2001-2002
Annual Report

Cotton Research and Development Corporation

crdc

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Cotton
RESEARCH & DEVELOPMENT

LETTER OF TRANSMITTAL

4 October 2002

Senator the Hon. Judith Troeth
Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Senator Troeth,

It is with pleasure I submit the Corporation's Annual Report 2001-2002, prepared in accordance with the provisions of section 28 of the *Primary Industries and Energy Research and Development Act 1989*, and of part 1, section 4 of the *Commonwealth Authorities and Companies Act 1997*.

Under section 9 of the *Commonwealth Authorities and Companies Act 1997* the Directors of the CRDC are responsible for the preparation and content of the Annual Report being made in accordance with the Finance Minister's orders. The report of operations has been prepared in accordance with the resolution of the directors.

Yours Sincerely,

Bridget Jackson,
CHAIR

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COTTON RESEARCH AND DEVELOPMENT CORPORATION ABN: 71 054 238 316

CHAIR'S REPORT

In the 2001/02 season Australian cotton growers achieved what is believed to be a world record. They harvested more cotton per hectare than any other major cotton producing nation. This achievement comes with continuing improvement in environmental management. While a favourable season was part of the picture, these improved yields are also an outcome of a comprehensive research program.

During the last 30 years the lint yield in Australia has increased by an average of 23 kilograms per hectare per year, one bale per hectare every 10 years or so. The increase is due in part to better plant varieties and in part to improved crop management.

The yield improvement is a clear case where a coordinated approach to research delivered the greatest benefits. Dr Greg Constable from CSIRO Plant Industry estimates that plant breeding contributed about 45 per cent of the yield gains, with the other 55 per cent from improved insect control, disease management, plant nutrition and irrigation strategies. Individually these items can have only a limited impact. Packaged together and the Australian industry achieves world records.

The move to farming systems approaches means farmers are increasingly examining the interactions between the elements of the production system and the effect they have on cropping outputs. Greater interest in planting trees and establishing wetlands on farms are improving environmental values by providing for greater biodiversity. Other strategies, particularly the Best Management Practices Program, aim to limit negative environmental impacts from cotton production. Each improvement is but a piece in a much larger picture, a picture of a modern agricultural industry maintaining its productivity but not at the cost of its resource base or the environment.

A great strength of the Cotton Research and Development Corporation is its ability to foster the kind of work that has led to the continued improvements in yield, crop and environmental management. By taking a strategic view the Corporation formulates a comprehensive and efficient research program. We work with industry to make sure its needs are met, and with Government to match community and national priorities. The Corporation can also identify and encourage links between researchers that are separated by geography, employment or research topic.

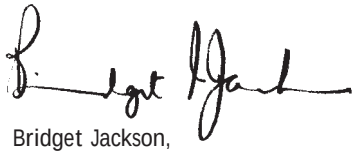
Growers are hungry for new knowledge and readily adopt improved management strategies. For instance, Integrated Pest Management technologies have been taken up by self-established Area Wide Management groups and developed for application over areas that range in size from a small number

of farms to whole valleys. These groups combine the best technologies of Integrated Pest Management such as trap cropping and beneficial insect management, and coordinate implementation across farm boundaries, leading to better environmental and economic outcomes. These groups rely on local Industry Development Officers, agronomists, crop consultants, specialist researchers, information resource packages and decision support tools for assistance throughout the season. The Corporation maintains a sizeable annual investment in ensuring information is delivered to industry in a timely manner and in appropriate formats.

In the future it will be even more important to work strategically and cooperatively as the industry faces a range of new challenges, some that are not yet on the horizon. Throughout the pages of this report you will learn about how the Corporation has tackled issues of the day, how we are approaching tasks still at hand and how we have built momentum to forge ahead. From a strong foundation of basic research, through to the application of science in the field and the development of leading-edge technology, the Corporation continues to strive towards our goal of enhancing the sustainability and profitability of the cotton industry providing increased economic, environmental and social benefits.

The larger picture of improvement in the cotton industry needs to be measured on a landscape scale. The development of new indicators on this scale remains a challenge for the Corporation. The second Cotton Industry Environmental Audit, due for completion early next year, is likely to assist us in this process, as will the development of an appropriate Triple Bottom Line reporting framework for the Corporation.

During the year the Corporation took on a new logo. The move was designed to provide the CRDC with a greater identity within the cotton industry and to deliver greater recognition to our stakeholders. The Australian cotton symbol will continue to be used by the Corporation where appropriate, to signify the input of industry. The position of the cotton symbol alongside the Australian Coat of Arms is representative of the partnership arrangement that is at the core of the Cotton Research and Development Corporation.



Bridget Jackson,
Chair, Cotton Research and Development Corporation

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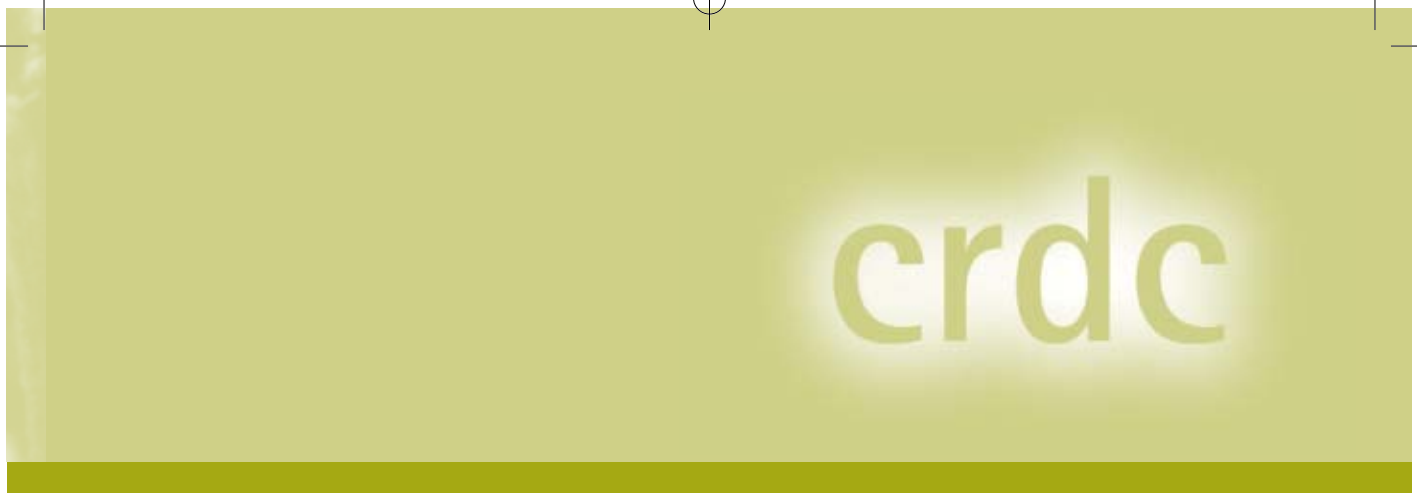

SUMMARY

The Cotton Research and Development Corporation is a partnership between the Federal Government and the Australian cotton industry. The Corporation was established under Federal legislation and is accountable to the Parliament and the industry. *For more information about our accountability structures see 'Legislation' page 6.*

We invest in research, development and technology transfer to advance the domestic cotton industry for the good of the nation. The Corporation encourages and assists funded researchers to communicate directly with the industry. We provide financial and technical assistance to the National Cotton Extension Team to aid the practical application of new technology and information. *For more information about our research program see the 'Year in Review section on page 16. And the 'Review of Operation: Corporate Performance, starting on page 32.*

We are located in Narrabri, New South Wales, in the heart of one of Australia's major cotton producing areas, the Namoi Valley. CRDC-funded research is undertaken in every mainland state and territory in Australia, involving four divisions of the CSIRO, four State Government Departments, eight universities, one Cooperative Research Centre, two Research and Development Corporations and a number of private organisations. *For more information about our research partners see 'Research by funded organisation' on page 28 and the Research Program, page 106.*

Our research program is aimed at delivering a more sustainable, profitable and competitive cotton industry providing increased economic, environmental and social benefits to rural and regional communities and the nation. *For more information see 'Planning Framework' page 29.*

During the 2001-02 reporting year the Corporation invested more than $13 million directly into research projects and related research and development activities. We are funded through a levy on production, a matching Commonwealth contribution, royalties on seed sales of CSIRO-bred varieties and from interest earned on invested reserves. *For more information about the CRDC's funding arrangements, go to 'Corporate Financial Overview' , page 24.*

Overview

Cotton Research and Development Corporation

crdc

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OVERVIEW

Vision: A SUSTAINABLE AND ENVIRONMENTALLY RESPONSIBLE COTTON INDUSTRY

Mission: TO ENHANCE THE CONTRIBUTION THAT RESEARCH AND DEVELOPMENT MAKES TO THE AUSTRALIAN COTTON INDUSTRY FOR THE BENEFIT OF THE PEOPLE OF AUSTRALIA

Outcome: A MORE SUSTAINABLE, PROFITABLE AND COMPETITIVE COTTON INDUSTRY PROVIDING INCREASED ENVIRONMENTAL, ECONOMIC AND SOCIAL BENEFITS TO REGIONAL COMMUNITIES AND THE NATION

History

The Cotton Research and Development Corporation (CRDC) was established in 1990 under the *Primary Industries and Energy Research and Development (PIERD) Act 1989*. The Act provides the Corporation with a charter to invest in and manage a portfolio of research, development and extension projects and programs to secure economic, environmental and social benefits for the Australian cotton industry and the community, to achieve sustainable use and management of natural resources and to make more effective use of the resources and skills of the scientific and general communities. All of this was to be conducted in a framework which improved accountability for research and development spending in relation to the cotton industry.

Significant changes have occurred in the industry as a direct result of a comprehensive and focused research program. Australian cotton production has more than doubled since the early 1990s, due to major industry expansion and increasing average crop yields. The expansion has been assisted by improved knowledge of crop management for a range of climatic conditions as well as the ongoing development of varieties suited to those conditions. Varietal development also delivered yield and fibre quality improvements, as did a better understanding of total farming systems and techniques. The adoption of Integrated Pest Management strategies has enabled growers to reduce reliance on traditional chemical pesticides while the industry's landmark Best Management Practices program has led Australian agriculture in the development and implementation of industry-wide environmental and risk management systems.

The Corporation is a major contributor to the public research effort for the cotton industry, and often CRDC input is used to leverage monies from other funding sources in both the public and private sectors. The Corporation sees this as an extremely positive outcome for the industry and the community as limited research budgets can be effectively extended as far as possible. Where appropriate, the use of joint funding arrangements also helps to

build partnerships between research, government and industry organisations.

The concept of partnership is an important one for the CRDC. A partnership between the Federal Government and the Australian cotton industry, the Corporation recognises the value of having strong lines of communication. This ensures industry, community and national priorities are addressed, areas of need are understood and gaps within the research program are filled. Partnerships across the research community and industry in general ensure information is shared freely wherever possible and duplication within the overall research and development effort is avoided.

Apart from the investment in and management of its research program, the Corporation provides a range of products and services. A key role for the CRDC is to act as a formal and informal information source for stakeholders and client groups. This is facilitated through being accessible, through its location in a cotton growing centre, through general industry media activities as well as through the Corporation's website (www.crdc.com.au). Additionally the Corporation has made its meeting facilities available to industry and community groups. Researchers are encouraged to be actively involved in the dissemination of research results and are assisted by the CRDC-supported National Cotton Extension Team. Where necessary the Corporation funds and coordinates the development of technical and non-technical documents, guides and other information tools. Another important role for the Corporation is a coordinator of workshops, seminars and field days for a range of purposes including research review and progression, information sharing or technology transfer to industry. And of course the CRDC produces a range of publications which include both general and specific information about Corporate activities and operations and the results of the ongoing research effort.

The Corporation takes a coordinating role with the cotton industry to oversee research efforts, to ensure important areas of research are addressed and to facilitate the extension of research outcomes to the industry. Frequent and detailed communication with industry and research organisations helps to identify gaps or overlaps in the research program, and the development of strategies to gain maximum benefit for each dollar invested.

Based in the heart of one of Australia's major cotton-growing areas, the CRDC is unique among the rural Research and Development Corporations as it is based in a rural area rather than a capital city. With its location in Narrabri, north-west New South Wales, the Corporation and its management and staff are part of a cotton community and fully aware of the entire range of industry and community issues. The Narrabri district is also the home of a key industry research facility, the Australian Cotton Research Institute. The Institute is a collaborative research site and headquarters of the Australian Cotton Cooperative Research Centre, of which the CRDC is a core partner. Being positioned physically within the industry enables the Corporation to naturally develop and maintain important relationships with cotton growers, researchers, processors and members of the general community.

Figure 1.1 Organisations within the Cotton Industry

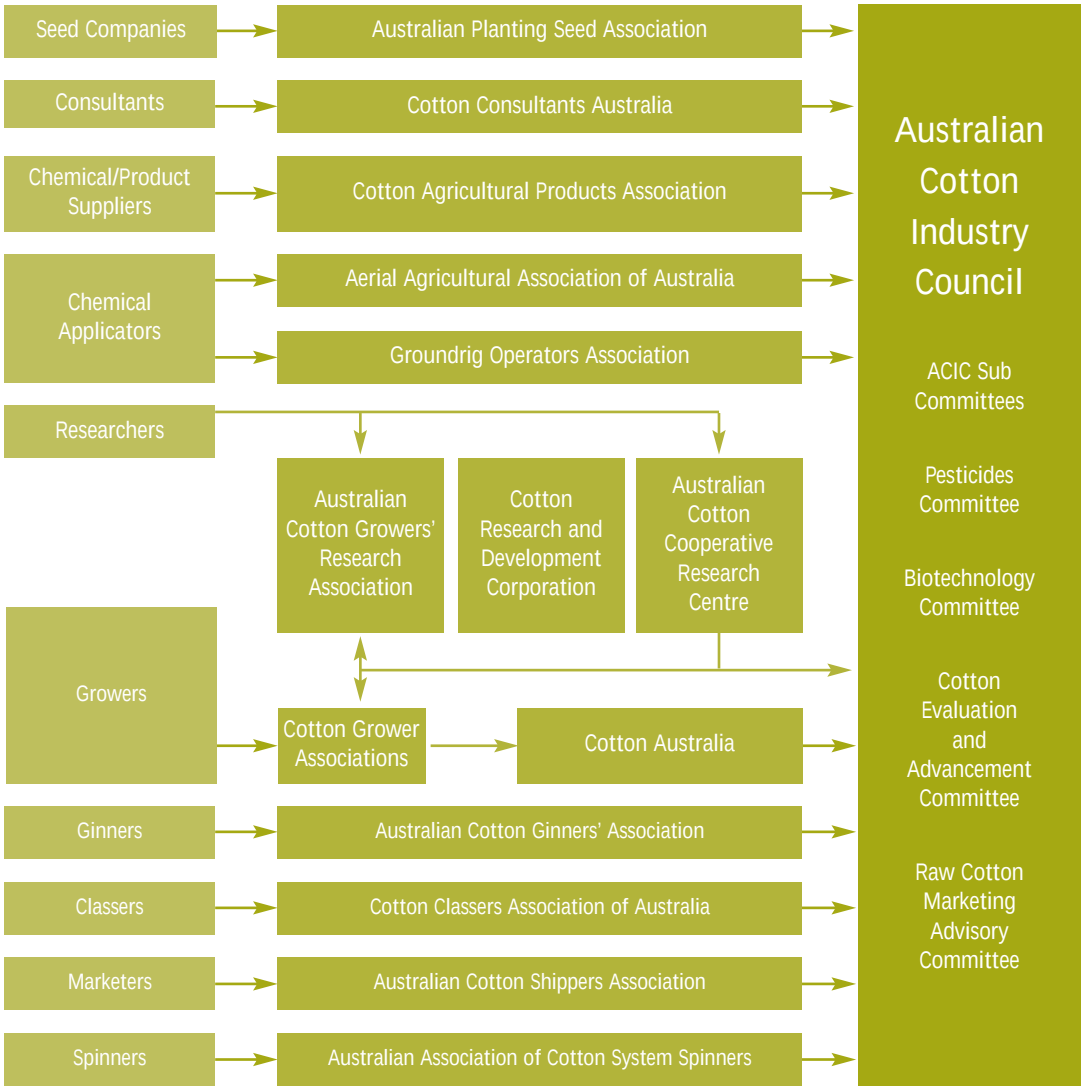
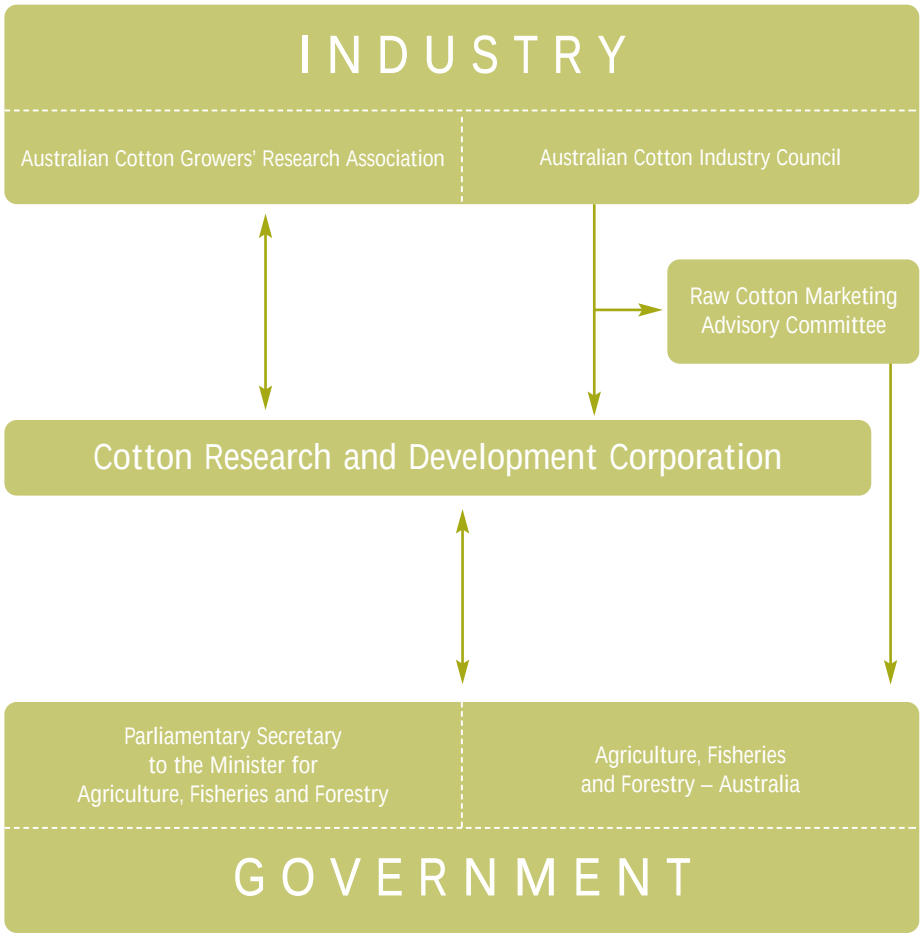


Figure 1.2 Linking Industry with Government



NB: Lines with an arrow at each end denote accountability linkages. Lines with a single arrow denote information/coordination links.

The CRDC is a member of the Australian Cotton Industry Council, the peak body for the cotton industry. The Industry Council is not a stakeholder of the Corporation.

Legislation

The Cotton Research and Development Corporation began operations on October 1, 1990 by way of a regulation made under section 8 of the *Primary Industries and Energy Research and Development (PIERD) Act 1989*. The setting and collection of levies on the cotton industry is enabled by the C*otton Levy Act 1982* and the *Primary Industries Levies and Collections Act 1991*. Accountability and reporting requirements are set out in the *Commonwealth Authorities and Companies (CAC) Act 1997*.

Functions

As set out in Section 11 of the PIERD Act, the legislative functions of the Corporation include:

- investigating and evaluating the cotton industry's requirements for research and development, and the preparation, review and revision of an R&D Plan on that basis;
- preparing an Annual Operational Plan for each financial year;
- coordination and funding of R&D activities consistent with current planning documents;
- monitoring, evaluating and reporting to Parliament, the Minister for Agriculture, Fisheries and Forestry, and to industry on R&D activities coordinated or funded by the Corporation; and,
- facilitating the dissemination, adoption and commercialisation of research and development results in relation to the cotton industry.

