reporting. They deliver one integrated outcome via three outputs

- Economic – Profitability
- Environmental – Sustainable production systems
- Social – Empowered people and communities.

CRDC has developed measures of success for each program to achieve these broader triple bottom line outputs over the Strategic Plan's five-year period. These are summarised in tables in this AOP.

The Australian Government requires agencies to measure their intended and actual performance in terms of outcomes. Government outcomes are the intended results, impacts or consequences of actions by the Government on the Australian community. Agencies are required to identify the programs that contribute to Government outcomes over the Budget and forward years.

KEY RESEARCH PROVIDERS

Cotton Catchment Communities CRC (Cotton CRC)

Australian and state governments primary industry agencies

CSIRO Divisions of Plant Industry, Entomology and Materials Science and Engineering

Rural Research and Development Corporations (RDCs)

Cooperative Research Centres (CGAs)

Agribusinesses

Registered Training Organisations (RTOs)

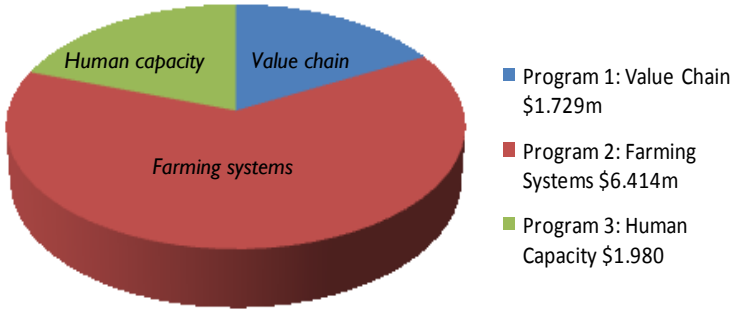
Consultants.

KEY PERFORMANCE INDICATORS

KEY PERFORMANCE INDICATORS OF DELIVERABLES.

		2010-11	2011-12	2012-2013
Program 1: Value Chain	Coverage of Best Management Practice (BMPs) across the Australian cotton industry.	40	60	80
Program 2: Farming Systems	Industry productivity growth per hectare per annum (%)	3	3	3
Program 3: Human Capacity	Primary Industry Standing Committee (PISC) RD&E Plan implemented		Yes	Yes

DISTRIBUTION OF INVESTMENTS BY PROGRAM 2011-12



The key performance indicators in the above table compliment the measures of success for each strategic objective of the 2008-2013 Strategic R&D Plan for the budgeted period.
Planned investments for each program 2011-2012 are detailed in the chart.

CRDC PRIORITIES ADDRESSED IN THIS PLAN

CRDC's 2008-2013 strategic R&D Plan Goals addressed during the term of this Annual Operating Plan are:

1. VALUE CHAIN: Add value to the Australian Cotton industry with premium products operating in improved routes to market.
2. FARMING SYSTEMS: Cotton in a highly productive farming system with improved environmental performance.
3. HUMAN CAPACITY: A culture of innovation and learning.

Within this document, CRDC has assessed the linkages between National and Rural Research Priorities and its Goals that it shall focus on achieving under this Plan. See pages 14-24 for a detailed examination of these linkages and investments.

Through this pursuit, CRDC expects to achieve its corporate outcome of: A more sustainable, profitable and competitive cotton industry providing increased environmental, economic, and social benefits to regional communities and the nation.

In January 2011, CRDC consulted with its stake-holders to gauge the mid-term success of the 2008-2103 Strategic R&D Plan. *Pictured: Paula Jones, Cotton CRC; Bruce Finney, CRDC; Adam Kay, Cotton Australia; Mary Corbett, CRDC Board; Tracey Leven, CRDC; Bob Dall'Alba, Cotton Shippers Assn; Mike Logan, CRDC Chair.*

STAKEHOLDER R&D PRIORITIES

Objects of the PIERD Act 1989 are to:

- Increase economic, environmental and social benefits
- Achieve sustainable use and management of natural resources
- Make more effective use of human resources and skills

NATIONAL RESEARCH PRIORITIES

Australian Government
December 2002

An Environmentally Sustainable Australia

Transforming the way we utilise our land, water, mineral and energy resources through a better understanding of human and environmental systems and the use of new technologies

Promoting and Maintaining Good Health

Promoting good health and well being for all Australians

Frontier Technologies for Building and Transforming Australian Industries

Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research

Safeguarding Australia

Safeguarding Australia from terrorism, crime, invasive diseases and pests, strengthening our understanding of Australia's place in the region and the world, and securing our infrastructure, particularly with respect to our digital systems

RURAL R&D PRIORITIES

Australian Government
May 2007

Productivity and Adding Value

Improve the productivity and profitability of existing industries and support the development of viable new industries

Supply Chain and Markets

Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the whole supply chain, including to consumers

Natural Resource Management

Support effective management of Australia's natural resources to ensure primary industries are both economically and environmentally sustainable.

Climate Variability and Climate Change

Build resilience to climate variability and adapt to and mitigate the effects of climate change

Biosecurity

Protect Australia's community, primary industries and environment from biosecurity threats.

COTTON INDUSTRY PRIORITIES

Cotton Australia

Invest in the skills, knowledge and occupational health and safety of the human resources in the cotton industry and its communities

Improve the sustainability of the cotton industry and its catchments

Improve the profitability of the cotton industry

Create and support a strong, focused and committed research program

Australian Government
Cotton Research and Development Corporation

Strategic R&D Plan 2008–2013
Annual Operating Plan 2011-2012
Annual Report 2011-2012

INCORPORATION OF STAKEHOLDER PRIORITIES 2011-2012

Not all National Research Priorities (NRPs) associated goals are applicable to the work of the Corporation. The associated goals listed below are relevant to our R&D program and are addressed in this plan.