Powers

Described in Section 12 of the PIERD Act, and subject to the stipulations of the Act, the Corporation has the power to do all things necessary and convenient to be done for, and in connection with, the performance of its functions including but not restricted to:

- entering into agreements for the carrying out of R&D activities;
- applying for patents, either solely or jointly;
- charging for work done, services rendered, and goods and information supplied;
- acquiring, holding and disposing of real or personal property; and,
- anything incidental to any of its powers.

Ministers

The Corporation is accountable to Federal Parliament through the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, Senator the Hon. Judith Troeth.

The Minister's powers and responsibilities, as outlined under various sections of the PIERD Act, include:

- appointing the Corporation's Chair and Directors;
- the option to terminate the appointment of the Chair or any Director under certain conditions;
- approving the Corporation's Research and Development (Five Year) Plan and any variations;

- approving the Corporation's Annual Operating Plans and any variations;
- appointing a person as Presiding Member of the Corporation's Selection Committee, and other members of that Committee; and
- transferring to the Corporation any assets held by the Commonwealth that the Minister considers appropriate and which would assist the performance and function of the Corporation.

The Corporation has long enjoyed a robust working relationship with the Federal Government, including Minister for Agriculture, Fisheries and Forestry, the Hon. Warren Truss MP and previous Ministers, Parliamentary Secretary Senator Troeth and the officers of the Department of Agriculture, Fisheries and Forestry – Australia.

Stakeholders

The Corporation is accountable to the Australian people through the Federal Government and to the cotton industry through its industry representative body, the Australian Cotton Growers' Research Association. In August 1998 the Corporation became subject to the *Commonwealth Authorities and Companies (CAC) Act 1997* which provided new levels of accountability as well as a new planning and reporting framework. Subsequently the Board gradually revised its *Strategic (Five Year) Plan 1998-2003* into the Outcome/Ouputs framework required under the CAC Act. This process formally concluded when Ministerial approval for the Corporation's fully revised Strategic Plan was granted on July 5, 2001. The CRDC's P*ortfolio Budget Statement 2001-02* and *Annual Operating Plan 2001-02* were developed from the revised Strategic Plan, and were approved on the basis of being fully compliant with the framework requirements.

Our dual accountability to Government and industry does not create difficulties or conflicts because our stakeholders share the same goal—to ensure the economic and ecological sustainability of the Australian cotton industry. The Corporation's stakeholders set broad objectives which the Corporation addresses through the *Strategic (Five Year) Plan* and the *Annual Operating Plan*. The Corporation has used these objectives as a basis for the development of its Outcome and the identification of necessary key Outputs.

Statutory and Industry Objectives

Statutory Object (Section 3, *PIERD Act 1989*)	Industry Objective (*ACGRA Strategic Plan*)
a) Increase economic, environmental and social benefits to the cotton industry and the community in general by improving production, processing, storage, transport or marketing of cotton	▪ Improve the sustainability of the cotton industry ▪ Improve the profitability of the cotton industry
CRDC Linkage: The ideals of these objectives have been written into the Corporation's Outcome statement, and thus provide a foundation and guide for the entire research program. The three Outputs 'Sustainability', 'Profitability and Competitiveness' and 'People and Communities' provide explicit linkages through to planned and actual activities.	
b) Achieve sustainable use and sustainable management of natural resources	▪ Improve the sustainability of the cotton industry
CRDC Linkage: Ideals written into the Outcome statement and form an integral part of the Corporation's research program. The 'Sustainability' Output relates primarily to ensuring a long-term future of the Australian cotton industry by protecting, maintaining and enhancing the natural resource base. The Corporation estimates 50 per cent of research expenditure in the 2001/02 reporting year was directed towards the 'Sustainability' Output.	
c) Make more effective use of the resources and skills of the community in general and the scientific community in particular	▪ Create and support a strong, focussed and committed research program ▪ Invest in the skills and strengths of the human resource in the cotton industry
CRDC Linkage: Ideals of the objectives written into the Outcome statement and addressed more explicitly through the 'People and Communities' Output. The Corporation consults widely regarding its research priorities, encourages timely technology transfer to industry and invests in programs to strengthen human and capital resources. Being positioned within the cotton industry and a regional community allows us to easily identify resources required by the industry and appropriately skilled personnel to call upon.	
d) Improve accountability for expenditure upon research and development activities in relation to the cotton industry	
CRDC Linkage: Addressed as part of the overall management strategy of the Corporation, through compliance with legislative reporting and accountability requirements. The Corporation's 'Statement of Principles' (page 12, *CRDC Strategic Plan 1998-2003: Outcome/Outputs Revision 2001*) include several statements which outline our commitment to accountability and good corporate governance.	

Addressing Priorities

In December 1999 the Minister for Agriculture, Fisheries and Forestry the Hon. Warren Truss MP wrote to the Corporation to outline the Federal Government's revised priorities for rural research and development. The priorities were reiterated in May 2001 in a letter to the Corporation from the Parliamentary Secretary for Agriculture, Fisheries and Forestry, Senator the Hon. Judith Troeth.

Reflecting the opportunities that exist, the challenges being faced and the changing operational environment, the Federal Government's priorities include:

- integrating sustainable use of natural resources into farming and land use practices;
- taking a whole-of-industry approach to production, processing and marketing;
- developing biotechnology, but being mindful of consumer concerns;
- being involved in trade and market access negotiations;
- maintaining and enhancing Australia's clean and green image;
- addressing consumer food safety concerns; and,
- cultivating creativity and innovation among the industry's human resources.

The Corporation reviewed the *Strategic (Five Year) Plan 1998-2003* in the light of these objectives and has used them to build on and enhance the research program where necessary and appropriate.

R&D Priority	CRDC Framework and activities
Sustainable natural resource management	'Sustainability' is a key Output for the Corporation, and improving sustainability, particularly of natural resources, is a core activity. About half of the research budget is directed towards 'Sustainability' as this is seen as the highest priority for the industry. A central part of this effort has been the development and transfer to industry of sustainable field production systems which incorporate improved management of natural resources and the minimisation of negative impacts on neighbours, or on neighbouring or downstream environments.
Whole-of-industry approach	The Australian cotton industry operates in a free market environment and each link in the production chain is fully exposed to the signals of the world market. This means the industry as a whole has a strong grasp of consumer needs in terms of quantity, fibre quality, reliability of supply and other issues. The Corporation keeps abreast of these issues through its involvement in the

Australian Cotton Industry Council, and through the CRDC's role as secretariat to the Raw Cotton Marketing Advisory Committee which allows it to maintain good communication links with processing, marketing and shipping organisations.

Following a growing awareness that the industry needs greater understanding of the impacts of processing on final fabric quality, the CRDC initiated and continues to support a major 'field-to-fabric' research program.

Biotechnology

Cotton is Australia's leading agricultural industry in terms of the commercialisation and field-application of modern biotechnology techniques. The first industry to have commercial access to genetically-modified crop varieties, growers are well aware of the importance of this technology. The introduction of the transgenic varieties followed extensive research and testing, regulatory approval processes and the development of industry-led resistance management protocols. The varieties featured built-in protection against key cotton pests and their introduction facilitated the adoption of new methods of crop management. These methods are delivering a broad range of benefits to the industry and the community, including improved pest management involving reduced usage of broad spectrum and residual chemicals. Support for the development of new transgenic and conventional varieties is continuing.

Trade and market access

The world cotton market is distorted by a range of trade barriers. Unlike growers in the world's largest cotton producing nations, Australian farmers do not receive government assistance in the form of income support or trade restriction. A CRDC report on the issue '*Trade Barriers and Cotton Markets: Implications for Australian Producers*' strengthens the case of ongoing liberalisation of world trade in cotton. This report has been followed up by a second analysis of cotton price distortions as well as a report on the true impact of exchange rates. The latest studies have been well received by industry and Government, and will make a significant contribution to Australia's efforts to rebalance world trade.

The Corporation also recognises that trade barriers are increasingly non-tariff based. However, the industry-wide Best Management Practices program is believed to be a key tool to demonstrate to international markets adherence to world's best practice and commitment to sustainable production.

Clean and green image

The Corporation has the ongoing task of developing and revising the industry's leading Best Management Practices program which provides growers with flexible guidelines for identifying on-farm risks as well as practical advice on how to manage those risks and constantly improve practices. A rigorous audit process gauges the efforts and progress of growers and will provide benchmarks for ongoing assessment of the BMP program and its impact on the industry.

Food safety

Cotton seed oil is used in a variety of food applications including margarines and blended vegetable cooking oils. The Corporation is supporting the development of new cotton varieties which produce healthier oils and could lead to significant import replacement. This development is conducted with respect to the necessary regulatory guidelines and with proper scrutiny.

The CRDC keeps informed of developments in the oilseed market through the Australian Cotton Industry Council and direct communication with ginning organisations.

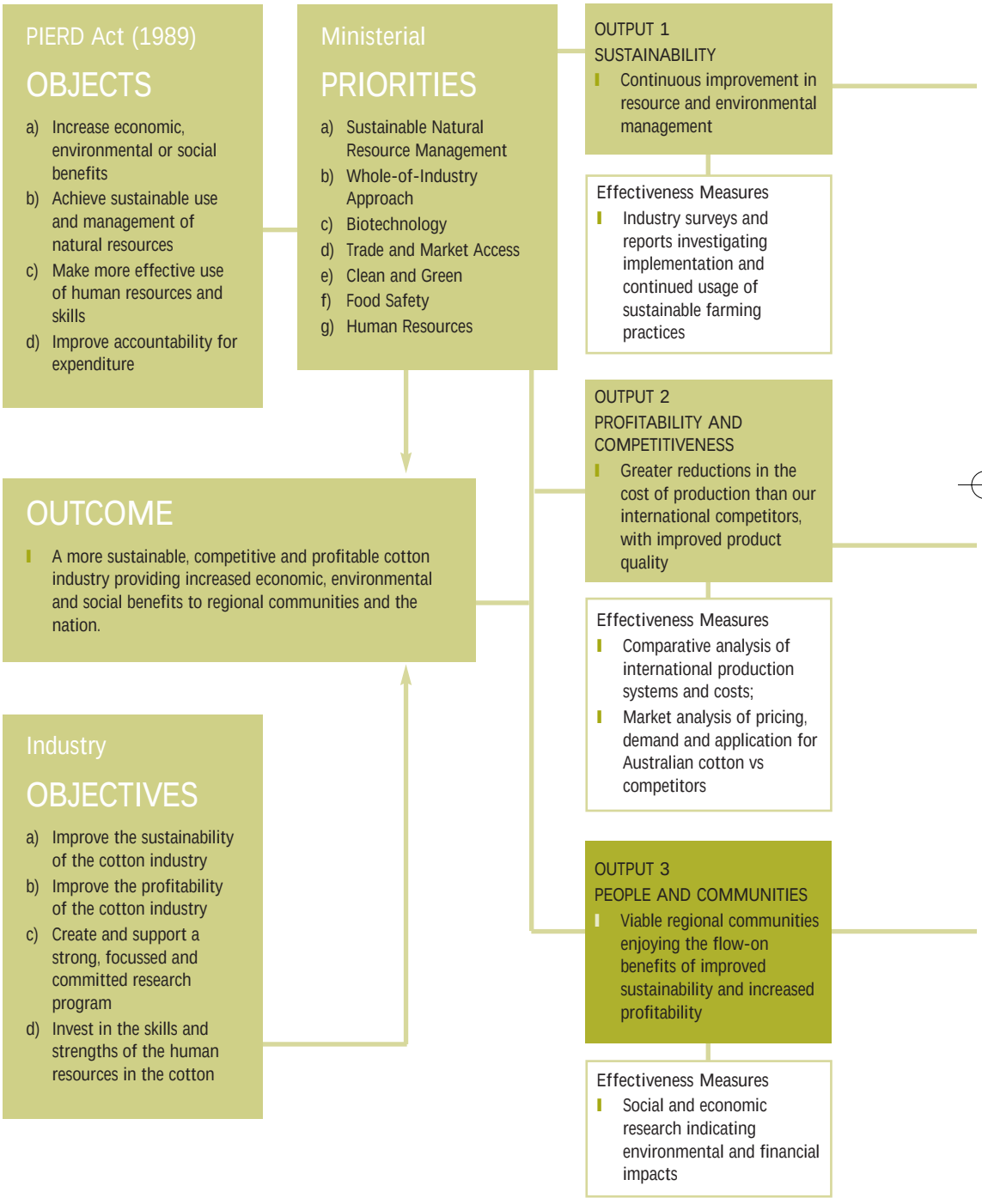
Human Resources

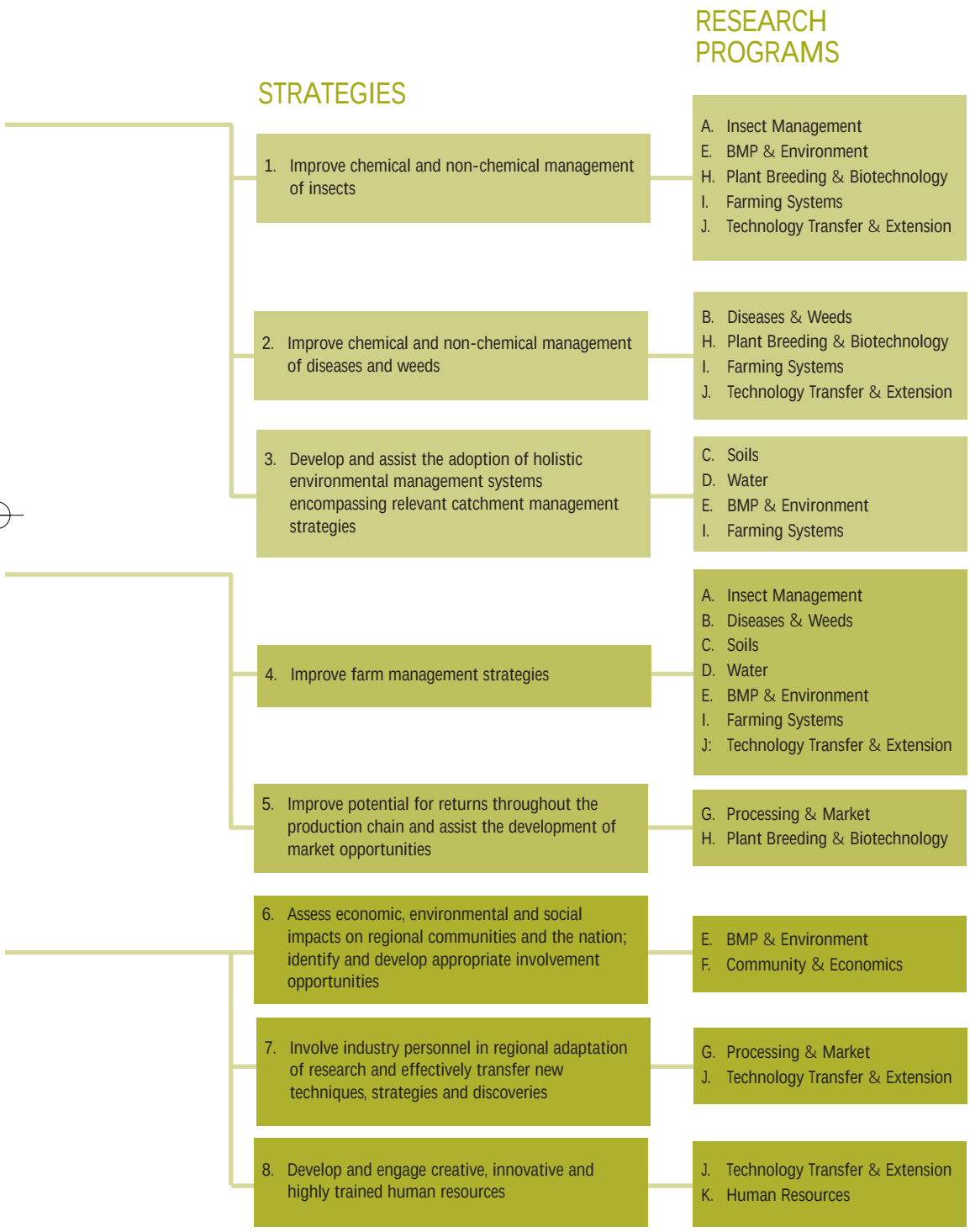
The Corporation has written its commitment to the human resources of the industry into its Outcome statement and highlighted this through the selection of 'People and Communities' as a key Output. 'Human Resources' is also a research program which ensures this area has appropriate focus and expenditure. The CRDC looks to deliver human resource benefits to rural and regional communities through the facilitation of and support for a dynamic and successful rural industry providing significant opportunities for employment. The Corporation also provides direct training opportunities for people already in and looking to enter the industry.

Outcome and Outputs

After taking into account Government and industry objectives and priorities, the Corporation has developed a framework based on a single Outcome, three Outputs and eight broad strategies. The Corporation's Outcome is consistent with the Agriculture, Fisheries and Forestry – Australia portfolio Outcome of increasing the profitability, competitiveness and sustainability of Australian agricultural, food, fisheries and forestry industries. Due to the integrated nature of the CRDC's research program, each of the 11 research areas may contribute to more than one strategy and more than one Output.

Figure 1.3 Strategic Plan Flow Chart





Year in Review

Cotton Research and Development Corporation

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YEAR IN REVIEW

The 2001/02 year saw a number of major developments for the Corporation, including increased research expenditure, changes and growth in the staff complement and the purchase and renovation of the CRDC building in Narrabri.

Early in 2001 the Corporation put the finishing touches on revisions to its strategic plan. These revisions were required to bring the CRDC's planning framework into line with the requirements of the Federal Government. While the content of the plan did not change, the tools for planning and reporting have. The aim was to enable the Government and industry stakeholders of the Corporation to gain a better understanding of our activities and achievements. The 2001/02 Operating Plan was based on the revised Strategic Plan.

The Corporation is funded through a levy on production. Following extensive consultation with cotton growers, the Australian Cotton Growers' Research Association applied to the Federal Government to lift the research levy. The rise, from $1.75 per 227 kg (one bale) ex gin to $2.25, was approved by Government and came into effect on March 1, 2002. The increase allows the Corporation to continue funding a full range of research projects, and will assist the CRDC in managing the current levels of research expenditure. Revenues from industry will possibly be reduced in the coming year due to drought conditions in many growing areas.

Expenditure on research grants and research activities rose by 5 per cent from the previous year to $13.7 million. A significant proportion of this increase was spent on commissioned research. The Board of the Corporation commissions research to fill gaps in the research program, to meet specific stakeholder needs or to respond to immediate issues. Research projects were commissioned in most of the Corporation's 11 programs, including projects on aphid management, analysis of world cotton price distortions and the impact of exchange rate fluctuations, and evaluations of the changes in pest management practices due to Integrated Pest Management and Area Wide Management.

In October 2001 the Corporation completed the purchase of its premises in Narrabri. The first floor was subsequently renovated to improve meeting facilities and provide additional office space. The improvements were officially opened on May 30 by Senator the Honourable Judith Troeth, Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry. During her visit Senator Troeth also attended the National Australian Cotton Trade Show, Moree, where she spoke at a forum examining the costs of production, and a meeting of WinCott, the Women's Industry Network for cotton.

Research Reviews and Evaluations

Each year the Corporation undertakes a variety of activities to evaluate research programs in order to highlight problems, identify gaps and plan future activities. Often the Board invites international scientists to perform formal reviews of specific sections of the research program. Three such reviews were conducted during the financial year.

During October 2001 British research scientist Dr Steve Parkin conducted a spray application review, a follow up for one he conducted in 1999. The review examined research in aerial and ground application. Dr Parkin found that effective pest control in cotton would continue to require carefully targeted spray applications, but many growers, applicators and consultants felt they needed better information to apply pesticides in the most effective manner. He recommended future work focus on reducing chemical inputs with an emphasis on work that can be translated to a variety of application techniques. The Best Management Practices Manual was highlighted as a significant resource for the industry, but it must continue to evolve and improve. Dr Parkin also recommended ongoing investigations into improving the flow of information between researchers and the industry.

The CRDC invests close to $1 million annually on research to monitor pesticide resistance in a range of cotton pests (heliothis, mites, aphids and silverleaf whitefly) and research to understand the mechanisms of resistance. This research underpins the industry's resistance management strategies for conventional pesticides and INGARD® cotton. In February 2002 a panel including Dr Ian Denholm (Rothamstead UK), Professor Tim Dennehy (University of Arizona) and Dr Vic Edge (consultant to CRDC) examined the Corporation's research projects for resistance monitoring and mechanisms. All resistance focused research and development projects funded by the Corporation were reviewed, along with all new project applications submitted for this year's funding round. In addition the panel met with growers, consultants, chemical industry and extension representatives as well as receiving written submissions from Cotton Growers' Associations and consultants. The review panel was very complimentary of the standard of research and development activities and the management of resistance. Australia's researchers, growers and consultants are comparable with the world's best at pro-active resistance management. The review did find some opportunities to improve both the research and the management of resistance and made recommendations to this effect, and the Corporation is pleased to report that it has been able to address all of the key recommendations from this review.

Also in February a major review of Fusarium and biotechnology-related research and development activities was conducted. Professor Pat Colyer from the Louisiana State University Agricultural Centre was engaged to undertake the review. Prof. Colyer toured a number of research facilities and production areas, and met with researchers, plant breeders, seed companies and growers. The tour was followed by a two-day workshop in Brisbane where researchers overviewed current

research on breeding, plant pathology, disease management and biotechnology. A key outcome from this review has been the fast-tracking of the development of new Fusarium diagnostic tool for researchers. The lack of availability of this tool was seen as a major shortcoming of the Australian research program. The coming year will see significant advancement in the project, including investigations of techniques for comprehensive DNA isolation and the development of statistically sound sampling techniques for large areas. The Corporation has also initiated a committee to examine the Fusarium research program and identify future opportunities.

Each review presented a number of recommendations to the Board of the CRDC. These recommendations formed part of the Corporation's budget deliberations this year, and will continue to provide direction in these research areas for several years to come.

In its Portfolio Budget Statement for 2001/02 the Corporation flagged a number of other planned evaluations, including an environmental audit of the cotton industry, comparative analysis of farm management strategies and costs, and a review of the performance of genetically-modified cotton in the field.

The comparative analysis was undertaken by Boyce Chartered Accountants, and resulted in the *Australian Cotton Comparative Analysis 2001 Crop* report. Corporation funding support allowed this annual analysis to be expanded and the results made available to growers outside of the company's client base. This report is in addition to the annual analysis of the performance of INGARD® cotton in Australia. The 2001/02 season also saw the widespread adoption of new genetically-modified varieties delivering a degree of protection against the herbicide Roundup®. Approximately one quarter of cotton planted in Australia were Roundup Ready® varieties, while plantings of INGARD®, transgenic plants with built-in protection against the heliothis caterpillar, accounted for 30 per cent of production. Some varieties include both the INGARD and Roundup Ready genetic material.

The environmental audit has been delayed due to a longer than anticipated process to conduct a pilot study and develop appropriate terms of reference. The audit is now expected to be completed during the first quarter of 2003.

Research Program Highlights

Silverleaf Whitefly

The first outbreak of Silverleaf Whitefly populations on cotton in Australia occurred in the Emerald area last season. The Corporation responded by setting up a contingency fund to undertake immediate additional research on this insect. Applications were also made to the National Registration Authority for emergency use permits for a number of pesticides that are known to have a measure of whitefly control.

The CRDC has funded projects to monitor whitefly population changes and resistance to pesticides in silverleaf whitefly since 1995, when the presence of the pest in Australia was first confirmed by CRDC-funded researcher Dr Robin Gunning. It has since become a major pest in horticultural crops in the Burdekin and

Bundaberg areas of Queensland but, until last year, showed little sign of becoming a field problem in cotton. Careful monitoring at Emerald during October and November 2001 indicated numbers were low, so the rapid build up and extremely high numbers of silverleaf whitefly that were experienced in December, January and February was unexpected.

Once this pest reaches outbreak levels, it is very difficult to manage. In association with Horticulture Australia Ltd and the Grains RDC, the Corporation convened meetings with whitefly researchers in April and May to plan and coordinate strategies for managing silverleaf whitefly more effectively in the coming cotton season. Additional funding has been injected into whitefly research and development (particularly at Emerald) for 2002/03. The Corporation also supported five industry and research personnel from Central Queensland to join a study tour to visit regions in the United States of America that had experienced and managed silverleaf whitefly problems. The group found effective management of this pest can only occur with the full involvement of all stakeholders. This will mean the development of management strategies that cross the boundaries between the cotton, grains and horticultural industries in Central Queensland.

Integrated Pest Management

The environmentally-conscious insect management strategy known as Integrated Pest Management is continuing to be adopted and utilised across the industry. A more rapid uptake of Integrated Pest Management has been facilitated by six consecutive seasons of commercial production of INGARD® cotton varieties. The successful production of these varieties has required carefully managed strategies to prevent the development of resistance. Not only have these strategies achieved the aims of preventing the development of resistance and reducing the use and application of broad-spectrum pesticides, but farmers are also achieving economic benefits in conventional as well as transgenic cotton.

In his paper to the 11th Australian Cotton Conference, Chris Wicks from Regional Financial Services said the cotton growers who were achieving the best return on investment were using careful management to control insect pests, including relying on Integrated Pest Management in particular, where control from beneficial insects was encouraged through careful use of non-disruptive insecticide options. These conclusions support CRDC-funded work by Martin Dillon and Australian Cotton CRC's Ziaul Hoque that examine the economics of Integrated Pest Management. Their studies have demonstrated the cost efficiency of using 'soft' chemical strategies. The results showed that in general spray costs decreased and profits increased under soft management compared to hard strategies. They also showed that higher yields do not automatically translate into higher profits.

Alternative Irrigation Examined

People who are looking for information on large mobile overhead irrigation systems have a new resource following the release of a report about the use of this technology in the cotton industry. The report, compiled by the National

Centre for Engineering in Agriculture at the University of Southern Queensland in Toowoomba, was based on a comprehensive survey of farmers, manufacturers and resellers. The report on overhead irrigation joins an earlier study by the group on drip irrigation which was completed in July 2000. The two alternative irrigation reports are available separately via the CRDC's website, and they have been published in a single volume available through the Corporation's office in Narrabri.

The reports present the farmers' views of these systems. The studies were commissioned by the Corporation in an effort to better understand the existing use of alternative irrigation techniques in the Australian industry, as well as to identify opportunities for future research and development in this sector.

WinCott

In May 2002 the Corporation hosted a meeting of women who were interested in strengthening a communication network for women involved in the cotton industry. The WinCott network enables participants to learn more about the cotton industry, encourages self-development and facilitates a greater involvement in industry organisations and events. The Corporation is continuing to assist this group by providing advice to the steering committee and office support. The network now has 112 members and will primarily use the Internet and email to communicate. For more information about the WinCott network, go to www.ozcotton.net and follow the links to WinCott.

Additionally the Corporation is sponsoring two women from the cotton industry to attend the Third Rural Womens' Congress in Madrid, Spain. Liz Alexander, Cotton Australia's Growers' Services Manager for Biloela, Central Highlands & Dawson Valley, and Helen Zilm, Groundrig Operators Association Executive Officer, WinCott Convenor and cotton grower have been selected to join the delegation of Australian women to travel to the Congress. About 1,500 rural women from five continents are expected to attend the event to discuss a wide range of issues related to the situation of rural women in a global context including sustainable development, food safety and the impact of the new technologies.

Occupational Health and Safety

The *Managing Cotton Farm Safety Manual* was completed and released to industry during the first half of 2002. This document was prepared by the Australian Centre for Agricultural Health and Safety, Moree, with funding support from the Corporation. The manual is the core resource for the Managing Cotton Farm Safety course training cotton farmers and farm managers in occupational health and safety issues and risk management. Courses are being run throughout the cotton industry by Farmsafe Australia, and have been well received by farmers. The Manual itself is the first of its kind in agriculture, and is being used as a model for other industries.

Cotton Harvest Safety Video

A cotton harvest safety video has been produced by NSW Agriculture with support from the CRDC. The video has been designed to complement harvest training programs, and aims to increase awareness of Occupational Health and Safety hazards at harvest. Suitable for both an inexperienced employee and also to refresh the knowledge of workers with many years experience in harvest operations, the video can be used by employers, employees and contractors.

Other Achievements

- The Integrated Pest Management Short Course for cotton growers is now being delivered after an extensive period of development and testing with grower groups.
- In consultation with the industry and with the full support of the Australian Cotton Industry Council, the Corporation commissioned the Centre for International Economics to produce reports on trade distortions in the world cotton market and the true impact of exchange rates on Australian farmers. These reports have been well received by industry and Government, and will make a significant contribution to Australia's efforts to rebalance world trade.
- Further large-scale trials of biocontrol for Fusarium continued to show variable results, with a key finding that the potential new product was unlikely to provide better control than products already on the market, and would therefore struggle to be commercially viable. On this basis the Board decided to refocus the Fusarium research program to other, more promising areas. The likely medium to long-term solution to the Fusarium problem continues to lie with the breeding program.
- The first comprehensive weed management information pack for cotton has been developed. In line with other similar 'infopaks' this will be known as WEEDpak and is freely available to all cotton growers and consultants.
- A second edition of SPRAYpak (the cottongrower's spray application handbook) was developed during the year and will be made available to the industry through a series of regional workshops early in the 2002/03 season.
- The first comprehensive disease management guidelines for cotton were also developed during the year. The Integrated Disease Management package includes a pocket-sized diagnostic guide along with a larger reference manual folder. This package will also be freely available to the industry, but recipients must be registered to make sure they receive future updates.
- Two trainee Industry Development Officer (IDO) positions, one in New South Wales and one in Queensland, were created to ensure the extension team's capacity to deliver information across the industry is not significantly affected when a regional IDO leaves an area. The initiative has already been successful with the initial appointees to these positions already filling positions vacated by Industry Development Officers on maternity leave or who have resigned.

Industry Overview

The 2001/02 season saw the Australian cotton industry achieve what is believed to be a world record for the highest average yields for a major cotton producing nation, while growers continue to focus on implementing environmentally sustainable management practices. Estimates from the Raw Cotton Marketing Advisory Committee show an average yield for all Australian cotton of more than 1.7 tonnes of cotton lint (7.6 bales) per hectare. Total production in Australia for 2001/02 was estimated to be about 700,000 tonnes or 3.1 million bales. More than 95 per cent of the crop will be exported, adding some $1.3 billion to the Australian economy.

The industry has recorded significant yield improvements during the past decade, a result of strategic investment by the Cotton Research and Development Corporation into the Australian breeding program and the development of improved management strategies.

Approximately 97 per cent of Australian production in 2001/02 was from irrigated crops—around 2.226 million bales from NSW and 804,000 bales from Queensland. Rain grown cotton totaled around 69,000 bales with 46,000 bales of this coming from Queensland.

The total area of cotton in Australia last season is estimated at 404,350 ha. The NSW area was around 272,800 ha (irrigated) plus 11,550 ha (rain grown). In Queensland, the area was around 102,800 ha (irrigated) plus 17,200 ha (rain grown). These area and production estimates absorb a small area of PIMA (Extra Long Staple) cotton—roughly 5000 ha producing 25,000 bales.

Figure 2.1 Australian Cotton Production ('000 Bales)
Source: RCMAC and ABARE

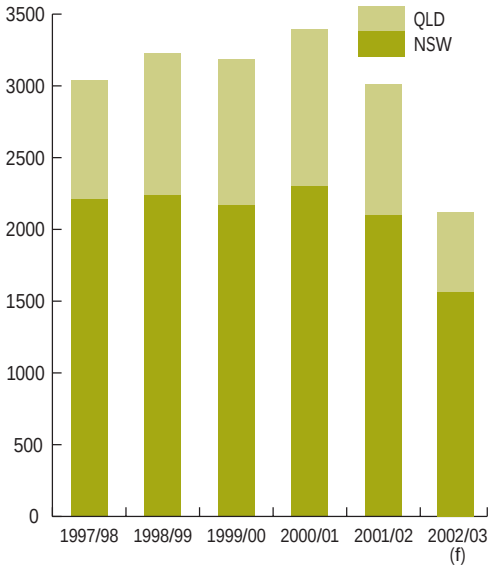
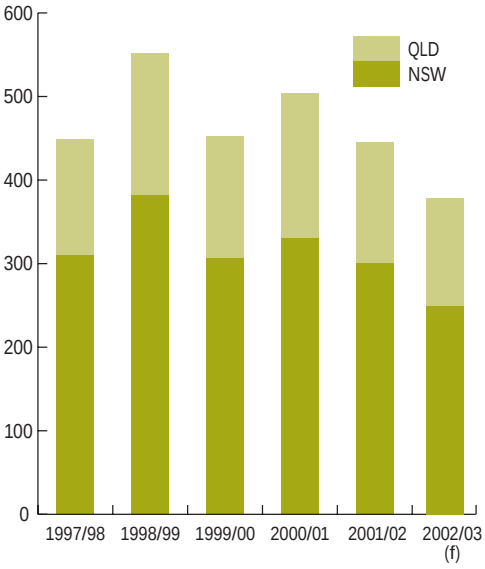


Figure 2.2 Production Area 1997/98–2002/03 ('000 Hectares)
Source: RCMAC & ABARE



(f) forecast

While farmers achieved record yields, overall production was down by more than 100,000 tonnes or 500,000 bales on the previous year's record harvest of 817,000 tonnes or 3.5 million bales from 505,000 hectares. The decrease has been attributed to continuing low world cotton prices and insecurity surrounding water availability.

The record yield result in the 2001/02 season came as a surprise as estimates made in February predicted the national crop would come in at about 635,600 tonnes or 2.8 million bales. The jump reflects the influence of ideal finishing weather for the crop. The fibre quality range was comparable with the excellent results achieved last year. Testing showed that the vast bulk of the fibre was fully mature and low in neps. A small, but still significant proportion, was again in the high micronaire range and thus less suited to some spinning applications (but still well suited to others). Micronaire is a measure of fibre thickness. Thicker fibres or high micronaire produce coarser yarns and fabrics.

About 40 per cent of the crop was produced on properties that have been audited under the cotton industry's Best Management Practices Program. The Best Management Practices Program provides farmers with flexible guidelines for managing farm operations with environmentally-aware and sustainable practices. Farmers across the industry are continuing to adopt environmentally-positive strategies for pest management.

Industry Outlook

The outlook for 2002-2003 is very unclear. In addition to low world prices most Australian production regions are suffering drought. Continuing dry conditions could lead to a dramatic reduction in cotton plantings and production. Some analysts are predicting Australia's crop to fall by as much as 30 per cent to around 2.1 million bales. This would have significant flow-on impacts for a number of rural and regional communities. Major irrigation supply dams and most on-farm water storages are at low water levels. The water outlook has been further depressed by changes to groundwater and riparian water allocations and arrangements in some areas.

The drought has highlighted the need for certainty of water supplies. While the reforms now underway are necessary to ensure the sustainability of water resources, the process has produced a high degree of uncertainity for irrigators and the communities they support.

A surge of overproduction in the world, encouraged by subsidies in some countries like the USA, pushed world cotton prices to 30 year lows during the year. However, Australian cotton is strongly sought after and was able to command a sizeable premium. This is largely because Australian researchers have bred high fibre quality cotton varieties which satisfy market needs. It is also because Australia's cotton farmers and ginners deliver a consistently high quality product; and because exporters have earned a reputation as a reliable and ethical shipper.

A combination of high yields and premiums has enabled most Australian cotton farmers to survive the decline in world prices. However, some farmers who took early and high positions on currency exchange rates are facing additional hardship.

Trade Issues

Research recently undertaken by the Centre for International Economics in Canberra on behalf of the Cotton Research and Development Corporation confirms the very detrimental effects on unprotected countries, including Australia and most developing nations, caused by subsidies granted to their own producers by countries such as the USA. This research was supported by the Australian Cotton Industry Council and has been well received by the industry and Government. It will be used to strengthen the push for reform through the World Trade Organisation.

The research shows distorted international prices affected each Australian farmer by between an estimated $10,900 and $136,700 in lost income each year. This lost income feeds into lower population growth, lower regional incomes and expenditure and other socially negative outcomes. The impact of distortions in the world cotton market are felt across the globe in countries that do not provide income support to growers, particularly in some of the world's poorest nations.

The Centre for International Economics also responded to the argument sometimes used by subsidised producers, that Australian farmers are protected by the low Australian dollar. The analysis found that Australian cotton farmers were exposed rather than protected by a volatile exchange rate, creating an extra burden of risk for farmers to manage. While a low Australian dollar favoured cotton exports, it also increased the costs of production as many inputs, particularly large capital purchases such as specialist machinery, most of which are imported. As the link between commodity prices and the value of the Australian dollar weakens, exchange rate fluctuations will become more difficult to predict. This will increase the need for hedging contracts to iron out fluctuations and further increase the costs for Australian farmers. The report concluded by saying that for a secure future, government and industry must make a serious attempt to reduce barriers to trade in international markets, allowing the sale of additional production.

Corporate Financial Overview

Revenue

Corporate revenues were down in the reporting year from the previous year, but were slightly higher than anticipated. The CRDC does not receive a direct departmental or administered appropriation from the Government. Corporate revenue is drawn from a number of sources, including:

- Industry contributions through a levy on production. A 50 cent increase in the levy came into affect on March 1, 2002, raising the levy to $2.25 per 227kg of cotton (one bale) ex gin. The setting and collection of this levy is enabled by the *Cotton Levy Act 1982* and the *Primary Industries and Energy Research and Development (PIERD) Act 1989*;
- A matching contribution from the Federal Government up to a maximum value of 0.5 per cent of the gross value of production;
- Royalties on the domestic and international sale of planting seed from varieties developed through the CSIRO breeding program; and
- Interest on invested reserves.

As the levy is applied after initial processing, the Corporation's income can be affected by the harvests of two seasons. Cotton is a summer crop which is harvested between March and June depending on the variety, season and location. Initial processing of raw cotton (ginning) begins shortly after harvest starts and continues through to July and potentially August. The levy is collected by the ginning companies before being forwarded to the Federal Government. Levy receipts in 2000/01 were significantly higher than anticipated due to a large crop picking in 2000, part of which was ginned in the 2000/01 year, and an earlier crop in 2001. The carry-over from the record production in 2001, and another early crop in 2002 increased levy receipts for the reporting year.

Income from royalties provides a substantial revenue stream for the Corporation. The Australian breeding program, conducted by the CSIRO with funding support from the CRDC, is a major success story for the industry. These varieties have been tailored to the prevailing conditions in each production area, while maximising yield and fibre quality, and

Table 2.1 Total Revenue from Independent Sources 2000/2001–2002/2003, Portfolio Budget Statement versus Actual ($'000)

	Revenue from Independent Sources			
	Cotton Industry Contribution – Monies from industry levies	Matching Commonwealth Contribution	Royalties and Interest – Monies from other sources	Total Revenue
Actual 2000/01	$6,930	$6,774	$1,847	$15,551
PBS 2001/02	$5,600	$7,619	$1,536	$14,755
Actual 2001/02	$6,005	$7,208	$1,606	$14,818
PBS 2002/03	$6,300	$8,291	$1,751	$16,342

delivering tolerance to disease. CSIRO-bred varieties are commercialised by the not-for-profit industry owned company Cotton Seed Distributors (CSD). Growers have been fully supportive of the program and CSIRO/CSD varieties accounted for around 80 per cent of cotton grown in Australia in the 2001/02 season. The Corporation has a royalty sharing agreement with the CSIRO.

Corporation financial policy is to carry invested reserves to an approximate value of 70 per cent of one year's research and development expenditure. The strategy for these reserves is to utilise a range of short-, medium- and long-term investments, and the interest earned contributes significantly to the Corporation's accounts. Reserves are used to supplement the Corporation's income as necessary. The Corporation anticipates using reserves to fund a budgeted operating deficit in 2002/03. The balance ensures long-term research projects could be completed in the event of crop failure.

As shown in Table 2.1 and Figure 2.4, revenues for the 2002-03 year have been forecast to rise to $16.34 million. Expenditure has been budgeted at $17.01 million.