NRPS AND APPLICABLE ASSOCIATED GOALS

A	**An environmentally sustainable Australia**	C	**Frontier technologies for building and transforming Australian industries**
A1	Water – a critical resource		
A2	Transforming existing industries	C1	Breakthrough science
A3	Overcoming soil loss, salinity and acidity	C2	Frontier technologies
A4	Reducing and capturing emissions in transport and energy generation	C3	Advanced materials
		C4	Smart information use
A5	Sustainable use of Australia's biodiversity	C5	Promoting an innovation culture and economy
A7	Responding to climate change and variability		
B	**Promoting and maintaining good health**	D	**Safeguarding Australia**
B4	Strengthening Australia's social and economic fabric	D3	Protecting Australia from invasive diseases & pests

Applicable NRPs & goals *(see above)*	**Rural R&D Priorities**	**Australian Cotton Industry R&D Priorities**	**CRDC R&D Focus 2011 - 2012**
B4	**Productivity and Adding Value** Improve the productivity and profitability of existing industries and support the development of viable new industries.	Improve the profitability of the cotton industry Create and support a strong, focused and committed research program.	• Support ongoing R&D cross-sectors partnerships addressing climate change, natural resource management, irrigation, farm health & safety and encouraging the development of future scientists. • Consolidate new collaborations with Grains RDC addressing productivity and climate change preparedness in cotton & grains farming systems. • Extension of R&D to farmers of farming systems innovation for improved production efficiencies with focus on resource management (soils, water, fertiliser, energy, carbon) and environmental performance. • Further testing and commercialisation of novel bio-pesticides for key cotton and grain pests. • Enhancement of the Best Management Practices system to integrate planning, risk management and benchmarking with development of skills, knowledge and adoption of research outputs throughout the value chain.
B4	**Supply Chain and Markets** Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the whole supply chain, including to consumers.	Improve the profitability of the cotton industry Create and support a strong, focused and committed research program.	• Improved industry awareness and preparedness for major biosecurity threats, particularly silver leaf whitefly, Solenopsis mealybug, *Helicoverpa* spp., aphid, mites and viruses. • Continue to improve market intelligence and customer feedback on Australian cotton's competitive advantage. • Facilitation of post-farm gate best-practices for harvest, classing, ginning, transport, storage and handling. • Enhancement of the Best Management Practices system to integrate planning, risk management and benchmarking with development of skills, knowledge and adoption of research outputs throughout the value chain. • Continue the development of collaborative R&D partnerships with Australian cotton shippers and overseas cotton spinning mills and domestic brand owners to facilitate opportunities for using newly developed Australian premium-quality cotton, innovations in objective fibre measurement and textile processing knowledge.
A1; A2; A3; A5; A7	**Natural Resource Management** Support effective management of Australia's natural resources to ensure primary industries are both economically and environmentally sustainable.	Improve the sustainability of the cotton industry and its catchments Create and support a strong, focused and committed research program.	• Support ongoing R&D cross-sectors partnerships addressing climate change, natural resource management, irrigation, biodiversity and encouraging the development of future scientists. • Enhancement of the Best Management Practices system to integrate planning, risk management and benchmarking with development of skills, knowledge and adoption of research outputs for improved natural resource management.

NRPs *(see above)*	**Rural R&D Priorities**	**Australian Cotton Industry R&D Priorities**	**CRDC R&D Focus 2011 - 2012**
A7	**Climate Variability and Climate Change** Build resilience to climate variability and adapt to and mitigate the effects of climate change.	Improve the sustainability of the cotton industry and its catchments. Create and support a strong, focused and committed research program.	• R&D investments in biosecurity as well as cropping systems for improved nitrogen, energy & water use efficiency that will increase farm business' climate change preparedness and reduce greenhouse gas emissions. • Extension of R&D to farmers of farming systems innovation for improved production efficiencies with focus on resource management (soils, water, fertiliser, energy, carbon) and environmental performance. • Consolidate new collaborations with Grains RDC addressing productivity and climate change preparedness in cotton & grains farming systems. • Scope the potential impacts of climate change on textile production and markets. • Support ongoing R&D cross-sectors partnerships addressing climate change, natural resource management, irrigation, biodiversity and encouraging the development of future scientists.
D3	**Biosecurity** Protect Australia's community, primary industries and environment from biosecurity threats.	Create and support a strong, focused and committed research program.	• Improved industry awareness and preparedness for major biosecurity threats, particularly silver leaf whitefly, Solenopsis mealybug, *Helicoverpa* spp., aphid, mites and viruses. • Further testing and commercialisation of novel bio-pesticides for key cotton and grain pests • Continue surveying for the incidence of endemic diseases and pests and surveillance for the presence of exotic diseases and pests in all cotton growing districts • R&D investments and activities to underpin the stewardship of biotechnologies and chemicals. • Enhancement of the Best Management Practices system to integrate planning, risk management and benchmarking with development of skills, knowledge and adoption of research outputs for biosecurity.
Supporting the Rural R&D Priorities			
C5	**Improve the skills to undertake research and apply its findings.**	Invest in the skills, knowledge and occupational health and safety of the human resources in the cotton industry and its communities.	• Support ongoing R&D cross-sectors partnerships addressing climate change, irrigation, farm health & safety and encouraging the development of future scientists. • Support schools level, undergraduate level programs, Undergraduate Studentship Program scholarships, Post-graduate scholarships (PhD and Masters), Leadership programs. • Building on the "Sustaining Rural Communities Initiative". • Continue establishing networks and collaborations with education providers to develop e-Learning and enhance Recognition of Prior Learning opportunities. • Enhancement of the Best Management Practices system to integrate planning, risk management and benchmarking with development of skills, knowledge and adoption of research outputs. • Improve understanding of future industry human capacity and R&D capability needs.
C2; C4	**Promote the development of new and existing technologies.**	Create and support a strong, focused and committed research program.	• Enhancement of the Best Management Practices system to integrate planning, risk management and benchmarking with development of skills, knowledge and adoption of research outputs on-farm and in the value chain.