Figure 2.3 CRDC Revenue by Source, 2001/2002 Total = $14.8 million

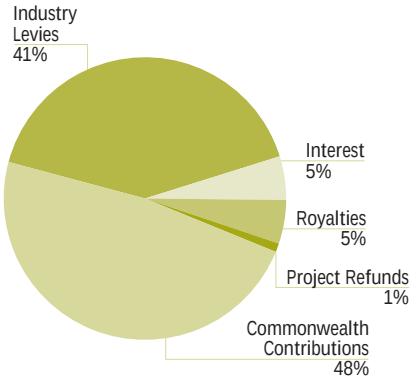
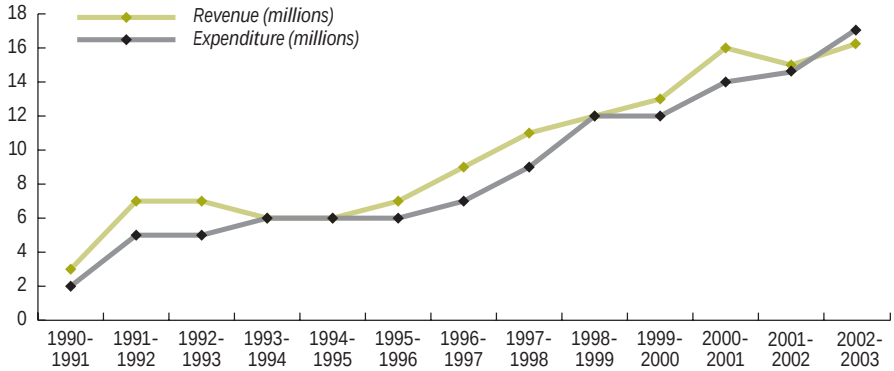


Figure 2.4 CRDC Revenue and Expenditure, June 1990–June 2002



Expenditure

Corporate expenditure for the reporting year was $14.6 million, a 5 per cent increase on the year before.

Proportional expenditure on research and development grants and activities, corporate support and management and administration remain at similar levels to previous years.

Total expenditure contributing to the Corporation's Sustainability output rose to $7.2 million, or 50 per cent of the total expenditure, a $1 million increase from the 2000/01 year. Expenditure in the Profitability and Competitiveness output was similar to last year although it was 10 per cent below projections. This was a result of lower than expected expenditure in a number of research program areas.

The CRDC funds a comprehensive and highly integrated research program, with research sub-programs and even individual projects contributing to the achievement of multiple Outputs. Expenditure contributing to Outputs is a pro-rata representation of expenditure across the total R&D budget including Corporate management and support costs. During the year the Corporation has more than 200 projects under management, with direct expenditure through research and development grants and activities of $13 million.

Funded research organisations included four divisions of the CSIRO, four State Government Departments, eight universities, one Cooperative Research Centre and two Research and Development Corporations. CRDC-funded research occurs in every mainland State and Territory.

On-farm production and management issues naturally dominate the Corporation's research program, with Insect Management continuing to account for about one third of research expenditure. This reflects the ongoing importance of insect management within the cotton farming system which is the largest annual operating expense faced by producers. The research areas of Water, Farming Systems and Technology Transfer were also increased in the reporting year from the year before.

Figure 2.5 Corporate Expenditure, 2001/2002 Total = $14.61 million

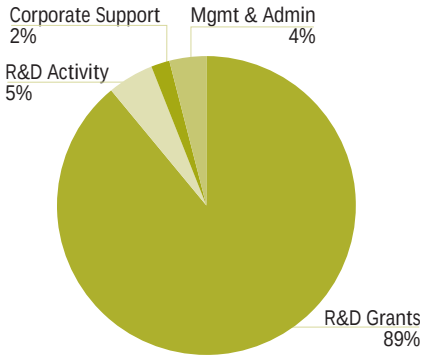


Figure 2.6 Expenditure by Output, 2001/2002

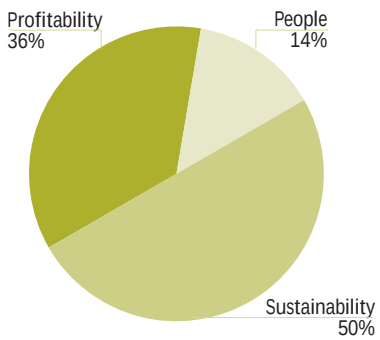


Figure 2.7 CRDC Research by Funded Organisations, 2001/2002

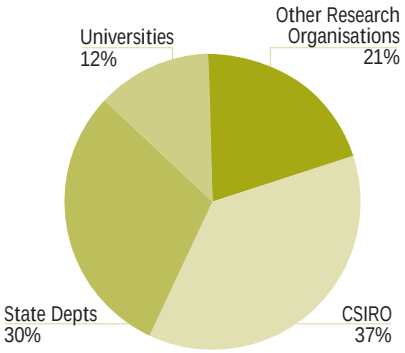


Figure 2.8 2001/2002 Research Program Expenditure

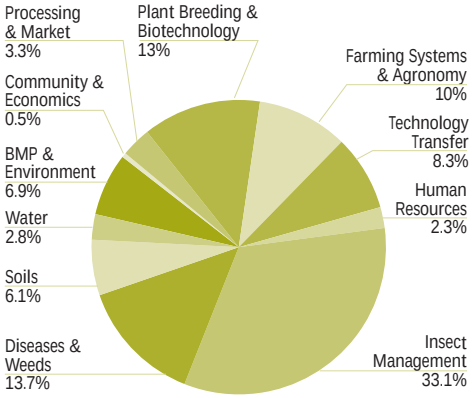
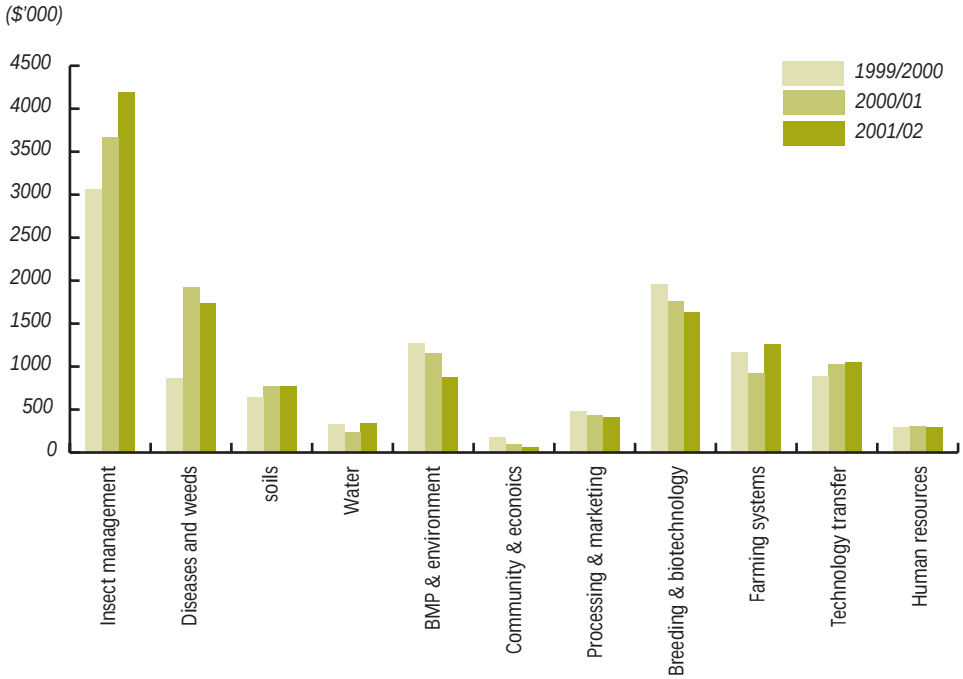


Figure 2.9 Research Program Expenditure, 1999/2000 – 2001/2002

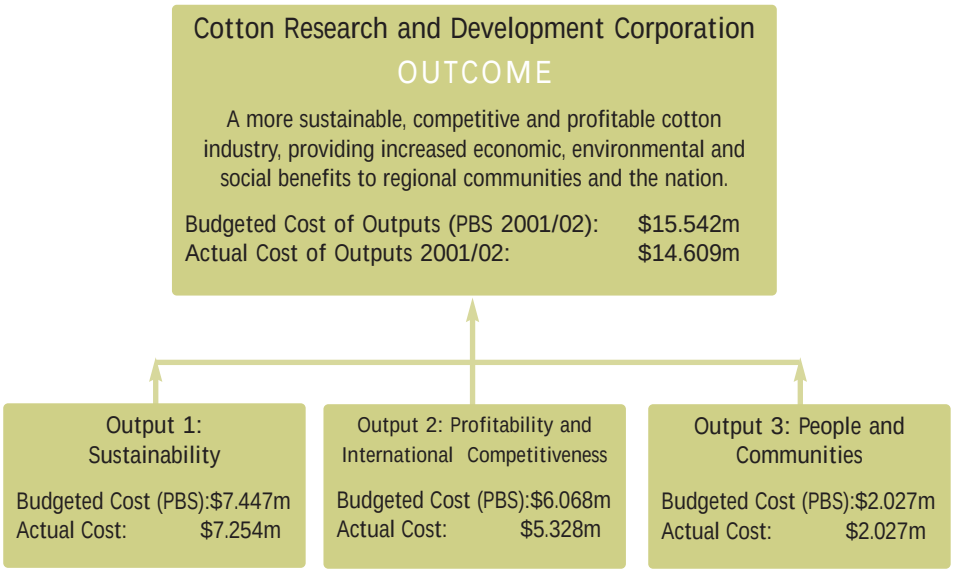


Planning Framework

The Corporation's *Portfolio Budget Statement 2001-02* presents a single Outcome with three Output groups. A graphic representation of the Corporation's *Strategic Plan 1998-2003*, can be found on pages 12 and 13. This Plan forms the basis for the Corporation's *Portfolio Budget Statement* and *Annual Operating Plan*.

Key strategies have been identified for each Output. Research sub-programs and even individual projects may contribute to more than one Output and possibly to all three. The Corporation believes that it is effective to measure progress by evaluating momentum across the broader research program in terms of the strategies and major Outputs, rather than attempt to judge progress on the micro-scale.

Figure 2.10 Outcome and Output Groups and Expenditure, Portfolio Budget Statement 2001/02



Review of Operations:

CORPORATE PERFORMANCE

Cotton Research and Development Corporation

crdc

2001-2002

Annual Report

REVIEW OF OPERATIONS: CORPORATE PERFORMANCE

The Corporation's planning framework presents one Outcome and three Outputs, Sustainability, Profitability and Competitiveness and People and Communities. The Outcome and Output structure reflects a 'Triple Bottom Line' approach to planning and reporting, and is complementary with the first three Objects of the Primary Industry and Energy Research and Development (PIERD) Act 1989. This report and other Corporation mechanisms for reporting performance address the fourth Object of the Act, and the fourth leg of the 'Quadruple Bottom Line', Accountability.

For management processes the CRDC has eight strategies and 11 research programs to achieve its Outputs. Very few research programs address a single Output—most have an impact on two. This is an important tool in making sure the Corporation's research program is properly addressing the needs of stakeholders.

Output Group 1: Sustainability

Research and development providing knowledge and products that promote continuous improvement in resource and environmental management.

Sustainability of the natural resource base is the highest priority for the industry and the community. Securing the long-term future of the industry by protecting, maintaining and enhancing the resource base is central to the Corporation's research program, and half of the budget is directed to achieving the Sustainability Output.

The Australian cotton industry has been working for more than a decade to improve its environmental performance, with a strong and focused research and development program leading the way. Not only have many environmentally positive management strategies, techniques and tools been adopted by the industry, but there is an increasing amount of evidence showing there are economic benefits as well. Environmental and social benefits of this process have included reduced pollution of waterways from chemical pesticides and herbicides, reduced instances of complaints of chemical odour and almost no

recorded instance of contamination of beef cattle during the last few years. The second environmental audit of the industry, due for completion in 2003, will provide the industry with a measure of its progress in this area since 1991.

The Corporation's Sustainability Output addresses the PIERD Act Objects of increasing environmental or social benefits and achieving sustainable use and management of natural resources. A number of the Federal Government's priorities for rural R&D are encompassed by the Output, including the integration of sustainable resource management into farming and land use practices, maintaining and enhancing Australia's clean and green image and the development of biotechnology while being mindful of consumer concerns.

Under the *Strategic Plan 1998–2003* the Corporation has identified three strategies to help improve industry sustainability. These are to:

- Strategy 1: Improve chemical and non-chemical management of pests and beneficial insects
- Strategy 2: Improve chemical and non-chemical management of diseases and weeds
- Strategy 3: Develop and assist the adoption of holistic environmental management systems encompassing relevant catchment management strategies

Seven of the Corporation's 11 research programs are considered to have a direct impact on the achievement of the Sustainability Output, including Insect Management, Diseases and Weeds, Soils, Water, Best Management Practices and Environment, Plant Breeding and Biotechnology, and Farming Systems and Agronomy. The Technology Transfer and Extension program provides support in terms of delivering research to industry. The Corporation estimates $7.254 million or 50 per cent of the budget was spent on improving sustainability during the reporting year. Of this, almost $6.5 million was delivered through direct research grants, while a further $362,000 was used for research and development activities such as workshops and seminars.

Strategy 1: Improve chemical and non-chemical management of pests and beneficial insects

The adoption and implementation of Integrated Pest Management practices in the cotton industry continues to expand. Many growers are also participating in self-formed groups to manage insect pests in a coordinated way, a system known as Area Wide Management. These groups are often assisted in their activities by CRDC-funded Industry Development Officers, State Agriculture Department District Agronomists, researchers from the Australian Cotton CRC and or Cotton Australia Growers Services Managers. Recognising a need for more training in the use of application of IPM, the Corporation has funded the development of a short course in Integrated Pest Management for growers. This course has now been road-tested and is being delivered to the industry by the Cotton CRC. The aim of the course is to

Figure 3.1 *Helicoverpa spp.* Sprays – Ingard Cotton (1996/97–2001/02)

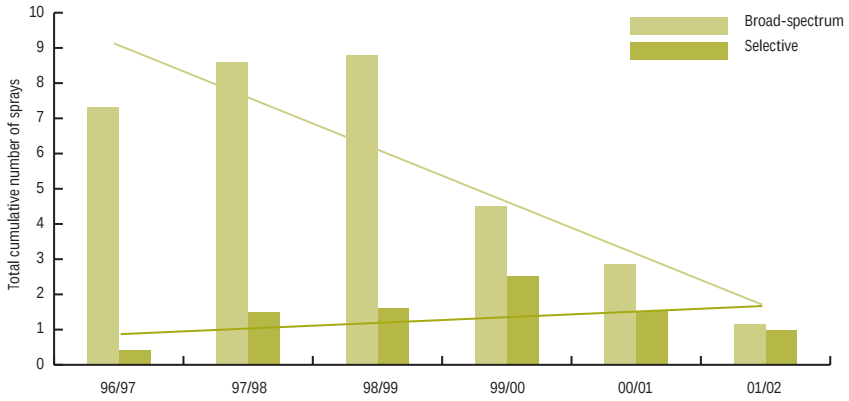


Figure 3.2 *Helicoverpa spp.* Sprays – Conventional Cotton (1996/97–2001/02)

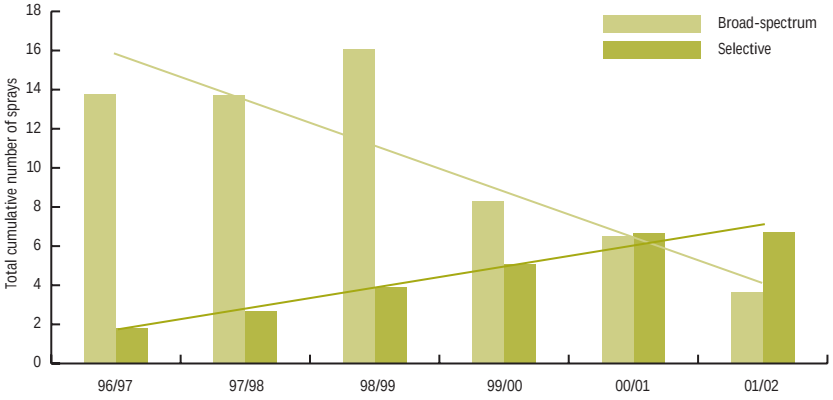
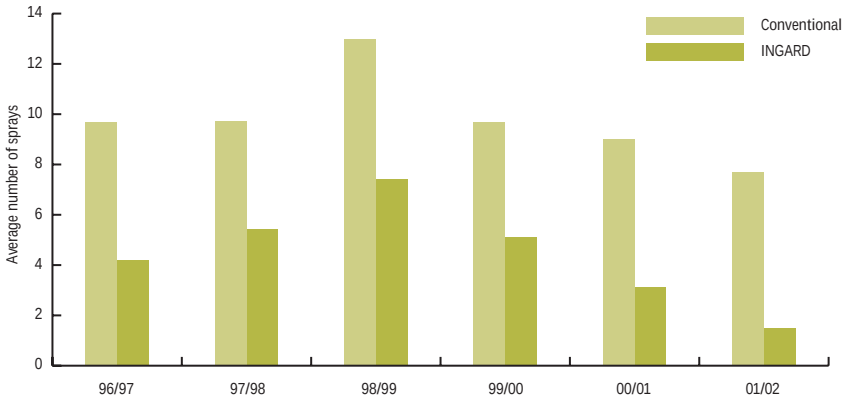


Figure 3.3 Total Number of Spray events for *Helicoverpa spp.* (1996/97–2001/02)



The data for these graphs were collected by Cotton Consultants Australia as part of the annual CRDC-produced report on the Performance of INGARD® Cotton In Australia. The total number of sprays shown in Figure 3.1 and 3.2 is an overestimation of actual spray events because it cumulates individual components of spray mixtures. The average number of spray events is shown in Figure 3.3.

enable growers to understand, support and make pest management decisions in consultation with farm agronomists or crop consultants.

At the heart of successful Integrated Pest Management is a recognition that natural processes can make a significant contribution to insect control, including promoting and enhancing the activity of insects and spiders that prey on pest species and increasing mortality of pests with applied biological agents. The introduction of transgenic cottons, varieties with built-in protection against pests, has encouraged a more widespread adoption of these new strategies which work in both modified and conventional crops.

A core strategy in an Integrated Pest Management system is avoiding or delaying the use of broad spectrum pesticides for as long as possible. Figures 3.1 and 3.2 show that during the six cotton seasons since the introduction of INGARD® cotton in 1996/97, a dramatic change has occurred in the usage of broad spectrum sprays. The trend line for the usage of broad spectrum sprays shows a decline of about 70 per cent in the cumulative number of sprays for both conventional and transgenic cotton. Both graphs show the cumulative number of broad-spectrum sprays peaked in the 1998/99 season, a year of extremely high insect pressure, and halved during the following two years.

The number of broad spectrum sprays is following a falling trend because there is less reliance on pesticides overall and they are being replaced by more selective sprays that are more compatible with Integrated Pest Management. IPM-compatible sprays include food sprays to encourage beneficial insects into the field and selective insecticides that target key pests without harming other organisms. IPM-compatible sprays also tend to break-down much more quickly after application, reducing the overall pesticide load on the environment in cotton production areas.

The widespread adoption of Integrated Pest Management has been a significant move forward by the industry, facilitated by the introduction of INGARD® cottons, varieties with an additional gene to enable the plant to produce its own protection against insect attack. As with any pesticide, relying too heavily on one product with one mode of action greatly increases the chance of insect resistance developing to the technology. As a protection against the development of resistance, the cotton industry has implemented a strict regime of insect resistance management strategies. The development and acceptance of these strategies was a factor in cotton becoming the first Australian industry to have access to transgenic crop varieties. The Insecticide Resistance Management Strategies are reviewed and updated annually by the industry's Transgenic and Insect Management Strategy committee, and the Corporation is a member and supporter of this committee. To date the strategies have been very successful, with no evidence of resistance to INGARD cotton being found in the field.

A major reason to protect INGARD cotton against insect resistance is the upcoming

commercial release of new transgenic varieties. The two-gene cottons, using the trade name Bollgard II®, feature the gene used in INGARD cotton and a second which is similar but works with a different mode of action. If resistance to INGARD had been allowed to develop, the new varieties would have effectively delivered the same protection as single-gene cotton, rather than having enhanced efficacy. With two-modes of action, the risk of resistance developing to the new varieties is greatly reduced. This means that the technology can be used over a much wider area, rather than being restricted to just 30 per cent of production as INGARD is today. Widespread usage of transgenic technology is likely to reduce the amount of broad-spectrum chemicals applied even further, improving the environmental performance and sustainability of the cotton industry. These transgenic plants produce an additional protein which is toxic to the *Helicoverpa* caterpillars while the fibre and oil produced by these plants is exactly the same as fibre and oil from conventional cotton. Fibre and oil do not contain protein. The development of two-gene cottons in Australia has been supported by the Corporation, particularly through ongoing funding for the CSIRO Australian cotton breeding program.

Strategy 2: Improve chemical and non-chemical management of diseases and weeds

The cotton disease Fusarium Wilt continues to be a major threat for the industry. To ensure the issue is being tackled appropriately the Corporation held a major review of Fusarium-related research and development. The review was conducted by plant pathologist Dr Pat Colyer from Louisiana, USA. Dr Colyer toured research sites, areas affected by Fusarium and was guest speaker at a two-day Fusarium and Biotechnology workshop held in Brisbane in February.

Among Dr Colyer's findings was a need for Fusarium researchers to have access to a diagnostic tool which would detect the presence of the disease in the field. To fast track the development of such a tool the Corporation has funded a technical assistant to increase the amount of sampling work which can be done, and is jointly funding the purchase of new equipment to process the samples. This additional input should allow the tool to be developed 12 months earlier that had been anticipated.

In an effort to find appropriate control strategies for the disease the Corporation has been funding research into potential biocontrol products. Large-scale trials conducted during the year showed no significant difference in seedling survival or yield in the six trials assessed. The conclusions from the research are that at this stage biocontrol products are too variable in performance to offer a product for the field. The Board has decided to refocus the Fusarium work. Plant breeding and biotechnology is believed to hold the best long-term options for control of this disease.

The Corporation is continuing to fund investigations into Australian native cottons for resistance to Fusarium. Testing of the native cotton species is only in the early stages but the latest data indicate that one species,

Sturt's Desert Rose, may be more resistant to fusarium wilt than some of the current cotton cultivars. Native cotton species, however, are genetically different from commercial cotton varieties and the two do not interbreed naturally. If Sturt's Desert Rose does have useful resistance genes, transferring them to cotton cultivars will be challenging; research into the best way to do this has already begun.

Within the Weeds research program the Corporation and the Australian Cotton CRC have recognised that there was a need to encourage greater collaboration between researchers. The development of WeedPAK, a resource kit for growers to improve the management of weeds on farm, has been a big step forward in this regard. To further assist the process the Corporation held a workshop to examine improving the focus and coordination of research now underway and to discuss future requirements.

As with insect management, transgenic cottons are likely to have a major impact on the management of weeds. The first herbicide-tolerant cotton varieties are now widely available and being quickly adopted. Roundup Ready® cotton includes a genetic trait that confers a degree of tolerance to the knock-down herbicide Roundup®. Approximately one quarter of the area planted to cotton in Australia in the 2001/02 season was Roundup Ready. This was a dramatic increase on the previous season where extremely limited seed stocks saw a very small number of fields planted to Roundup Ready, and mostly for seed increase.

The introduction of herbicide-tolerant cottons provides farmers with more options for weed control. Traditionally residual herbicides have been used prior to planting to control weeds throughout the early part of the growing season, with cultivation or band spraying between the rows or manual chipping in-row to clean fields during the initial growth stages. Applying residual herbicides increases the risks of off-target movement of chemicals, through sediment or water run-off should major rain events occur. Additional cultivation increases the risk of soil compaction, while manual chipping is increasingly expensive as labour costs rise. Using Roundup Ready cotton farmers can manage weeds throughout a field with Roundup applied during seedling or small plant stages. As Roundup is not a residual chemical this reduces the risk of environmental contamination through off-field movement of soil or water. This technology will reduce the industry's dependence on residual herbicides, but the Corporation will be closely monitoring the situation as part of the effort to achieve an overall reduction in herbicide use, and to avoid an over-reliance on any one technology.

Strategy 3: Develop and assist the adoption of holistic environmental management systems encompassing relevant catchment management strategies

The Corporation has been investigating and funding the development of environmental management systems for more than 10 years. The flagship for the Corporation and the industry is the Best Management Practices

Program. This program continues to lead the way for the industry-wide adoption of flexible environmental management strategies. About 40 per cent of Australian cotton is produced on properties that have been accredited under then Best Management Practices Audit Program. The BMP Program is also winning approval from manufacturers and retailers of cotton products who are looking for an edge in the market and value the environmental improvements made in the Australian cotton industry. The Program continues to be developed, sections updated and new modules, including Petrochemical Storage and Handling, incorporated into the system.

The Development of the Best Management Practices Program, 1991-2002

1991

- Proposals for greater regulation of irrigation and storm water runoff from irrigation farms to minimise pesticides movement into riverine systems.
- July, Moree – Cotton Industry Response – Workshop "Environmental Considerations of Surface Runoff from Cotton farms" One of the recommendations was for a further workshop to review research progress in this area.
- CRDC and Land and Water Resources RDC jointly commissioned the report "The Impact of Pesticides on the Riverine Environment with Specific Reference to Cotton Growing" (Barrett, Peterson and Bately, 1991)

1992

- May, Goondiwindi – Workshop to assess and confirm research priorities and to co-ordinate research. Cooperative venture by Murray Darling Basin Commission, Land and Water Resources RDC, Irrigation Association of Australia and CRDC.

1993

- July – Joint research and development program funded by Land and Water Resources RDC, Murray Darling Basin Commission and CRDC commences: "Minimising the Impact of Pesticides on the Riverine Environment, using the Cotton Industry as a Model". The program runs through until 1998.

1996

- Best Management Practices Pilot Study begins

1997

- October – Best Management Practices Seminar. Launch of the Australian Cotton Industry Best Management Practices Manual (1st edition).
- November – Manual becomes available to growers and industry-wide on-farm implementation of BMP begins

1998

- January – training meeting for CRC Extension team and Cotton Australia Area Managers to plan and coordinate regional implementation meetings.

- August – CRDC Board approved BMP Audit pilot study to investigate auditing cotton growers against the BMP manual
- October – CRDC finalises grower participants in BMP Audit Pilot Study
- BMP Introductory Workshops conducted in all cotton valleys by CRC Extension team and Cotton Australia
- December – "Good Neighbours" program launched at Goondiwindi by Queensland and New South Wales Premiers
- Endosulfan issues occur

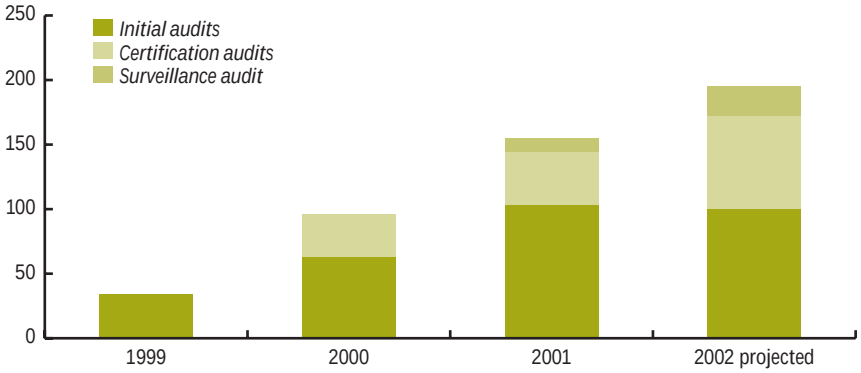
1999

- January – BMP Implementation Co-ordinator appointed
- BMP Management Committee develops the concept of "Spray and Drift Management Plans" in response to the endosulfan crisis.
- May – appointment of 3 BMP Facilitators to organise and run BMP and Spray & Drift Management Plan Workshops.
- July, Dalby – First Environmental Auditor Course for industry auditors
- April – Pilot Auditing program began on cotton farms with QAS and industry support person conducting BMP audits on farm throughout the cotton growing region.
- May to August – 124 BMP Introductory Workshops were conducted with a total of 2140 attendees
- September – Follow up BMP workshops run for the rest of the year
- 34 BMP Audits conducted of growers participating in the pilot audit program.

2000

- Follow up BMP workshops run throughout the year
- October – 2nd Edition of the BMP manual released
- 93 BMP audits conducted in the year

Figure 3.4 BMP Audits 1999–2002



2001

- January – Independent BMP Audit Office opened to administer the BMP audits
- Implementation focus is on "One to One" grower visits by Cotton Australia Grower Services Managers.
- 155 BMP audits conducted during the year

2002 to July

- Petro-Chemical Storage and Handling Module final draft completed.
- 72 BMP audits conducted to mid-year.

Almost every Australian cotton grower has received a copy of the Best Management Practices Manual and instruction on how to use it to improve farm practices. Participation in the Audit Program is continuing to grow. Approximately 20 per cent of cotton growers have now been audited under the Best Management Practices Audit Program, representing some 40 per cent of cotton production in Australia. As a rigorous check of progress against the principles of Best Management Practices the Audit component involves three stages. The first is an initial audit to establish the baseline for that grower. Minimum standards for the first audit are legislative compliance. The second stage provides certification for a grower that they are progressing along a path of continual improvement in farm and environmental management. This second check occurs within 18 months of the first audit. The third and then subsequent audits confirm that the grower continues to apply and practice the principles of the BMP Program.

The Corporation investigates many aspects of crop, farm and environmental management in specific terms. The research programs of Best Management Practices and Environment and Farming Systems and Agronomy collate individual research results to develop broader scale strategies for industry adoption. Interest in environmental management and farming systems approaches has been steadily rising within the industry. The Corporation is continuing to respond as a coordinating body for this work.

Through the year the Corporation began a process to identify the range of biodiversity found on cotton farms, including in field, in the soil and in riparian zones. A meeting was held in the Gwydir Valley bringing together major players in this research, including Land and Water Australia, the Australian Cotton CRC, the NSW Department of Land and Water Conservation and the University of New England. The gathering examined the research which had already been conducted into ecosystems services in the Gwydir Valley, as well as working to identify future joint research opportunities. Since this meeting some new biodiversity research has commenced.

Performance Measures – Sustainability

Quality: All projects assessed and performance reviewed by industry (Australian Cotton Growers' Research Association – ACGRA)

Each year the CRDC's industry stakeholder, the Australian Cotton Growers' Research Association, reviews project applications received for consideration in the main round of funding, as well as reports from continuing projects. Recommendations from this review process are presented to the Corporation's Board prior to the project evaluation and budget meeting.

Workshops, Seminars, Conferences

Direct Funding or Coordination Contribution

Best Management Practices Review Seminar, August 2001, Brisbane, Qld

Cotton Variety Protocol Workshop, September 2001, Narrabri, NSW

Integrated Pest Management and Area Wide Management Focus Groups, October 2001, various locations

Farming Systems Forum, Soil Health, December 2001, Narrabri, NSW

Cotton in Northern Australia Review, December 2001, Darwin, NT

Biodiversity Forum, February 2002, Moree, NSW

Fusarium and Biotechnology Review, February 2002, Brisbane, Qld

Best Management Practices Training Update, May 2002, Narrabri, NSW

Environmental Management Systems Auditor Training Course, May 2002, Narrabri, NSW

Silverleaf Whitefly Workshop, May 2002,

Lippia Workshop, June 2002, Narrabri, NSW

SOILpak Workshop, June 2002, Hillston, NSW

Extension Review and Planning Workshop, June 2002, Brisbane, Qld

Other inputs

Australian Cotton Cooperative Research Centre Cotton Production Course, all year

Performance Information for Outputs

Output 1 – Sustainability	PBS 2001-02 Quantity: 69.6 projects* Price: $7,447,275	Actual 2001-02 Quantity: 105.4 Price: $7,254,348

*The CRDC operates a comprehensive and integrated research program, with many research programs and even individual projects contributing to more than one Output. This figure represents a pro-rata of projects across the entire research program.

Publications

(These items are available from the Cotton Research and Development Corporation's office in Narrabri and, where appropriate, from www.crdc.com.au. They may also be available from the Technology Resource Centre at the Australian Cotton Research Institute and the Australian Cotton CRC's website, www.cotton.crc.org.au. Publications produced by the CRDC are generally made available to the industry free of charge.)

Insecticide Resistance Management Strategy Cards, 2001/02 Season, Printed Reference Cards, September 2001

A Guide to the INGARD® Resistance Management Plan, Printed Booklet, October 2001

Proceedings of the Farming Systems Forum: Soil Health, Reference Folder, December 2002

Rotation Crops and Cotton, Poster, February 2002

Managing Cotton Farm Safety Manual, Reference Folder, April 2002

Meeting the Fusarium Challenge, article in the Australian Cottongrower by S. Tingay, May 2002

Alternative Irrigation Systems in the Australian Cotton Industry, Printed Booklet, May 2002

Performance of INGARD® Cotton In Australia during the 2000/2001 Season, Printed Booklet, 2002

Output Group 2: Profitability and Competitiveness

Research, Development and Technology Transfer to increase farming efficiency, improve pest control and reduce costs throughout the production chain.

True sustainability of cotton production in Australia will rely not only on protecting the natural resource base, but also on the crop continuing to be a viable option for producers and the industries that support them. Viability is a factor of the costs of production and prices that can be achieved. To maximise profit margins growers must manage input costs and potential production through a variety of management strategies. Cost efficiency does not necessarily require high cost, but the most efficient strategies may present greater real or perceived risk for farmers. While growers can control input costs through management, the final price paid for their cotton is affected by a range of elements well beyond the control of any individual. Australian cotton is sold on the world market and, unlike some major competitors, is not subject to any form of price protection. The price is also affected by exchange rates, as are many inputs for production. In this environment the Corporation sees the key areas of involvements are developing the quality of the Australian production to maintain market access, deliver a product required by cotton purchasers and consumers and to achieve premiums wherever possible. The CRDC has also taken a supporting

role to the Government and the Australian Cotton Industry Council in efforts to reduce price distortions and trade barriers around the world.

The Corporation's activities under the Profitability Output address the statutory objective of increasing economic benefits for the industry and the general community in general. The broad range of research, development and technology transfer covers a number of the Federal Government's priorities for Rural Research and Development Corporations including taking a whole-of-industry approach, using biotechnology but being mindful of community concerns, being involved in trade and market access negotiations, maintaining and enhancing Australia's clean and green image, and food safety.

Under the revised Strategic Plan the Corporation has identified two strategies to assist the industry improve profitability and increase competitiveness. These are:

- Strategy 4: Improve farm management strategies
- Strategy 5: Improve potential returns throughout the production chain and assist the development of market opportunities.

Eight of the CRDC's 11 research programs are considered to have a direct impact on the progress towards this Output. These programs are Insect Management, Diseases and Weeds, Soils, Water, Best Management Practices and Environment, Processing and Market, Plant Breeding and Biotechnology, and Farming Systems and Agronomy. As with the Sustainability Output, the Technology Transfer and Extension program also provides support for the other activities to deliver technology to the industry. More than $5.3 million or 36 per cent of the Corporation's budget was directed to improving during the reporting year, including $4.7 million in direct research grants with an additional $270,000 in research related activities including seminars, workshops and communications.

Strategy 4: Improve Farm Management Strategies

To encourage the adoption of new management strategies and techniques, it is important to demonstrate not only that they work efficiently, effectively and better than traditional practices, but that the new tools are economically viable as well. To this end the Corporation has supported a number of projects through the year.

The introduction and adoption of Integrated Pest Management and Area Wide Management of insects is having a dramatic impact on the industry, and is changing the face of cotton in Australia. These strategies have proven to be environmentally and media friendly, and research conducted over several years is confirming that taking a 'soft' approach to insect management can also be very good for overall crop profitability. Because Integrated Pest Management involves enhancing natural processes, results are never as quick or clear as an applied broad-spectrum pesticide. Combined with more expensive selective chemicals and the risks of taking an IPM line can appear to be greater than traditional strategies. However, CRDC-supported studies into the economics of Integrated Pest

Management demonstrate that while some costs increase, the overall reduction in applied pesticide does not impact on gross margins. In many cases the profit margins are improved. This research has been independently validated by Chris Wicks from Regional Financial Solutions in Toowoomba. Mr Wicks reviewed the management strategies of clients of the Darling Downs, including direct field to field comparisons. In his paper to the 11th Australian Cotton Conference, Mr Wicks said the cotton growers who were achieving the best return on investment were using careful management to control insect pests, including relying on Integrated Pest Management in particular where control from beneficial insects was encouraged through careful use of non-disruptive insecticide options.

Benchmarking is an important tool to lift performance as it provides growers and consultants with tools to measure their performance directly against industry and valley average and top performers. Breaking the information down can help to identify a variety of areas for improvement. For many years Boyce Chartered Accountants have been producing a restricted annual report of the performance of cotton growing clients. Recognising the value in this work the Corporation has funded Boyce to broaden the scope of their report to incorporate additional data from the major cotton growing valleys, and to make the report more widely available. This report highlights the differences in performance between the industry average and the top 20 per cent of growers in each category. For example, the average yield reported in 2001 was 7.9 bales per hectare, at an average price of $440 (average income $3476 per hectare) with an average operating cost of $2839 per hectare. But the top 20 per cent of growers achieved 8.83 bales per hectare, at an average price of $449 (average income $3965 per hectare) with an average operating cost of $2671 per hectare. While there are many factors at work, the report does highlight areas of significant difference between average and the top 20 per cent of growers to enable growers to identify the steps they can take to improve profitability.

Securing the profitability of growers is of increasing importance for the industry. One strategy for this has been increasing yields. Combining a progressive breeding program which has yield improvement as a key target, with management strategies focusing on achieving the best yield for least input has been a winning strategy for the industry, the research program and the Corporation. Our farmers are more efficient and competitive than any others in the world. They will need to continue to be, as long term trends have shown yield increases have not kept pace with the rising costs of production, nor offset the impacts of low world prices.

The introduction of transgenic varieties is also changing the profitability equation for growers. INGARD® cotton varieties, with built-in protection against the key insect pest of cotton, require about half of the chemical applications needed for producing conventional cotton and are, on average, less expensive to produce than conventional cotton when insect pressure is low. The introduction of two-gene transgenic cotton is expected to reduce the requirement for applied chemical

even further, but unless the varieties are priced competitively they may have slower than anticipated adoption in industry. Roundup Ready® Cotton, varieties with a degree of tolerance to the herbicide Roundup® have been quickly taken up by the industry and about one quarter of the area planted to cotton in 2001/02 was Roundup Ready®.

The Corporation, in conjunction with the Australian Cotton CRC, again coordinated and funded the popular and informative Farming Systems Forum. These forums bring together researchers and industry to examine aspects of the farming systems jigsaw, to ensure a coordinated approach is taken in the research effort. The issue of soil health has been raised by industry and is becoming a much higher priority for growers. In response the Farming Systems Forum held in December 2001 focused on this issue. The Forum highlighted different approaches being taken, the strength of knowledge on particular aspects, and the lack of a holistic understanding of the processes driving a healthy soil system. A significant result from the Forum was seen during the Corporation's application and funding processes when a number of well-defined projects were put before the Board for consideration, and the majority were successful.

Strategy 5: Improve potential returns throughout the production chain and assist the development of market opportunities

This strategy involves improving the current product to increase its marketability, the development of new products meeting market demands and supporting the efforts of Government and industry to rebalance world trade.

Australian cotton is well-known and desired by cotton spinners for its quality and consistency. However, like other mechanised countries the industrialised production processes of cotton growing in Australia introduce potential for fibre damage and impurities. The Corporation has been investigating this issue in a major comparative study investigating the production chain from field to fabric. This project has already identified a number of sources of impurities and strategies to combat them. It is continuing to study the impact of the cotton ginning process on fibre quality and will feed information into the development of strategies to maximise quality throughout the chain.

Cottonseed oil is a significant commodity in its own right. The oil is the basis for many blended vegetable oils and margarines. However, the processing of cottonseed into oil involves procedures which can produce cholesterol-raising trans fatty acids. A team from CSIRO Plant Industry has created, with CRDC support, the world's first cotton plants that have been modified to produce healthier oils. The seeds from the new cotton plants do not require the same processing as the cotton varieties that are now available, and the oils will not contain the trans fatty acids. The seed oil industry has expressed a great deal of interest in this project, which could see cottonseed oil capture a larger share of the market. The group is now waiting on approval from the Office of the Gene Technology Regulator to begin field trials. Before being

introduced to the industry the new varieties would join the Australian cotton breeding program to ensure they delivered in regards to yield, fibre quality and agronomic performance as well as produce healthier oil.