Total Investment

Composition of Government Research Priorities attributed to each R&D Program

2011-12 R&D Expenditure estimates across National and Rural Research Priority Goals*

National Research Priorities	An environmentally sustainable Australia ($m)							Promoting and maintaining good health ($m)				Frontier technologies for building and transforming Australian industries ($m)				Safeguarding Australia ($m)					Total ($m)
	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	C1	C2C	C3	C4	C5	D1	D2	D3	D4	D5	
Program 1: Value Chain		0.04									1.435		0.214		0.05							1.739
Program 2: Farming Systems	0.251	0.212	0.163		0.201		0.080				2.285		0.365		0.045	0.057			2.033			6.414
Program 3: Human Capacity	0.045	0.135			0.030		0.127				0.551					1.057			0.035			1.98
Total	0.296	0.387	0.163		0.231		0.927				4.272		0579		0.095	1.114			2.068			10.133

Note
A budgeted amount of $420,000 for items such as Cotton Catchment Communities CRC untied funding; general and post-graduate contingencies is not included in these tables as an accurate attribution to NRPs and RRPs cannot be made until funding is allocated during the 2011-12 year

Rural Research Priorities	Productivity and adding value	Supply chains and markets	Natural resource management	Climate change and climate variability	Biosecurity	Supporting the priorities		Total
						Innovation skills	Technology	
	$m	$m	$m	$m	$m	$m	$m	$m
Program 1: Value Chain	0.765	0.670	0.040				0.264	1.729
Program 1: Farming Systems	2.276	0.010	0.828	0.800	2.033	0.025	0.442	6.414
Program 3: Human Capacity	0.529	0.022	0.210	0.127	0.035	1.057		1.980
Total	3.570	0.702	1.078	0.927	2.068	1.082	0.706	10.133

* Note: the National Research Priorities and their associated goals are listed on Attachment 5:

Program 1 Value Chain

Strategic Goal

Add value to the Australian cotton industry with premium products in improved routes to market.

Key tactics 2008–2013	R&D Investments 2011-2012	Measures of Success
Objective 1: Develop contemporary knowledge and intelligence about products, markets and supply		
1.1 Researching existing market and supply chains for Australian cotton products.	Benchmarking value for Australian Long Staple cotton and Australian Extra-long Staple Cotton.	Benchmarking study established and results evaluated by industry.
	A new project to research value chain sustainability and competitive advantage for Australian cotton.	Initial definition of key sustainability measures for Australian cotton.
1.2 Communicating market intelligence and knowledge to the Australian industry.	Communication and discussion of mill survey results with the industry.	A more knowledgeable and competitive industry.
1.3 Facilitating new engagement mechanisms with industry and end-users to enable a common understanding of the competitive advantages of Australian cotton products.	A continuation of the Premium Cotton Initiative including spinning trials.	PCI project results extended and promoted to international spinners.
	Further trial market developments with Mills and Brand owners to evaluate the competitive advantages of Australian cotton.	Trial cotton and cotton/wool blend products tested in Australian and International markets.
Objective 2: Develop improvements in current products		
2.1 Identifying opportunities for improvements in fibre quality and cotton seed properties.	Development of low twist fine count yarns and fabrics from Australian long staple upland cotton.	Low twist, fine count yarns tested and evaluated.
2.2 Developing pathways for exploiting the competitive advantage of current premium products.	Ongoing evaluation of Cottonspec for predicting yarn quality.	Cottonspec evaluated in international mills.
	Continued study of agronomic management to optimise textile performance.	Extension of results to industry demonstrating best practice in agronomic management to maintain high quality.
	A continuation of the Premium Cotton Initiative including spinning trials.	PCI project results extended and promoted to international spinners.
	Further trial market developments with Mills and Brand owners to evaluate the competitive advantages of Australian cotton.	Trial cotton and cotton/wool blend products tested in Australian and International markets.

OBJECTIVE 3: FACILITATE THE DEVELOPMENT OF NOVEL PRODUCTS

Key tactics 2008–2013	R&D Investments 2011-2012	Measures of Success
3.1 Reviewing market intelligence and knowledge to identify needs and opportunities.	Communication and discussion of mill survey results with the industry.	Gaps and opportunities discovered for further investigation.
3.2 Creating and fostering initiatives that uncover innovative and novel products.	Continued investigation of cotton and cotton/wool blend fabrics.	Trial cotton and cotton/wool blend products tested in Australian and International markets.
3.3 Fostering the formation of partnerships to develop novel products.	The commissioned project anticipated under 3.2 may create opportunities to partner with others to develop novel products.	Opportunity for new partnerships completed.