The world cotton market continues to be highly distorted by trade barriers and production subsidies. The Corporation, with the support of the Australian Cotton Industry Council, commissioned the Centre for International Economics in Canberra to produce two analyses on the situation, as a follow-up to the *Trade Distortions and Cotton Markets* report produced last year. These analyses examined the ongoing impact of trade distortions on cotton prices and Australian producers, and the affect of currency fluctuations. Australian cotton farmers do not receive any price support or production subsidies and so are greatly affected by movement in the world cotton price. The Centre for International Economics found that subsidies for producers, particularly those in the US, worked to force the price of cotton down. Subsidised producers are insulated from the supply and demand signals of the market, their production is driven by the availability of government assistance rather than the requirements of consumers and production is generally greater than it would have been otherwise. High levels of production mean more cotton on the world market and a lower world price. The new US Farm Bill is expected to worsen the situation.

Australian cotton growers often face an argument from US counterparts that the low Australian dollar is a form of subsidy it itself. However, the Centre for International Economics has refuted this suggestion on a number of fronts, not the least of which is that the industry itself has no control over currency fluctuations. As the link between commodity output and the value of the dollar has weakened, the currency has become much more volatile. This volatility increases risk for farmers, creating a greater need for investment in risk management tools such as currency hedging. Adding to this is the fact that many inputs into cotton production in Australia are imported and purchased in US dollars, particularly items of large capital investment. The Centre for International Economics reports that the Australian cotton industry is actually exposed by the currency rather than protected.

Performance Measures – Profitability and Competitiveness

Quality: All projects assessed and performance reviewed by industry (Australian Cotton Growers' Research Association – ACGRA)

Each year the CRDC's industry stakeholder, the Australian Cotton Growers' Research Association, reviews project applications received for consideration in the main round of funding, as well as reports from continuing projects. Recommendations from this review process are presented to the Corporation's Board prior to the project evaluation and budget meeting.

Workshops, Seminars, Conferences

Direct Funding or Coordination

- *Cotton Variety Protocol Workshop,* September 2001, Narrabri, NSW
- *Integrated Pest Management and Area Wide Management Focus Groups,* October 2001, various locations
- *Farming Systems Forum,* Soil Health, December 2001, Narrabri, NSW
- *Cotton in Northern Australia Review,* December 2001, Darwin, NT
- *Intellectual Property Seminar,* December 2001, Canberra, ACT
- *Biodiversity Forum,* February 2002, Moree, NSW
- *Fusarium and Biotechnology Review,* February 2002, Brisbane, Qld
- *Silverleaf Whitefly Workshop,* May 2002, Emerald, Qld
- *Lippia Workshop,* June 2002, Narrabri, NSW
- *SoilPAK Workshop,* June 2002, Hillston, NSW
- *National Cotton Extension Team Annual Review and Planning Workshop,* June 2002, Brisbane, Qld

Other input

- *Australian Cotton Cooperative Research Centre Cotton Production Course,* all year

Publications

(These items are available from the Cotton Research and Development Corporation's

Performance Information for Outputs

Output 2 – Profitability and International Competitiveness	PBS 2001-02 Quantity: 56.6 projects* Price: $6,068,018	Actual 2001-02 Quantity: 78.6 Price: $5,328,340

*The CRDC operates a comprehensive and integrated research program, with many research programs and even individual projects contributing to more than one Output. This figure represents a pro-rata of projects across the entire research program.

office in Narrabri and, where appropriate, from www.crdc.com.au. They may also be available from the Technology Resource Centre at the Australian Cotton Research Institute and the Australian Cotton CRC's website, www.cotton.crc.org.au. Publications produced by the CRDC are generally made available to the industry free of charge.)

- *Insecticide Resistance Management Strategy Cards, 2001/02 Season,* Printed Reference Cards, September 2001
- *A Guide to the INGARD® Resistance Management Plan,* Printed Booklet, October 2001
- *Proceedings of the Farming Systems Forum: Soil Health,* Reference Folder, December 2001
- *Rotation Crops and Cotton,* Poster, February 2002
- *'Meeting the Fusarium Challenge',* article in the Australian Cottongrower by S. Tingay, May 2002
- *Managing Cotton Farm Safety Manual,* Reference Folder, April 2002
- *Alternative Irrigation Systems in the Australian Cotton Industry,* Printed Booklet, May 2002
- *Cotton Comparative Analysis 2000/01 Crop,* Printed Booklet, May 2002
- *Performance of INGARD Cotton In Australia during the 2000/01 Season,* Printed Booklet, 2002

Output Group 3: People and Communities

Research, Development and Technology Transfer to ensure maximum benefit for the industry and the community.

The third measure of the Triple Bottom Line is the social or human impact of an industry or program of expenditure. The cotton industry has traditionally contributed heavily to communities in and around production areas as the crop is more intensive and closely monitored than most agricultural commodities. Within the industry there is a requirement for a broad range of skills and services creating employment opportunities and flow-on economic benefits for rural and regional communities. The industry has a strong focus on technology and technical information, and puts a high value on the network of researchers, industry development officers and private consultants.

Human resources form the basis of the research community, and the foundation for innovation. By ensuring researchers are well supported and encouraged within their activities, the Corporation aims to foster creativity and innovation.

The Output is addressing the Statutory objective of making more effective use of human resources and skills, and the Federal Government's priority of encouraging creativity and innovation within the industry's human resources. The Output is aiming to encourage and support viable regional communities enjoying the flow-on benefits of

improved sustainability and increased profitability.

Three strategies have been identified under the revised Strategic Plan to address this Ouptut. These are:

- Strategy 6: Assess economic, environmental and social impacts on regional communities and the nation; identify and develop appropriate involvement opportunities
- Strategy 7: Involve industry personnel in regional adaptation of research, and effectively transfer new techniques, strategies and discoveries
- Strategy 8: Develop and engage creative, innovative and highly trained human resource.

More than $2 million of expenditure contributed to this Output during the reporting year, 14 per cent of the Corporation's research budget, including $1.8 million in direct research grants and $101,000 in research related activities. The Corporation estimates contributions to this Output are drawn from five research programs including Best Management Practices and Environment, Community and Economics, Processing and Market, Technology Transfer and Extension, and Human Resources.

Strategy 6: Assess economic, environmental and social impacts on regional communities and the nation; identify and develop appropriate involvement opportunities

The Cotton Comparative Analysis Report for the 2000/01 Crop produced by Boyce Chartered Accountants shows cotton growers spent an average of $292 per hectare on wages. Extrapolated across the industry this means Australian cotton farmers directly contributed $146.2 million to rural and regional economies in cotton growing areas through wages alone. This figure excludes the $42 million spent across the industry on chippers, $20.5 million for consultants, $85 million on contract picking and $36.5 million for contract farming and ripping. It also does not take into account the millions spent annually on farm supplies and other services. All of this adds up to major economic and social inputs and impact on the communities in cotton area and larger regional centres including Toowoomba, Tamworth and Dubbo.

Because 95 per cent of Australia's cotton production is exported, cotton communities are also affected by distortions in the world cotton market. The Centre for International Economics, as part of an analysis into trade distortions and cotton markets, found that decline in rural communities could be linked with long-term reductions in the price of commodities such as cotton. A rebalanced world cotton market without distortionist practices would see the world cotton price rise, improved incomes for Australian producers and potential for job creation. An increase in the world cotton price would not only benefit

Australian producers and cotton communities, but also producers and communities in some of the world's poorest nations who rely on agricultural exports.

The environmental impacts of the cotton industry are generally harder to quantify. In an effort to review the progress of the industry during the last 10 years the Corporation, in conjunction with Cotton Australia, is progressing the second Environmental Audit of the cotton industry. The development of Best Management Practices has had a significant impact on the industry and the techniques for managing pesticide application, chemical storage and stormwater. The second Environmental Audit will provide the industry with a progress report and identify areas that require additional work.

Occupational health and safety is a significant issue in the cotton industry, as it is for all industries. The Corporation has identified occupational health and safety of farmers, farm workers and farm contractors as an area that could be improved. Accordingly the Corporation supported the Australian Centre for Agricultural Health and Safety and FarmSafe Australia to establish the *Managing Cotton Farm Safety Manual* and training package for cotton farmers and farm managers. This package is the first of its kind in Australian agriculture and is being used as a model for a number of other industries. The aim is to enable farmers to identify the risks on their own properties and then manage those risks appropriately.

Harvest time can be the most dangerous part of the season for farm staff working on cotton pickers and module builders. To provide growers with a tool to properly induct new workers and prepare experienced employees for the harvest season, the Corporation has funded the development of a video which examines the risks associated with harvesting cotton. The video has been designed to be used as part of a broader training session to ensure all workers on a particular property are fully aware of the risks and procedures used on that property before work starts.

The Corporation has been a partner in the Rural Industries Research and Development Corporation-managed 'Farm Health and Safety Joint Research Venture' from 1998 to 2002. This is a joint venture between a number of rural research and development organisations and has contributed to the development of better national data sets and monitoring systems for rural, especially farm, workers. A new strategy plan for this joint venture has been developed and the Corporation continues its enthusiastic support for it.

The Women's Industry Network for Cotton (WinCott) was formed several years ago to assist women in the industry to learn more about cotton in Australia and to facilitate the involvement of women in industry organisations. The network, whose primary focus is communication between members, was refocused this year to ensure that it continues to be relevant to members. The Corporation remains supportive of the network and is assisting with meeting costs and staff support. Additionally the Corporation has funded two positions for women from the cotton industry to join a delegation to the World Rural Women's Congress to be held in Madrid during October 2002.

Strategy 7: Involve industry personnel in regional adaptation of research, and effectively transfer new techniques, strategies and discoveries

More than $1 million was spent in the Technology Transfer and Extension research program during 2001/02, about 8 per cent of the Corporation's research budget. The Corporation takes a coordinated approach to technology transfer and funds Industry Development Officers in most production areas. The Industry Development Officers act as the link between the research community and growers, providing information, advice and conducting local trials of new varieties and techniques. An example of the esteem with which the industry values the extension officers came at the 11th Australian Cotton Conference in Brisbane, August 2002, when Industry Development Officer for Emerald Mr David Kelly was awarded the Researcher of the Year Award for 2002. This is the first time an extension officer has received this prestigious award.

The Industry Development Officers form part of the National Cotton Extension Team, which includes District Agronomists, Water Use Efficiency Officers and extension related staff from the CRDC. The team is headed by the National Cotton Extension Coordinator, a position which is also funded by the Corporation. The Coordinator provides leadership, direction and support for the Extension Team, whose members may be located well away from other researchers or research facilities.

The Corporation's policy of funding positions for Trainee Industry Development Officers has proven very successful, with initial trainees able to move into positions as existing officers have gone on maternity leave or resigned. Funding is currently provided for two trainee positions, one in NSW based at the Australian Cotton Research Institute and one in Queensland based in Emerald.

Much of the success of the industry can been attributed to major efforts to localise research findings. While field trials continue to be important in each area, by combining historical data with sophisticated technology a range of models have been created and are now greatly assisting the research effort. The Corporation has invested in a number of projects developing models for the industry, and these have been used as a basis for the development of decision support tools and software. The value in modeling lies in its ability to provide accurate results based on a range of variables, the equivalent of conducting many years of field trials. An important part of the process to develop these models is complementary research to ground truth the outcomes.

A survey investigating the usage and usability of the printed and electronic information resources produced by the Corporation and the Australian Cotton CRC found most of these resources are well used in the industry. The survey asked growers and consultants about a number of resource packages and delivery methods and found that 98 per cent of respondents believed the resources were either worthwhile or very worthwhile. Good quality written packages are still very popular but Internet use of resources is increasing. The

survey revealed that 91 per cent of respondents had access to the Internet and of that number, 61 per cent used Internet or email daily. When new information is provided to the industry, an associated workshop, meeting or field day is highly valued as a form of making users aware of the information. The results will be used to ensure future products are appropriately designed for the intended audience.

Strategy 8: Develop and engage creative, innovative and highly trained human resources.

The Corporation places a lot of emphasis on ensuring researchers in the cotton industry are well supported and encouraged within their activities. Each year a number of opportunities for researchers to participate in national and international exchanges are funded. The Corporation encourages and regularly provides support for researchers to attend the biennial Australian Cotton Conference. As part of its budget for the 2002/03 year the Corporation, in conjunction with the Cotton CRC, has set aside funding to support a group of Australian researchers to travel to the World Cotton Research Conference III in Cape Town, South Africa during March 2003. Appropriate scientific exchange travel can give researchers inspiration, education and professional development. Corporation-funded researchers are encouraged to find and keep up with the best in the world, in order to improve upon it.

Each year a number of post graduate scholarships and post doctoral fellowships are awarded by the Corporation to assist young scientists to enter the industry. The Corporation has found that the positive involvement of industry and their appreciation of the research effort provides a great deal of encouragement for new researchers, and builds a strong loyalty to the cotton industry. The Corporation provided funding for 26 post graduate researchers during the 2001/02 reporting year. Corporation staff also supervise and support a number of Honours and PhD students.

Where appropriate through the year the Corporation provides a range of other opportunities for training and development for members of the broader industry. This may be facilitated through organisations such as WinCott or the Australian Cotton Growers Research Association.

Performance Measures – People and Communities

Quality: All projects assessed and performance reviewed by industry (Australian Cotton Growers' Research Association – ACGRA)

Each year the CRDC's industry stakeholder, the Australian Cotton Growers' Research Association, reviews project applications received for consideration in the main round of funding, as well as reports from continuing projects. Recommendations from this review process are presented to the Corporation's Board prior to the project evaluation and budget meeting.

Workshops, Seminars, Conferences

Direct Funding or Coordination Contribution

- *Best Management Practices Training Update,* May 2002, Narrabri, NSW
- *Environmental Management Systems Auditor Training Course,* May 2002, Narrabri, NSW
- *SoilPAK Workshop,* May 2002, Hillston, NSW
- *National Cotton Extension Team Review and Planning Workshop,* June 2002, Brisbane, Qld

Other Inputs

- *Australian Cotton Cooperative Research Centre Cotton Production Course,* all year
- *One-day lecture for Agriculture Students,* April 2002, Sydney University, NSW

Publications

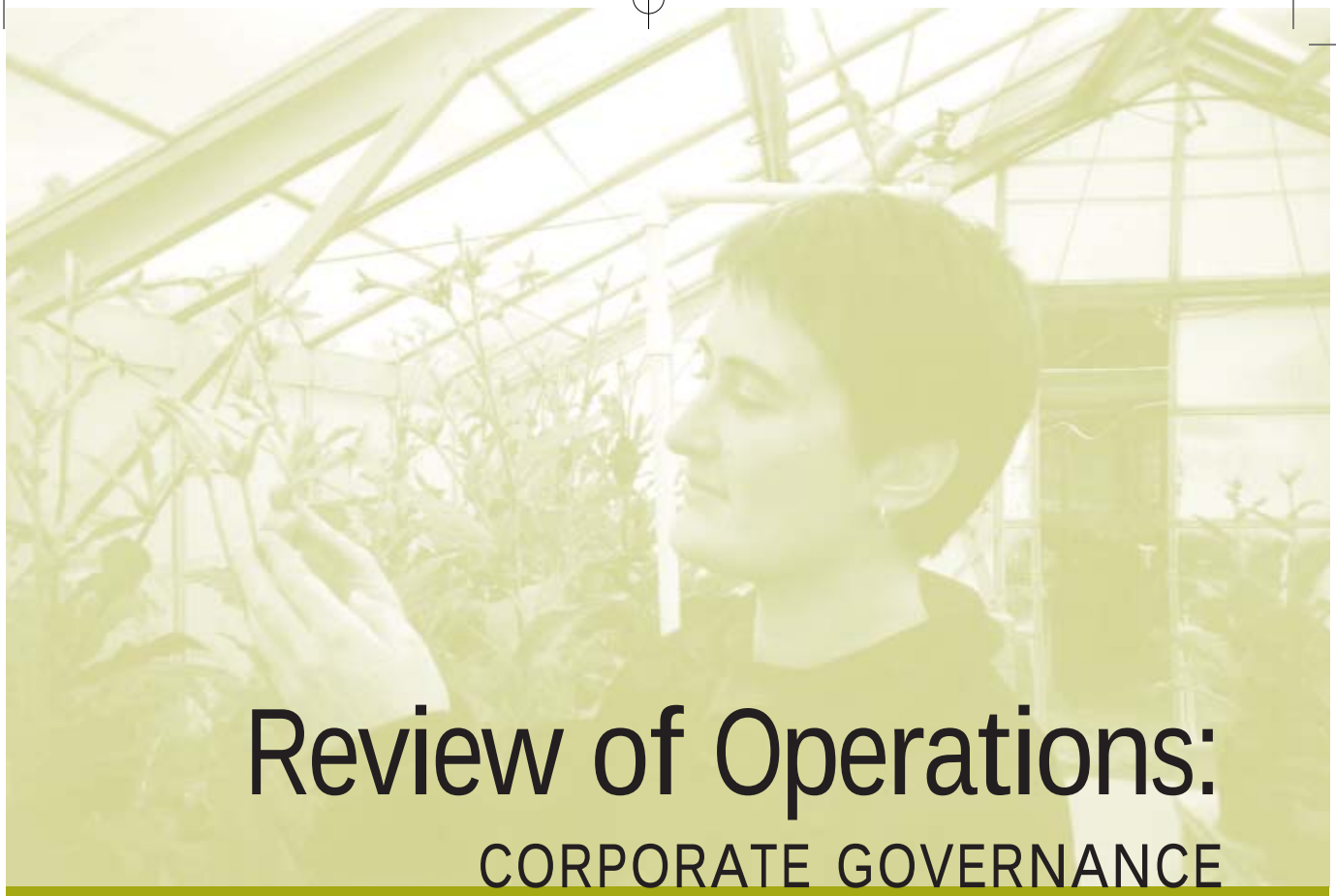
(These items are available from the Cotton Research and Development Corporation's office in Narrabri and, where appropriate, from www.crdc.com.au. They may also be available from the Technology Resource Centre at the Australian Cotton Research Institute and the Australian Cotton CRC's website, www.cotton.crc.org.au. Publications produced by the CRDC are generally made available to the industry free of charge.)

- *Safety at Harvest,* Video, March 2002
- *Managing Cotton Farm Safety Manual,* Reference Folder, April 2002
- *Cotton Comparative Analysis 2000/01 Crop,* Printed Booklet, May 2002

Performance Information for Outputs

Output 3 – People and Communities	PBS 2001-02 Quantity: 18.8 projects* Price: $2,027,176	Actual 2001-02 Quantity: 28 projects Price: $2,026,667

*The CRDC operates a comprehensive and integrated research program, with many research programs and even individual projects contributing to more than one Output. This figure represents a pro-rata of projects across the entire research program.



Review of Operations:

CORPORATE GOVERNANCE

Cotton Research and Development Corporation

crdc

2001-2002

Annual Report

CORPORATE GOVERNANCE

Corporate Governance Practices Statement

The Cotton Research and Development Corporation is committed to the highest levels of corporate governance. This commitment has been written into the Statement of Principles for the Board, Management and Staff of the Corporation.

Following appointment to the Board, each Director is provided with an induction package as part of the induction procedure. This package is designed to provide Directors with an appropriate level of information regarding the Corporation, its history and operations, and the rights, responsibilities and obligations of Directors. Copies of the relevant legislation are also included in the package. The induction process for Directors includes visiting the Corporation's offices in Narrabri to meet with management and staff for a comprehensive overview of Corporate activities and practices, and tours of key industry research facilities. Where necessary and appropriate the Corporation sources training for Directors, either individually or as a group. The Board generally establishes the need for such training. An example is Intellectual Property training that the Board undertook during October 2001. This training session was also made available to relevant Staff and research providers.