OBJECTIVE 4: ADVANCE COTTON PRODUCT PROCESSING

4.1 Scanning and evaluating ginning, spinning and textile innovations.	Review ginning R&D for future investment opportunities.	Review of current and future ginning R&D investment opportunities completed. Gin blending results evaluated with industry.
	Preliminary investigation of gin blending.	
4.2 Improving fibre moisture measurement and management.	A continuation of industrial testing and commercial development of moisture and contamination sensors.	Reports demonstrating commercial potential for improved moisture and contamination sensors.
4.3 Supporting the development of Best Management Practices (BMPs) with the post-farm gate sector to assure the quality of Australian cotton products.	Implementation of Ginning BMPs.	Facility audits demonstrating increased adoption of ginning BMPs in Australian cotton gins.
	Ongoing support for the adoption of BMPs for the Classification of Cotton.	Industry support of audits to demonstrate standards of Australian Classing facilities are maintained at the highest level.
	Warehousing and Despatch BMPs and initial development of cotton harvest BMPs.	Implementation of warehousing BMPs demonstrated and first draft harvest BMPs developed.

OBJECTIVE 5. DEVELOP OBJECTIVE MEASUREMENT OF AUSTRALIAN COTTON FIBRE

5.1 Determining appropriate methods and tools that more effectively describe the textile qualities and their values of Australian cotton fibre.	Several investments will contribute to this key tactic area eg. Premium Cotton Initiative and the validation of Cottonspec.	Improved integration of tools and methods to demonstrate textile qualities and values of Australian fibre.
5.2 Fostering partnerships with the post-farm-gate sector and end-users to support the evaluation, creation of and uptake of advancements in objective measurement.	Commercialization of Cottonscope II (an instrument combining the Cottonscan and SiroMat instruments).	Commercialisation pathway for both instruments is established.

Program 2 Farming Systems

STRATEGIC GOAL

Cotton in a highly productive farming system with improved environmental performance.

Key tactics 2008–2013	R&D Investments 2011-2012	Measures of Success
OBJECTIVE 1. BUILD INDUSTRY'S UNDERSTANDING OF CLIMATE AND NATURAL RESOURCE CHALLENGES		
1.1 Researching jointly, the implications of climate change and natural resource management policy for farming systems.	Continued support for work under the Climate Change Research Strategy for Primary Industries (CCRSPI).	CCRSPI continues to provide strategic direction and coordination of this cross-sectoral issue.
	A new project to investigate the next generation of rural landscape governance in Australia.	A PhD student identified to conduct a cotton case study.
1.2 Investigating the potential i mpacts of future climates to cotton production and the capacity of the industry to adapt to, and mitigate, its impacts.	A continuing investigation to improve prediction of cotton growth and production in a changing climate.	PhD student reports showing satisfactory progress.
1.3 Researching the implications of a future carbon economy on cotton production.	A continuing project to improve capacity to assess greenhouse gas emissions from broadacre irrigated cropping systems.	Progress reports identifying the scale of greenhouse gas emissions.
	An ongoing project developing a Protocol for Assessing On Farm Energy Use and Associated Greenhouse Gas Emissions and a new project to study alternative energy sources on cotton farms.	On farm energy use documented at case study sites and options for alternative energy identified.
	A new post-doctoral project to study how cotton farmers can take advantage of potential future ecosystems markets	Progress reports identifying eco-systems services potentially eligible for future markets.
OBJECTIVE 2: ENHANCE CAPACITY OF INDUSTRY TO ADOPT RESILIENT AND ADAPTIVE FARMING SYSTEMS		
2.1 Developing conceptual systems thinking to synthesise knowledge.		
2.2 Benchmarking existing production efficiencies and environmental performances.	A continuing project to establish a social, economic, environmental performance information repository and reporting framework for the cotton industry.	Key performance data sources identified and collected.
	Ongoing and new work to benchmark cotton water use efficiencies use and energy efficiencies for a range of irrigation systems.	Reports benchmarking water use efficiencies and development of data.
	Continuation of the Crop Consultants Association Post Season Survey Series.	Survey results analysed and reported to industry.

Enhance capacity of industry to adopt resilient and adaptive farming systems (cont.)		
Key tactics 2008–2013	**R&D Investments 2011-2012**	**Measures of Success**
	A commissioned project to conduct the 3rd Environmental Audit of the cotton industry.	Audit conducted and reported to industry and other stakeholders.
2.3 Delivering innovative solutions to major farming management constraints and future climate-driven challenges.	Ongoing support for completion of the Burdekin cotton feasibility study.	Annual reviews to report progress and completion of a final report containing advice on implementation and uptake of research.
	A new project to investigate applying plant based measurements for irrigation in water limited environments.	Project established with co-investment from US collaborators, post-doc identified.
	A continuing project to investigate optimal irrigation of cotton via real-time adaptive control.	Project progress reports demonstrating application of real-time adaptive control systems.
	A new project to investigate management of carbon in cotton-based farming systems.	Progress reports demonstrating the opportunities for improved management and sequestration of c arbon in cotton farming systems.
	Ongoing research into the development of dynamic deficits-matching irrigation to plant requirements in a variable climate.	Reports showing the potential for dynamic deficits to improve water use efficiencies.
2.4 Researching optimisation of farming inputs, processes and capacities with environmental benefits	An ongoing project developing a Proto-col for Assessing On Farm Energy Use and Associated Greenhouse Gas Emissions and a new project to study alternative energy sources on cotton farms.	On farm energy use documented at case study sites and options for alternative energy identified.
	Ongoing research to define critical soil nutrient concentrations in soils supporting irrigated cotton in Northern NSW & Qld.	A final report containing advice on implementation and uptake of research that identifies the range of critical soil nutrient concentrations in cotton growing soils developed and key methods for adoption identified and delivered.
	A continuing project to encourage cotton systems that are nutrient-efficient and promote healthy soil.	Evidence that the knowledge to improve nitrogen use efficiency is being adopted by the industry.
	Ongoing support to building cotton and grain industry capacity for continual improvement of pesticide application and drift management.	Evidence that drift damage incidents are declining.
2.5 Supporting a best-practice framework as the primary integrated planning, risk management, benchmark-ing, knowledge development and exten-sion delivery system	Ongoing support for the myBMP system to enable linking of research, extension and BMP-Facilitation.	Evidence that the myBMP system is being adopted by growers and supported by researchers.