The Corporation has developed a Risk Management Plan as part of its approach to identifying and managing areas of significant business risk. The process also involves consulting widely and participating in appropriate industry, Rural Research and Development Corporation and Government forums to keep fully informed about the environment in which the Corporation operates. Situations involving even minor business risk are fully discussed at a Board level with policy developed through consensus. Management and staff have responsibility for implementing policy as directed by the Board.

The Board has instituted a policy of holding a focused and facilitated strategic review sessions in conjunction with Board meetings wherever possible. These focus on a specific issue or area of research. Depending on the topic a variety of speakers and industry participants may also be invited to attend, to enable broad discussion and to expose risks and opportunities for the Corporation and the industry. During the year the Corporation held two such sessions, one on water which involved a appropriate representatives of a range of industry organisations, and a second to strategically review the Corporation's progress and establish future directions.

Responsibility for the establishment and maintenance of appropriate ethical and financial management standards rests with the

Corporation's Audit Committee, in consultation with the Board. During the year the Chair reviewed the performance of Directors.

The performance of Directors is also thoroughly reviewed by the Board Selection Committee during its deliberations.

The Corporation's reporting processes include the presentation of a formal report to its industry stakeholder, the Australian Cotton Growers' Research Association. Part of this presentation includes an opportunity for Board decisions to be questioned and debated.

Board of Directors

The Corporation has a nine-member Board, of which six are nominated by an independent Selection Committee established by legislation. Appointment to the Board is subject to Ministerial approval. The Minister nominates and appoints the Chair and the Government Director. The Board selects the Executive Director who becomes its ninth member.

Appointment

Directors other than the Executive Director and the Government Director are appointed for a term not exceeding three years. The current term began in November 1999 and expires in September 2002. The Chair has been reappointed to September 2004. The Government Member holds office at the Minister's pleasure and the Executive Director during the Corporation's pleasure.

Expertise

Directors are selected from across the industry business and research communities and together they bring expertise in cotton production, processing, marketing, science, research and development, business management, technology transfer, conservation and management of natural resources, economics and environmental and ecological matters.

Directors' Responsibilities

The Board keeps in close contact with the senior management of the Corporation and takes a hands-on approach to ensure research projects are properly focused and meet contractual requirements. The Directors are responsible for ensuring that the affairs of the Corporation are properly managed and for setting the strategic directions for the Corporation to follow.

The Board's function include:

- Establishing strategic directions and targets
- Monitoring and evaluating the research and development needs of the industry and ensuring the Corporation's research program is effective in meeting those needs
- Approving policies, plans, performance information and budgets
- Monitoring policies, procedures and internal controls to manage business and financial risk
- Ensuring compliance with statutory and legal obligations and corporate governance standards

Responsibility for the day-to-day management of the Corporation lies with the Executive Director and the senior management team. The

close links between the Board and management have assisted the development of a sense of mutual confidence, trust, teamwork and of a common purpose. Senior management attend and participate in Board meetings, with other staff invited to contribute whenever appropriate.

At the first meeting following the Directors' appointments in 1999, the Board assigned each Director with a research program of key responsibility based on the individual's expertise. Under this structure, Directors review the project applications and reports for the each program of responsibility and make subsequent recommendations to the full Board. Directors are also available to advise and work with research program coordinators and other staff to ensure effective management of Corporation-funded research, development and extension activities.

Table 4.1 Directors' Resposibilities

PROGRAM CODE	FUNDING PROGRAM	DIRECTOR	SUPPORTING PERSONNEL	SUPPORTING DIRECTOR
A	Insect Management	Neil Forrester	Vic Edge	Jeff Bidstrup
B	Diseases and Weeds	Jim Peacock	Sonia Tingay	Neil Forrester
C	Soils	Adam Kay	Guy Roth, Helen Dugdale	Richard Browne
D	Water	Richard Browne	Guy Roth, Helen Dugdale	Roberta Brazil
E	BMP and Environment	Roberta Brazil	Guy Roth, Rachel Holloway	Bridget Jackson
F	Community and Economics	Graeme Hamilton	Robin Logan	Bridget Jackson
G	Processing and Market	Ralph Schulzé	Heather Ball	Jeff Bidstrup
H	Plant Breeding and Biotechnology	Jim Peacock	Sonia Tingay	Jeff Bidstrup
I	Farming Systems and Agronomy	Jeff Bidstrup	Guy Roth, Helen Dugdale	Richard Browne
J	Technology Transfer and Extension	Adam Kay	Bruce Pyke	All
K	Human Resources	Bridget Jackson	Robin Logan	Ralph Schulzé

Directors as at June 30, 2002

Non-Executive Directors

Chair

Bridget Jackson, appointed November 1999

- BScAg, MBus
- Member of the Audit, Remuneration and Strategic Planning Committees
- Director, Cameron Agriculture Pty Ltd, Sydney, NSW.

Ms Jackson is an agricultural consultant with extensive experience in irrigated agriculture and the management of private farmer-group projects. Ms Jackson represents CRDC on the Board of the Australian Cotton CRC and as a director of the Australian Cotton Industry Council. Director responsible for Human Resources and Supporting Director for Best Management Practice and the Environment and Community and Economics.

Jeff Bidstrup, appointed November 1999

- Cotton and Grain Farmer, "Prospect", Warra, Qld.

Mr Bidstrup operates a cotton and grain property with a strong emphasis on sustainability and Integrated Pest Management issues. He also has some experience in downstream processing and marketing. Director Responsible for Farming Systems and Agronomy and Supporting Director for Insect Management, Processing and Market, and Plant Breeding and Biotechnology.

Roberta Brazil, appointed November 1999

- BA, LLB, LLM, Grad DipLeg.Prac.
- Director Best Rural Pty. Ltd., Brookstead, Qld.

Ms Brazil is co-proprietor of Brazil Enterprises producing cotton, grain and cattle on the Darling Downs and at Goondiwindi in Queensland and at Larrimah in the Northern Territory. Ms Brazil is currently Chair of Land and Water Australia. Other appointments include Queensland representative on the Australian Landcare Council and Chair of the Condamine Catchment Management Association. She is the Director with primary responsibility for Best Management Practice and Environment and Supporting Director for Water.

Richard Browne, appointed November 1999

- WDA
- Deputy Chair, Member of the Audit and Remuneration Committees
- Regional General Manager, Auscott, Moree, NSW.

Mr Browne has been working in the cotton industry for 35 years, most of that at a senior management level in corporate agriculture involving production and processing of cotton. His main interest has been promoting research and development for the benefit of the industry. He was Chair of the CRC for Sustainable Cotton Production for the life of the organisation and was Chair of the Australian Cotton Growers' Research Association for three terms. Previously a member for the Cotton Research Council, the forerunner of the CRDC. Director responsible for Water and Supporting Director for Soils and Farming Systems and Agronomy.

Neil Forrester, appointed November 1999

- BScAg. (Hons), PhD
- Member of the Audit and Intellectual Property Committees
- Vice President Entomology, Deltapine International, Narrabri, NSW.

Dr Forrester has extensive field and laboratory research and extension experience with Pest Management and Resistance Management issues in a broad range of field crops, specialising in cotton for the last 20 years. He is the Director with primary responsibility for Pest Management issues and is the Supporting Director for Diseases and Weeds.

Adam Kay, appointed November 1999

- BScAg, DipEd., Grad Cert Rural Science (Cotton Production)
- Member of the Intellectual Property and Strategic Planning Committees, Alternate Member of the Audit Committee
- General Manager, Cotton Seed Distributors, Wee Waa, NSW.

Mr Kay is an experienced extension agronomist who prior to his current position spent 12 years based in the Macquarie Valley with NSW Agriculture. Mr Kay is a graduate of the Australian Rural Leadership Program (Course 2) and during the early 1990s he was awarded a Churchill Scholarship to study cotton soil management. He has responsibility for the Soils and Extension research programs.

Jim Peacock, appointed October 1990

- AC PhD
- Member of the Intellectual Property and Remuneration Committees
- Chief, CSIRO Plant Industry, Canberra, ACT.

Recognised internationally in the field of plant molecular biology and its application in agriculture, Dr Peacock has been a Director of the CRDC since its inception and was previously a Director of the Cotton Research Council. He is also a Director of Gene Shears Pty Ltd. In 2000 Dr Peacock was received the inaugural Prime Minister's Prize for Science. Dr Peacock has special responsibility for the areas of Plant Breeding and Biotechnology and Diseases and Weeds.

Government Director

Graeme Hamilton, appointed May 2001

- PhD, DIC
- Member of the Strategic Planning Committee
- Director, Australian Plague Locust Commission, Agriculture Fisheries and Forestry – Australia, Canberra, ACT.

Having begun professional life as a cotton entomologist, Dr Hamilton has also worked with horticulture and grains industries both here and overseas, and now directs the joint Commonwealth/State approach to locust control. Dr Hamilton has special responsibility for the areas of Community and Economics and advises the Corporation on Government policy processes, public administration issues and strategic management.

Executive Director

Ralph Schulzé, appointed October 1990

- HDA (Hons)
- Observer to the Audit Committee

Prior to his appointment at the Corporation Mr Schulzé was an agronomist based in Narrabri with a background in vertically integrated cotton production and a Director of the Cotton Research Council. Currently a Director of Cotton Seed Distributors Ltd and a member of the management committee of the Australian Cotton CRC. With Chair Ms Jackson, Mr Schulzé represents the Corporation on the Australian Cotton Industry Council.

Director responsible for Processing and Market, and Supporting Director for Human Resources.

Appointments after the reporting year

On September 11 2002 Senator Judith Troeth announced the appointments to the CRDC Board for a term from October 1, 2002 to September 30, 2005. Directors Mr Jeff Bidstrup, Mr Richard Browne, Dr Neil Forrester and Mr Adam Kay have been reappointed, while Ms Roberta Brazil and Dr Jim Peacock will retire. Ms Kathryn Adams and Dr T.J. Higgins have been appointed to the Board.

Ms Adams is Executive Director of Planning for the Queensland Environment Protection Authority. She has served on several R&D Corporations and has particular expertise in environmental planning, business management, technology law and microbiology.

Dr Higgins is the Assistant Chief of Plant Industry at CSIRO. Dr Higgins is a distinguished research scientist, and has been involved in plant research for 30 years, specialising in gene technology for a range of Australian agricultural ecosystems. He has been involved in the production of new cotton varieties and is experienced in administrating R&D and gene technology.

Conflicts of Interest

In accordance with Section 131 of the *Primary Industries and Energy Research and Development Act 1989*, Directors are appointed on the basis of their expertise and do not represent any particular organisation or interest group. The Board recognises that a Director's connection with any particular organisation or interest group does not necessarily imply a conflict of interest, and that it may wish to avail itself of Directors' individual skills and make use of their expertise.

The Board reaffirmed in November 1999 to follow section 54 of the *Primary Industries and Energy Research and Development Act* and section 21 of the *Commonwealth Authorities and Companies Act 1997* regarding disclosure of interests. A Director who considers that he/she may have a direct or indirect pecuniary or non-pecuniary interest in a matter to be discussed by the Board must disclose the existence and nature of the interest before the discussion. Depending on the nature and significance of the interest Directors may be required to absent themselves from the Board's deliberations. The Board has a standing notice of Director's interests which was renewed at the meeting in December 2000, is noted at each Board meeting and updated as necessary.

The Board is very aware of its responsibilities regarding conflict of interest and duty of care, and has adopted a very cautious approach. This approach has been successful and no difficulties have been encountered.

Indemnities

The Board has taken the necessary steps to ensure adequate insurance cover is in place for Directors and Officers of the Corporation. The Corporation's insurance cover is provided through Comcover. The insurance contract prohibits the CRDC from disclosing the nature or limit of the liabilities covered, or the amounts of premiums paid.

Committees

During 2001-2002 the Board operated four committees – the Audit, Intellectual Property Remuneration, and Strategic Planning Committees. The number of sub-committee meetings is not a reflection of the committee workload. Much of the work of the sub-committees is conducted via e-mail and telephone, rather than through formal meetings. The Corporation finds this arrangement to be both effective and productive.

Audit Committee

Established under section 89 of the *Primary Industries and Energy Research and Development Act 1989* and section 32 of the *Commonwealth Authorities and Companies Act 1997* the Audit Committee's primary role is to ensure the Corporation's financial reporting is a true and fair reflection of our financial transactions. The committee also provides " a forum for communication between the directors, the senior managers of the authority and the internal and external auditors of the authority."

Membership of the committee includes the Chair Ms Bridget Jackson, and two non-executive Directors, Mr Richard Browne and Dr Neil Forrester/Mr Adam Kay. The Executive Director Mr Ralph Schulzé and the Business Manager Mrs Robin Logan attended the meetings as observers. The Audit Committee met twice during the year.

Intellectual Property Committee

The role of this committee is to review the Corporation's Intellectual Property policy and make recommendations to the Board for any updates. The committee is also responsible for making recommendations and reporting to the Board on any Intellectual Property actions including commercialisation issues surrounding any of CRDC-funded research and development activities. The membership of the committee includes the Chair Ms Bridget Jackson, Executive Director Mr Ralph Schulzé and three non-executive directors, Dr Neil Forrester, Mr Adam Kay and Dr Jim Peacock. The committee met twice during the year.

Remuneration Committee

This committee consists of the Chair Ms Bridget Jackson, and two non-executive Directors, Mr Richard Browne and Dr Jim Peacock. The Remuneration Committee advises the Board on the Executive Director's remuneration and staff remuneration adjustments. The Committee met once during the reporting year.

Strategic Planning Committee

The committee is also responsible for conducting an annual review of the Strategic Plan and making any recommendations to the Board for alterations. The committee include the Chair Ms Bridget Jackson, the Government Director Dr Graeme Hamilton, non-executive director Mr Adam Kay and the Communications Manager Mr Tim Lester. The committee did not meet specifically during the year however Directors and Staff took part in a facilitated strategic review and planning workshop in February 2002. This session was aimed at identify risks and opportunities facing the Corporation in the future. This review was the start of the development process for a new Five Year Plan for the Corporation.

Meetings

Board policy is to hold meetings away from the Corporation's office in Narrabri whenever it is appropriate and practical. The Board uses the opportunities presented by meetings to tour cotton-production areas, meet local growers and researchers and be updated on the varying research requirements throughout the industry. Meetings also present opportunities for Director training and education regarding specific issues of relevance and to meet with representatives of the Corporation's stakeholders.

Directors' attendance at Board and Committee Meetings

During 2001-02 the Board held 6 meetings, in Brisbane, August 8, 2001, Brisbane and Emerald on October 22 and 23, 2002, Sydney, December 3 and 4, 2001, Sydney, February 21 and 22, 2002, Narrabri, March 18 and 19, 2002, and Narrabri, May 31, 2001.

Table 4.2 Directors' Attendance at Board and Committee Meetings

YEAR ENDED 30 JUNE 2002	BOARD		AUDIT		INTELLECTUAL PROPERTY		REMUNERATION		STRATEGIC PLANNING	
Director	No. of Meeting Attended	No. of Meeting Eligible to Attend	No. of Meeting Attended	No. of Meeting Eligible to Attend	No. of Meeting Attended	No. of Meeting Eligible to Attend	No. of Meeting Attended	No. of Meeting Eligible to Attend	No. of Meeting Attended	No. of Meeting Eligible to Attend
Ms Bridget Jackson (Chair)	6	6	2	2	2	2	1	1		
Mr Richard Browne (Deputy Chair)	6	6	2	2			1	1		
Mr Jeff Bidstrup	6	6								
Ms Roberta Brazil	6	6								
Dr Neil Forrester	6	6	1	1	2	2				
Dr Graeme Hamilton	5	6								
Mr Adam Kay	6	6	1	1	1	2				
Dr Jim Peacock	4	6			2	2	1	1		
Mr Ralph Schulzé	6	6	2	2	2	2				

Key Issues in Corporate Performance

Corporate Planning

In accordance with the *Primary Industries and Energy Research and Development (PIERD) Act 1989* and the *Commonwealth Authorities and Companies (CAC) Act 1997*, the Corporation prepares a *Strategic (Five Year) Plan* as well as an *Annual Operating Plan* for each financial year. In April 1998 the Corporation presented the then Minister for Primary Industries and Energy, the Hon. John Anderson MP, with the *Strategic Plan* for the period from July 1998 to June 2003. In August 1998 the CRDC became subject to the CAC Act. On the advice of the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry Senator the Hon. Judith Troeth the CRDC Board revised the *Strategic Pla*n to ensure it was compliant with the legislation and would meet the requirements of the Report of Operations. The intent of the Plan itself did not change. The *Strategic Plan 1998-2003: Outcome/Outputs Revision 2001* was submitted to Senator Troeth on June 15, 2001 and approval was granted on July 5, 2001.

On April 27, 2001 the Corporation submitted the *Annual Operating Plan 2001-02*. Approval was granted on May 17, 2001. On April 30, 2002 the Corporation submitted the *Annual Operating Plan 2002-03* to Senator Troeth for approval. Written advice of that approval was received on May 20, 2002.

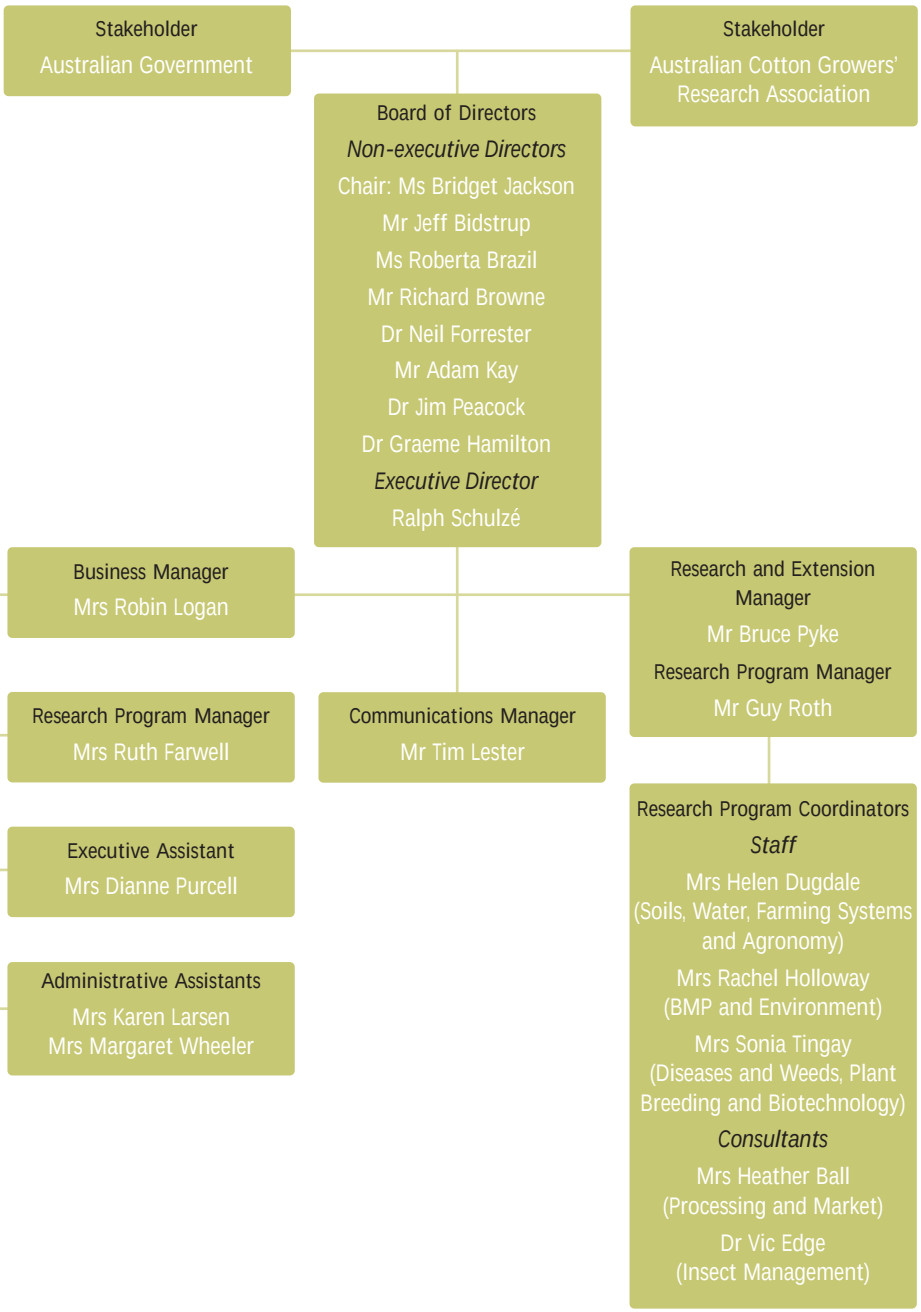
Fraud Control

The Corporation fosters an environment which minimises the likelihood and impact of fraud. Active fraud control is a major responsibility of all staff and clear standards and procedures have been established. All personnel engaged in the prevention, detection and investigation of fraud receive appropriate fraud control training, consistent with the Federal Government's *Fraud Control Policy*. The Audit Committee endorses, monitors and reviews the Corporation's Fraud Control Plan. The Corporation's Fraud Control Plan is read in conjunction with the Risk Management Plan and the Code of Conduct for Directors and Staff.