Program 2 Farming Systems

STRATEGIC OBJECTIVE 3: PROTECT INDUSTRY FROM BIOSECURITY THREATS

Key tactics 2008–2013	R&D Investments 2011-2012	Measures of Success
3.1 Identifying and communicating major biosecurity threats.	New projects to increase surveillance and preparedness for endemic and exotic viral diseases of cotton.	Progress reports identifying risks from viral diseases.
3.2 Supporting the industry's preparedness to deal with bio security threats.	Continuing research projects for improving management of cotton diseases and disease surveillance.	Reports on annual disease survey results communicated to industry.
3.3 Researching the management of established, invasive and endemic insect pests, weeds and diseases.	A commissioned project to investigate factors associated with the spread and incidence of Solenopsis Mealy Bug.	Project established.
	A continuing project to investigate IPM for Silverleaf whitefly and emerging pests in central regions.	Progress reports providing evidence that silverleaf whitefly management is .improving in central cotton regions
	A new research project to improve the management of mirids, stinkbugs and mealybugs in Bollgard II.	Progress reports with recommenda-tions for improved management of mirids, stinkbugs and mealybugs.
	A continuing project to provide Whitefly resistance monitoring.	Annual reports with resistance results provided to industry.
	A new research project to provide sustainable chemical control of mirids, aphids and Two Spotted Mite in cotton.	Resistance results reported at least annually and implications for maintaining ongoing control analysed.
	A continuing project to support the commercialisation and develop new applications for Fungal insecticides against cotton pests.	Progress reports demonstrating commercial potential for fungal bio-pesticides.
3.4 Assuring industry capacity to manage the stewardship of biotechnologies and crop protection products.	A continuing project to provide resistance monitoring of Helicoverpa spp. to Bt cotton.	Resistance results reported regularly and implications discussed with industry.
	Ongoing research projects for managing weeds and herbicides in a genetically modified cotton farming system.	Reports demonstrating improved man-agement opportunities for weeds in GM systems.
	A new project to revisit ecology of Helicoverpa punctigera in relation to migration, overwintering and implications for Bt resistance.	PhD student identified, project established.
	A continuing project to examine ways to improve management of cotton refuges within the BMP framework.	PhD student reports demonstrating satisfactory progress.
	Ongoing research to enhance the efficiency of Bt refuge crops within a changing cotton environment.	Reports showing options for improving refuge efficiency.
	Ongoing research into the flight characteristics of Helicoverpa spp in relation ot the efficacy of trangenic cotton refuges.	Interim reports showing satisfactory progress.

Program 3 Human Capacity

STRATEGIC GOAL

A culture of innovation and learning

OBJECTIVE 1: IDENTIFY, UNDERSTAND AND PLAN FOR FUTURE INDUSTRY CAPACITY NEEDS		
Key tactics 2008–2013	**R&D Investments 2011-2012**	**Measures of Success**
1.1 Scoping and determining future human resource needs.	A new project supporting the ongoing activities of the Professional Development Officer (Cotton).	New skills delivery systems and tools identified, tested and implemented.
1.2 Investigating best practice for attracting, developing and retaining people.	A new project to establish a work-force development plan for the cotton industry for sustained com-petitive advantage.	Project established and interim results reported.
1.3 Researching jointly the implications of demographic changes for the supply of human resources to agriculture and cotton.	A continuing project to Study the Relationship Between the Cotton Industry and Cotton Communities 1996-2006.	A final report identifying implications for demographic information to be used to support planning for industry's future human resource skilling needs.
1.4 Encouraging and assisting development of rural and cotton industry action plans.	A new project to establish a work-force development plan for the cotton industry for sustained com-petitive advantage.	Progress reports identifying key data required to develop improved workforce plans in cotton regions.
1.5 Investigating alternative methods for research and development.	A continuing project to develop an on-Farm environmental resources survey.	Survey results reported to the industry.
OBJECTIVE 2: IMPROVE HUMAN RESOURCE DEVELOPMENT AND CAPACITY		
2.1 Supporting initiatives which encourage adaptiveness to change.	A new project to enable an educational tour of adaptiveness and innovation in other rural industries.	Tour undertaken, results shared with cotton industry stakeholders
	A new project to benchmark cotton water use efficiencies and energy efficiencies for a range of irrigation systems.	Reports benchmarking water use efficiencies and development of energy use data for different irrigation systems.
2.2 Targeting investments in human capac-ity to meet future needs.	A new project to identify the value added by vocational education training in the cotton industry.	Project established, results evaluated and reported.
	Ongoing testing and implementation of E-Learning opportunities for BMP Farms.	e-learning tools tested and evaluated.
	A new project to review and update cotton farm safety resources and potential links to the myBMP system.	Project established and existing resources reviewed.
2.3 Leveraging industry development.	Ongoing support for capacity building incentives through schools programs and course and undergraduate scholarship programs.	Scholarships offered and awarded.

Objective 2: Improve human resource development and capacity		
Key tactics 2008–2013	**R&D Investments 2011-2012**	**Measures of Success**
2.4 Establishing and nurturing strategic partnerships	Ongoing support for the cooperative partnership for farming and fishing occupational health & safety.	Progress against the partnership strategic plan reported.
	Establishment of a new collaborative project in the cotton/Northern Grain growing Zone to manage resistance to Group L, M and I herbicides.	Collaborative project with GRDC and commercial partners established and working with cotton and grain growers.
2.5 Funding participatory R&D.	A new program to establish small grower driven projects with local Cotton Grower Associations (CGAs).	Projects established with all willing CGAs.
OBJECTIVE 3: ENHANCE CAPACITY TO INNOVATE		
3.1 Developing best practice in communication and adoption.	Implementation of campaign based initiatives within the Development and Delivery (D&D) team to deliver on key target areas for R&D adoption.	Campaigns established to meet all key target areas of the D&D team.
	A new project to facilitate linkages between research, extension and the industry's myBMP system.	*my*BMP modules are reviewed as required.
3.2 Developing industry capacity to adopt outputs of research.	Ongoing support for the St. George / Dirranbandi Cotton Extension Officer.	Key farming systems extension framework targets being met.
	New funding to commission projects and provide resources for the Development & Delivery and myBMP programs.	Improved resources to support the adoption and *my*BMP frameworks established.
	A new project to provide support to Deliver Regional Extension in Qld Farming Systems - Central Queensland.	Key biosecurity extension framework targets being met,
	Ongoing support to delivering Regional Extension in Qld Farming Systems - Darling Downs.	Key nitrogen use extension framework targets being met.
3.3 Establishing and empowering creative forums and initiatives.	A commissioned project to plan the promotion of R&D results and outcomes at the 16th Australian Cotton Conference 2012.	Evaluation of conference showing a high level of satisfaction from growers.
3.4 Recognising and rewarding innovation	Support and planning for the fourth annual "Big Day Out" field day to highlight the 2011 Cotton Innovator of the Year awardee.	Big day Out field day held; highlights documented for Spotlight and Australian CottonGrower magazines. High grower participation and positive feedback received.

Financial Outlook and Tables 2011-12

Financial Outlook 2011-12

Significant rainfall in most cotton growing regions together with improved availability of irrigation water and high cotton prices led to increased crop planting in 2010. With this background, industry and ABARES forecasts are for higher than historical average levels of cotton production over the next three years. CRDC has prudently taken a conservative approach to its budget assumptions and adopted an estimate of the 2010-11 crop size at 3.5 million bales (budget 1.75 million bales) and forecast future crop sizes of 3.0 million bales in 2011-12 and 2.5 million bales in 2012-13.

Rebuilding R&D capability

The Corporation has budgeted for revenue of $19.44 million in 2011-12 and expenditure of $13.88 million, providing for a surplus budget of $5.56 million. Research capacity has been significantly reduced during the previous period of extended drought and it will take time to increase research and development capacity.

Concurrently the Corporation intends to rebuild reserves from surpluses in both the 2010-11 and 2011-12 years to support R&D capability in future years.

The Australian Government general matching of industry contributions is expected to be limited to 0.5 per cent of the cotton industry's three year average Gross Value of Production (GVP).

Revenue sources of CRDC

CRDC's revenue is drawn from two main sources:

1. Cotton farmers pay a levy of $2.25 for each 227 kilogram bale of cotton. Cotton levy revenue is collected at the point of ginning, that is, when cotton has been picked and delivered to cotton gins which then separate the cotton lint from the seed. This occurs from March to September of each calendar year, so cotton levy revenue in any financial year is drawn from two consecutive cotton crops.

2. The Australian Government matches expenditure of levies on eligible R&D, capped at 0.5 per cent of the three year average gross value of production or the cumulative levy receipts, whichever is the lesser. The setting and collection of the industry levy is enabled by the *Cotton Levy* Act 1982 and the *Primary Industries Levied and Collections* Act 1991.

Royalties from the sale of domestic and international planting seed, interest on investments, external grant revenue and
research project refunds make up the balance of Corporation income.

Payment to representative bodies

The Corporation's industry representative body in 2011-12 is Cotton Australia. The role of the industry representative body involves:

- Participation in the development and review of the five-year Strategic R&D Plan. This ensures CRDC's strategic planning continues to address evolving industry R&D needs.
- A meeting to receive and discuss the CRDC Annual Report for the preceding year. This enables the industry representative body to ensure CRDC's activities for that year have met its strategic objectives, and to question senior staff on any matters of interest and concern.
- Other R&D related activities which vary from year to year.

While CRDC does not pay a fee for service to the industry representative body it may fund discrete R&D projects and contribute to the expenses incurred as authorised by s.15 of the PIERD Act.

In 2011-12, CRDC has budgeted $45,400 for the following activities involving Cotton Australia.

- Review of CRDC strategies, research applications and reports.
- Support for the Future Cotton Leaders Course
- Support for an program to train an industry-wide network in emergency response procedures.

There remains optimism for further increases in production in 2011–12 with the net effect of a strong financial position for rebuilding research intensity, capability and meeting the R&D needs of a mixed audience of new, returning and experienced growers.

Oscar Pearse grew cotton for the first time in 2010-11, and is one of up to 500 new and returning producers who have contributed to the largest Australian cotton crop.

TABLE 1.1: CAC (*COMMONWEALTH AUTHORITIES AND COMPANIES*) ACT BODY COTTON RESEARCH AND DEVELOPMENT CORPORATION RESOURCE STATEMENT

Budget Estimates for 2011-12 as at Budget May 2011

Source	Estimate of prior year amounts available in 2011–12 $'000	Proposed at Budget 2011–12 $'000	Total estimate 2011–12 $'000	Actual available appropriation 2010–11 $'000
Opening balance/Reserves at bank	**15,683**		15,683	11,282
REVENUE FROM GOVERNMENT [1]				
Special appropriations *(Department of Agriculture, Fisheries and Forestry)*				
Primary Industries and Energy Research and Development Act 1989 s.30(3) - Cotton R&D Corporation	-	15,059	15,059	11,996
Total special appropriations	**-**	**15,059**	**15,059**	**11,996**
Total funds from government	**-**	**15,059**	**15,059**	**11,996**
FUNDS FROM INDUSTRY SOURCES				
Levies [2]	-	7,267	7,267	5,876
less amounts paid to the CRF	-	(7,267)	(7,267)	(5,876)
Total	**-**	**-**	**-**	**-**
FUNDS FROM OTHER SOURCES				
Interest	-	770	770	449
Royalties	-	3,091	3,091	4,088
Other	-	863	863	1,415
Total	**-**	**4,724**	**4,724**	**5,952**
Total net resourcing for agency	**15,683**	**19,783**	**35,466**	**29,230**

All figures are GST exclusive

CRF - Consolidated Revenue Fund

[1]CRDC is not directly appropriated as it is a CAC Act body. Appropriations are made to the Department of Agriculture, Fisheries and Forestry, which are then paid to CRDC and are considered 'departmental' for all purposes.

[2]The levy is imposed and collected under the following legislation: *Primary Industries and Energy Research and Development Act 1989*, *Primary Industries (Excise) Levies Act 1999*, *Primary Industries Levies and Charges Collection Act 1991* and associated legislation.

TABLE 2.1 BUDGETED EXPENSES AND RESOURCES FOR OUTCOME 1

Outcome 1: Adoption of innovation that leads to increased productivity, competitiveness and environmental sustainability through investment in research and development that benefits the Australian cotton industry and the wider community.	2010–11 Estimated actual expenses $'000	2011–12 Estimated expenses $'000
Program 1.1: Cotton Research and Development Corporation		
Revenue from government		
Special appropriations	4,005	5,393
Revenues from industry sources	4,075	5,189
Revenues from other independent sources	2,862	3,299
Total for Program 1.1	10,942	13,881
Outcome 1 Totals by resource type		
Revenue from government		
Special appropriations	4,005	5,393
Revenues from industry sources	4,075	5,189
Revenues from other independent sources	2,862	3,299
Total expenses for Outcome 1	10,942	13,881

	2010–11	2011–12
Average Staffing Level (number)	8	8

TABLE 2.2 PROGRAM EXPENSES

('000)	2010–11 Revised budget $'000	2011–12 Budget $'000	2012–13 Forward year 1 $'000	2013–14 Forward year 2 $'000	2014–15 Forward year 3 $'000
Annual departmental expenses:					
Cotton Research and Development Corporation	10,942	13,881	13,716	11,933	9,400
Total program expenses	**10,942**	**13,881**	**13,716**	**11,993**	**9,400**

TABLE 3.2.1 COMPREHENSIVE INCOME STATEMENT (SHOWING NET COST OF SERVICES)

For the period ended 30 June

	Estimated actual	Budget estimate	Forward estimate	Forward estimate	Forward estimate
	2010–11 $'000	2011–12 $'000	2012–13 $'000	2013–14 $'000	2014–15 $'000
EXPENSES					
Employee benefits	1,320	**1,383**	1,438	1,496	1,556
Supplier expenses	477	**480**	413	427	441
Grants	9,086	**11,958**	11,805	10,010	7,343
Depreciation and amortisation	59	**60**	60	60	60
Total expenses	10,942	**13,881**	**13,716**	**11,993**	**9,400**
LESS:					
OWN-SOURCE INCOME					
Own-source revenue					
Industry Contributions	6,130	**7,267**	6,142	5,018	3,892
Interest	529	**770**	770	770	770
Rental income	15	**15**	15	15	15
Royalties	2,331	**3,091**	1,746	936	460
Other	1,429	**743**	100	100	100
Total own-source income	10,434	**11,886**	**8,773**	**6,839**	**5,237**
Net cost of (contribution by) services	508	**1,995**	4,943	5,154	4,163
Revenue from government	6,024	**7,552**	6,476	5,154	4,163
Surplus (Deficit)	5,516	**5,557**	1,533	-	-
Surplus (Deficit) attributable to the Australian Government	5,516	**5,557**	1,533	-	-
OTHER COMPREHENSIVE INCOME					
Changes in asset revaluation reserves					
Total other comprehensive income	-	**-**	-	-	-
Total comprehensive income	5,516	**5,557**	1,533	-	-
Total comprehensive income attributable to the Australian Government	5,516	**5,557**	1,533	-	-

TABLE 3.2.2: BUDGETED DEPARTMENTAL BALANCE SHEET

As at 30 June.

	Estimated actual	Budget estimate	Forward estimate	Forward estimate	Forward estimate
	2010–11	2011–12	2012–13	2013–14	2014–15
	$'000	$'000	$'000	$'000	$'000
ASSETS					
Financial assets					
Cash and cash equivalents	15,683	20,832	22,385	22,405	22,425
Trade and other receivables	2,380	2,380	2,380	2,380	2,380
Other					
Total financial assets	**18,063**	**23,212**	**24,765**	**24,785**	**24,805**
Non-financial assets					
Land and buildings	556	572	562	553	543
Property, plant and equipment	53	45	38	30	22
Intangibles	29	26	23	20	18
Total non-financial assets	**638**	**643**	**623**	**603**	**583**
Total assets	**18,701**	**23,855**	**25,388**	**25,388**	**25,388**
LIABILITIES					
Payables					
Suppliers	30	30	30	30	30
Grants	2,000	2,000	2,000	2,000	2,000
Other	403				
Total payables	**2,433**	**2,030**	**2,030**	**2,030**	**2,030**
Provisions					
Employee provisions	222	222	222	222	222
Total provisions	**222**	**222**	**222**	**222**	**222**
Total liabilities	**2,655**	**2,252**	**2,252**	**2,252**	**2,252**
Net assets	**16,046**	**21,603**	**23,136**	**23,136**	**23,136**
EQUITY					
Reserves	207	207	207	207	207
Retained surplus (accumulated deficit)	15,839	21,396	22,929	22,929	22,929
Total equity	**16,046**	**21,603**	**23,136**	**23,136**	**23,136**

TABLE 3.2.3: BUDGETED DEPARTMENTAL STATEMENT OF CASH FLOWS

for the period ended 30 June

	Estimated actual	Budget estimate	Forward estimate	Forward estimate	Forward estimate
	2010–11 $'000	2011–12 $'000	2012–13 $'000	2013–14 $'000	2014–15 $'000
OPERATING ACTIVITIES					
Cash received					
Industry contributions	5,876	7,267	6,142	5,018	3,892
Revenue from government	6,120	7,792	6,476	5,154	4,163
Interest	449	770	770	770	770
Net GST received	691	940	1,036	939	720
Other	5,503	3,954	2,048	1,156	633
Total cash received	**18,639**	**20,723**	**16,472**	**13,037**	**10,178**
Cash used					
Employees	1,320	1,383	1,438	1,496	1,556
Suppliers	559	479	404	417	430
Grants	12,294	13,647	13,037	11,064	8,132
Total cash used	**14,173**	**15,509**	**14,879**	**12,977**	**10,118**
Net cash from (used by) operating activities	**4,466**	**5,214**	**1,593**	**60**	**60**
INVESTING ACTIVITIES					
Cash used					
Purchase of property, plant and equipment	65	65	40	40	40
Other					
Total cash used	**65**	**65**	**40**	**40**	**40**
Net cash from (used by) investing activities	**(65)**	**(65)**	**(40)**	**(40)**	**(40)**
Net increase (decrease) in cash held	**4,401**	**5,149**	**1,553**	**20**	**20**
Cash and cash equivalents at the beginning of the reporting period	11,282	15,683	20,832	22,385	22,405
Cash and cash equivalents at the end of the reporting period	**15,683**	**20,832**	**22,385**	**22,405**	**22,425**

TABLE 3.2.4: DEPARTMENTAL STATEMENT OF CHANGES IN EQUITY

Summary of movement (Budget year 2011-12)

	Retained earnings	Asset revaluation reserve	Total equity
	$'000	$'000	$'000
Opening balance as at 1 July 2011			
Balance carried forward from previous period	15,839	207	16,046
Comprehensive income			
Other comprehensive income	5,557	-	5,557
Surplus (deficit) for the period	-	-	-
Total comprehensive income	21,396	207	21,603
Transfers between equity components	-	-	-
Estimated closing balance as at 30 June 2012	21,396	207	21,603

TABLE 3.2.5 DEPARTMENTAL CAPITAL BUDGET STATEMENT

	Estimated actual	Budget estimate	Forward estimate	Forward estimate	Forward estimate
	2010–11 $'000	2011–12 $'000	2012–13 $'000	2013–14 $'000	2014–15 $'000
PURCHASE OF NON-FINANCIAL ASSETS					
Funded internally from departmental resources[1]	65	65	40	40	40
TOTAL	**65**	**65**	**40**	**40**	**40**
RECONCILIATION OF CASH USED TO ACQUIRE ASSETS TO ASSET MOVEMENT TABLE					
Total purchases	65	65	40	40	40
Total cash used to acquire assets					

[1] Includes the following sources of funding:

- annual and prior year appropriations
- donations and contributions
- s31 relevant agency receipts (for FMA agencies only)
- gifts
- internally developed assets
- proceeds from the sale of assets

TABLE 3.2.6: STATEMENT OF ASSET MOVEMENTS (2011 2012)

	Asset	**Category (as appropriate)**			
	Land	Buildings	Other property, plant and equipment	Intangibles	Total
	$'000	$'000	$'000	$'000	$'000
As at 1 July 2011					
Gross book value	170	405	157	138	870
Accumulated depreciation/amortisation and impairment	-	(19)	(104)	(109)	(232)
Opening net book balance	**170**	**386**	**53**	**29**	**638**
CAPITAL ASSET ADDITIONS					
Estimated expenditure on new or replacement assets					
By purchase – other		25	20	20	65
Total additions	**-**	**25**	**20**	**20**	**65**
Other movements					
Depreciation/amortisation expense		(9)	(28)	(23)	(60)
Other					-
As at 30 June 2012					
Gross book value	170	430	177	158	935
Accumulated depreciation/amortisation and impairment	-	(28)	(132)	(132)	(292)
Closing net book balance	**170**	**402**	**45**	**26**	**643**

NOTES

NOTES

Australian Government

Cotton Research and Development Corporation

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