As a small agency with the equivalent of 9.8 full-time employees the Corporation does not have a fraud investigation unit. The Corporation's Audit Committee, Executive Director and Business Manager, the nominated fraud control officer, collectively carry out the functions of a fraud investigation unit as described in the Commonwealth Fraud Investigation Model. The support of the Australian Federal Police would be sought if the Corporation felt there was a *prima facie* case of fraud and further investigation was required.

In August 2002 the Corporation received a directive from the Minister for Agriculture the Honourable Warren Truss MP that Commonwealth agencies adopt the Commonwealth Fraud Control Policy. The Corporation has responded to Minister Truss and adheres to the policy.

Figure 4.1 Organisational Structure



Location of Offices

The Corporation has one office and it is located at 2 Lloyd Street, Narrabri, NSW, 2390. The purchase of the building that houses the Corporation's office was settled in October 2001. The first floor of the building was subsequently renovated to provide improved meeting facilities and additional office space. The improvements were officially launched by Senator Judith Troeth on May 30, 2002.

Service Charter

The Corporation does not provide services direct to the public and does not have a service charter. However, in the process of revising the Strategic Plan the CRDC has developed a Statement of Principles for the Board, Management and Staff which embody the set of values underlying our decisions, actions and relationships.

The Board, Management and Staff of the Cotton Research and Development Corporation:

1. are committed to excellence and productivity;
2. are committed to providing the highest levels of accountability to stakeholders;
3. will act legally, ethically, professionally and responsibly in the performance of their duties;
4. strive to maximise return on investment if industry and public funds invested through our Corporation;
5. strive to make a difference in improving the knowledge base regarding cotton production in Australia;
6. value strategic, collaborative partnerships with research providers, other research and development bodies, industry organisations, stakeholders and clients for mutual industry and public benefits, including cooperation with kindred organisations to address matters of national priority;
7. value the contribution, knowledge and expertise of the people within our organisation and that of our contracted consultants, external program coordinators and research providers;
8. promote active, honest and effective communication;
9. are committed to the future of rural and regional Australia;
10. comply with and promote best practice in corporate governance; and,
11. are committed to meet all statutory obligations and accountability requirements in a comprehensive and timely manner.

Staff

Staff are employed under Section 87 of the *PIERD Act 1989*, which provides that the terms and conditions of employment are to be determined by the Corporation. Including the Executive Director there were eight full-time employees and four part-time employee as at June 30, 2002.

- Executive Director
  Ralph Schulzé, appointed 1991
- Research and Extension Manager
  Bruce Pyke, appointed 1993
- Research Program Manager
  Guy Roth, appointed October 2001
- Business Manager
  Robin Logan, appointed September 1999
- Communications Manager
  Tim Lester, appointed June 1999
- Program Manager
  Ruth Farwell, appointed January 2002
- Executive Assistant
  Dianne Purcell, appointed July 1998
- Administrative Assistant
  Margaret Wheeler, appointed September 2001
- Administrative Assistant (part-time)
  Karen Larsen, appointed early 1998
- Research Program Coordinator – Soils, Water, Farming Systems and Agronomy (part-time)
  Helen Dugdale, appointed July 2001
- Research Program Coordinator – BMP and Environment (part-time)
  Rachel Holloway, appointed January 2001
- Research Program Coordinator – Diseases and Weeds, Plant Breeding and Biotechnology (part-time)
  Sonia Tingay, appointed July 2001

Other Staff during the reporting year

- Research Program Manager
  Angela Wiseman, appointed June 2000, resigned January 2002

Appointments after the reporting year

At the date of the report, no appointments have been made after the reporting year.

Training

During the reporting year the Corporation spent $10,090 on training and recruitment. This amount covers training for Directors and Staff and included an Intellectual Property workshop for the Board, staff and research providers and two staff-only training events covering presentation skills and occupational health and safety. Corporation Directors and Staff also participate in a wide range of activities relating to the operations of the Corporation throughout the year. These activities are seen as providing valuable experience and additional training for the personnel involved.

Contractors and Consultants

The Corporation employs consultants and contractors on a case-by-case needs basis, and after background checks to ensure proposed appointees have necessary skills and experience. During the reporting year the Corporation spent $113,680 to remunerate consultants and contractors. It is Corporation policy not to disclose amounts paid to individual consultants due to privacy and confidentiality arrangements.

Table 4.3 Contractors and Consultants

Contractor/Consultant	Service
J&J Baker Ag Services	Administration of the Cotton Industry Best Management Practices Audit Office
Vic Edge	Program Coordination
Heather Ball	Program Coordination
Anita Maunder	Communications Services
P. Slack-Smith Consulting	Best Management Practices Audit Scrutineering
Macarthur Agribusiness	Workshop facilitation and review
Carmi-Jones Pty Ltd	Best Management Practices Auditing
Boyce Chartered Accountants	Cotton Comparative Analysis

Equal Employment Opportunity

The Corporation is committed to a merit-based, non-discriminatory recruitment and promotion policy.

Occupational Health and Safety

The *Occupational Health and Safety (Commonwealth Employment) Act 1991* provides that an employer must take all reasonable, practical steps to protect the health and safety at work of the employer's employees. During the reporting year Corporation staff were provided with training in Occupational Health and Safety issues.

No accidents were reported and no investigations were conducted during the year.

Freedom of Information

General enquiries regarding access to documents or other matters relating to Freedom of Information should be made to the Business Manager. No requests made under the *Freedom of Information Act 1982* were received by the Corporation during the reporting year. Facilities for access to the documents are available to the Corporation.

Procedures and Information Sources

Funding information on individual projects funded by the Corporation is available on request. Information about CRDC projects is also available through the Australian Rural Research in Progress (ARRIP) database which can be accessed through the Internet and through most Australian research and public libraries.

Table 4.4 Categories of Documents Held

Category	Nature	Access
Administration	Files	D
Annual Operational Plans	Files, Publications	D, C
Annual Reports	Files, Publications	D, C
Applications, Guidelines and Contracts	Files, Publications	D, C
Assets Register	Files	D
Financial Management	Files	D
Five Year Plans	Files, Publications	D, C
Project Lists	Files, Publications	D, C
Research Reports	Files, Publications	D, C
Workshop Reports	Files, Publications	D, C

C: Documents customarily made available

D: Documents not customarily made available for reasons of privacy or commercial-in-confidence

Ecologically Sustainable Development and Environmental Performance

The principles of ecologically sustainable development under the *Environment Protection and Biodiversity Conservation Act 1999* apply to the Corporation. These include integrating long-term and short-term economic, environmental, social and equitable considerations into decision making processes; to not use lack of full scientific certainty as a reason to postpone measure to prevent environmental degradation if there is the threat of serious or irreversible environmental damage; maintaining or enhancing the health, diversity and productivity of the environment for future generations; ensuring the conservation of biological diversity and ecological integrity is a fundamental consideration in decision-making; and promoting valuation, pricing and incentive mechanisms.

The Corporation has integrated these principles into its planning framework. The three Output groups, Sustainability, Profitability and Competitiveness, and People and Communities is a reflection of the triple-bottom-line concept – the need to factor environmental, economic and social considerations into all decisions. Almost half of the Corporation's budget is directed towards issues improving the industry's Sustainability, encompassing natural resource management and biodiversity. Additionally the CRDC funds a specific research program (Best Management Practices and the Environment) designed to minimise environmental impacts.

The development and adoption of the Best Management Practices program is providing

environmental benefits for the industry. The past two seasons have seen far fewer incidences of off-target impacts, such as contamination of beef cattle or fish kills, from chemical sprays on cotton fields. The Corporation anticipates measures of some of these impacts will be available following the second industry Environmental Audit which is to be completed during the first half of 2003.

Commonwealth Disability Strategy

The Corporation supports equitable working conditions and procedures for employees. The Corporation makes its information available to all Australians through electronic media.

Significant Events

Under section 15 of the *Commonwealth Authorities and Companies (CAC) Act 1997*, the Corporation is required to notify the Minister of 'significant events'. Such events include proposals to:

- form or participate in the formation of a company;
- participate in significant partnerships, trusts, unincorporated ventures or similar arrangements;
- acquire or dispose of significant shareholding in a company;
- acquire or dispose of a significant business;
- commence or cease a significant business activity; and
- make a significant change in the nature or extent of interests in a significant partnership, trust, unincorporated venture or similar arrangement.

The Corporation had no significant events during the reporting year.

Significant Changes in the State of Affairs

There have been no significant changes to the Corporation's state of affairs or principal activities during the reporting year or to the date of this report.

Political Disclosures

The Corporation did not engage the services of any advertising agency, market research organisation, polling organisation, direct mail organisation or media advertising organisation during the reporting year.

Payment to Representative Bodies

The Corporation's industry representative body is the Australian Cotton Growers' Research Association. The CRDC makes no payments to the Growers' Research Association except for the purposes of producing the proceedings of the biennial Australian Cotton Conference. The most recent Conference was held in Brisbane in August 2002.

Selection Committee Report

Cotton Research and Development Corporation

crdc

2001-2002

Annual Report

COTTON RESEARCH AND DEVELOPMENT CORPORATION SELECTION COMMITTEE

Ms Margaret Thomson
Presiding Member
CRDC Selection Committee
PO Box 56
YARRALUMLA ACT 2600

16 September 2002

Senator the Hon Judith Troeth
Parliamentary Secretary to the Minister for
Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Senator Troeth

This report summarises the activities of the Cotton Research and Development Corporation (CRDC) Selection Committee in relation to the nomination of six Directors for appointment to the Board of the CRDC submitted to you on 13 August 2002.

Establishment of the Selection Committee

The CRDC Selection Committee was established under the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act) for the purpose of nominating to the Parliamentary Secretary six persons for appointment as Directors of the CRDC Board.

The Parliamentary Secretary appointed Ms Margaret Thomson as the Presiding Member of the CRDC Selection Committee for a period of three years, commencing 23 July 2001 (in accordance with subsection 122 (1) of the PIERD Act.

The Presiding Member was requested to commence the selection process on 16 May 2002 by the Parliamentary Secretary.

In accordance with section 124 of the PIERD Act, on 7 June 2002 nominations were sought from the representative organisation of the CRDC, the Australian Cotton Growers Research Association.

On 20 June 2002, the Presiding Member wrote to the Parliamentary Secretary advising her of the Selection Committee nominees.

The following people were appointed by the Parliamentary Secretary to the Selection Committee on 24 June 2002:

Mr Harley Bligh;
Mr Bruce Finney;
Mr Glen Fleischfresser; and
Mr Peter Hayes.

The Selection Process

An advertisement seeking applications for the 6 Board positions of the CRDC was placed in 'The Australian' on Saturday 29 June 2002 and in 'The Land', 'The North West Magazine' and the 'Queensland Country Life' the following week. The advertisement called for written applications against the core criteria contained in the PIERD Act including: cotton production, processing and marketing; science, technology, and technology transfer; management and conservation of natural resources, including environmental and ecological matters; administration of research and development projects; economics; finance and business management; and sociology.

A total of 35 applications were received, including applications from some of the current Board members.

The Selection Committee met via teleconference on 31 July 2002 to determine the process, to receive appropriate briefings and to review the applications. The Selection Committee also conferred with the CRDC Chairperson and Executive Director on the future strategic direction of the Corporation. 11 of the 35 applicants were short-listed to be interviewed on 8 and 9 August 2002 in Sydney and Brisbane.

Board Appointments

Upon completion of this process, in accordance with section 131 of the PIERD Act, the Selection Committee forwarded six nominations to the Parliamentary Secretary on 13 August 2002. The Parliamentary Secretary made the following appointments on 11 September 2002 for a term commencing from 1 October 2002 and ending on 30 September 2005:

Ms Kathryn Adams

Ms Adams is Executive Director of Planning for the Queensland Environment Protection Authority. She has particular expertise in environmental planning, business management, technology law and microbiology.

Mr Jeffrey Bidstrup

Mr Bidstrup has considerable dryland and irrigated cotton production expertise. He has experience in farm innovation relating to the commercial side of agriculture, science and technology.

Mr Richard Browne

Mr Browne is the Regional General manager of Auscott Ltd. He has over 30 years' experience in the cotton industry, including an in-depth understanding of farming operations and marketing.

Dr Neil Forrester

Dr Forrester is a manager of cotton R&D programs for Deltapine International (Asia/Pacific region). He specialises in the technical aspects of cotton production and has experience in biotechnology, agronomy, plant breeding and fibre quality issues.

Dr TJ Higgins

Dr Higgins is the Assistant Chief of Plant Industry at CSIRO. He has been involved with plant research for 30 years, specialising in gene technology for a range of Australian agricultural ecosystems. He has been involved in the production of new cotton varieties and is experienced in administrating R&D and gene technology.

Mr Adam Kay

Mr Kay is General Manager of Cotton Seed Distributors Ltd. He is an extension and development agronomist and has extensive experience in the innovative transfer of cotton industry technology.

Costs

Administrative support for the selection process was provided by Ms Julie Austin and expenses incurred are set out below (some minor costs are yet to be accounted for):

Item	$ (GST Inclusive)
Selection Committee Airfares	4 270
Selection Committee Accommodation, Interview Room Hire and Incidentals	5 728
	(Not finalised)
Applicant Travel and Expenses	(Not finalised)
Advertising – Newspapers	5 064
Presiding Members Consultation Fees	4 480
Secretarial and Administration Costs	1 631
	(Not finalised)
	21,173

Yours sincerely

MARGARET THOMSON
Presiding Member
Cotton Research and Development Corporation Selection Committee

Financial Statements

Cotton Research and Development Corporation

crdc

2001-2002

Annual Report

Australian National
Audit Office

INDEPENDENT AUDIT REPORT

To the Minister for Agriculture, Fisheries and Forestry

Scope

I have audited the financial statements of the Cotton Research and Development Corporation for the year ended 30 June 2002. The financial statements comprise:

- Statement by Directors;
- Statements of Financial Performance, Financial Position and Cash Flows;
- Schedules of Commitments and Contingencies, and
- Notes to and forming part of the Financial Statements.

The members of the Board are responsible for the preparation and presentation of the financial statements and the information they contain. I have conducted an independent audit of the financial statements in order to express an opinion on them to you.

The audit has been conducted in accordance with Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards, to provide reasonable assurance as to whether the financial statements are free of material misstatement. Audit procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with Accounting Standards and other mandatory professional reporting requirements in Australia and statutory requirements so as to present a view which is consistent with my understanding of the Corporation's financial position, its financial performance and its cash flows.

The audit opinion expressed in this report has been formed on the above basis.

GPO Box 707 CANBERRA ACT 2601
Centenary House 19 National Circuit
BARTON ACT
Phone (02) 6203 7300 Fax (02) 6203 7777

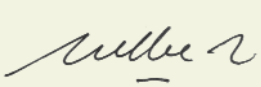
Audit Opinion

In my opinion the financial statements,

- have been prepared in accordance with Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*; and

- give a true and fair view, in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia and the Finance Minister's Orders, of the financial position of the Cotton Research and Development Corporation as at 30 June 2002 and its financial performance and cash flows for the year then ended.

Australian National Audit Office



Willie Tan
Senior Director

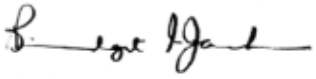
Delegate of the Auditor-General

Canberra
11 September 2002

STATEMENT BY DIRECTORS

In our opinion, the attached financial statements for the year ended 30 June, 2002 give a true and fair view of the matters required by the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997.*

Signed:



Bridget Jackson
Chair
10th September, 2002

Ralph Schulze
Executive Director
10th September, 2002

Statement of financial performance

For the year ended 30 June 2002

	Notes	2002	2001
REVENUES FROM ORDINARY ACTIVITIES			
Revenues from government	4A	13,212,620	13,703,603
Sales of goods and services	4B	978	775
Interest	4C	705,840	782,004
Other	4D	907,267	1,064,762
Total revenues from ordinary activities		14,826,705	15,551,144
EXPENSES FROM ORDINARY ACTIVITIES			
Employees	5A	831,048	683,523
Suppliers	5B	317,555	297,109
Grants	5C	13,401,977	12,863,211
Depreciation and amortisation	5D	25,178	30,107
Write-down of assets	5E	33,599	–
Total expenses from ordinary activities		14,609,357	13,873,950
Net operating surplus from ordinary activities		217,348	1,677,194
Extraordinary items		–	–
Net surplus attributable to the Commonwealth		217,348	1,677,194

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

Statement of financial position

as at 30 June 2002

	Notes	2002	2001
ASSETS			
Financial assets			
Cash	6A	1,436,437	2,515,010
Deposits at Call	6A	11,528,858	11,604,357
Receivables	6B	2,825,196	1,733,565
Total financial assets		15,790,491	15,852,932
Non-financial assets			
Land and buildings	7A	300,000	671
Infrastructure, plant and equipment	7B	132,875	69,082
Total non-financial assets		432,875	69,753
Total Assets		16,223,366	15,922,685
LIABILITIES			
Provisions			
Employees	8	161,754	130,316
Total provisions		161,754	130,316
Payables			
Suppliers	9A	80,682	112,916
Grants	9B	302,884	218,755
Total payables		383,566	331,671
Total liabilities		545,320	461,987
EQUITY			
Accumulated surplus	10	15,678,046	15,460,698
Total Equity	10	15,678,046	15,460,698
Current liabilities		490,273	418,992
Non-Current liabilities		55,047	42,995
Current Assets		12,840,491	14,852,932
Non-current Assets		3,382,875	1,069,753

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

Statement of cash flows

for the year ended 30 June 2001

	Notes	2002	2001
OPERATING ACTIVITIES			
Cash received			
Appropriations		12,109,322	13,477,358
Sales of goods and services		665	684
Interest		709,540	783,610
GST recovered		1,187,569	1,184,168
Other		946,722	1,113,817
Total cash received		14,953,818	16,559,637
Cash used			
Grants		(13,980,324)	(13,562,853)
Employees		(602,383)	(588,147)
Suppliers		(1,103,283)	(779,939)
Total cash used		(15,685,991)	(14,930,940)
Net cash from operating activities	11	(732,173)	1,628,697
INVESTING ACTIVITIES			
Cash used			
Purchase of property, plant and equipment		(421,899)	(1,600)
Total cash used		(421,899)	(1,600)
Net cash from investing activities		(421,899)	(1,600)
FINANCING ACTIVITIES			
Cash received		-	–
Cash used		-	–
Net cash from financing activities		-	–
Net increase in cash held		(1,154,072)	1,627,097
Cash at the beginning of the reporting period		14,119,367	12,492,270
Cash at the end of the reporting period	6A	12,965,295	14,119,367

Schedule of commitments

as at 30 June 2002

BY TYPE	Notes	2002	2001
CAPITAL COMMITMENTS			
Buildings		0	251,000
Total capital commitments		–	251,000
OTHER COMMITMENTS			
Operating leases		48,901	39,680
Other commitments		26,408,328	27,949,382
Total other commitments		26,457,229	27,989,062
COMMITMENTS RECEIVABLE		2,405,203	2,543,873
Net Commitments		24,052,026	25,696,189
BY MATURITY			
All net commitments			
One year or less		12,591,083	12,968,482
From one to five years		11,460,944	12,727,707
Net commitments		24,052,026	25,696,189
Operating lease commitments			
One year or less		26,293	33,579
From one year to five years		22,608	6,101
Net operating lease commitments		48,901	39,680

Schedule of contingencies

as at 30 June 2002

	Notes	2002	2001

The Cotton R&D Corporation has no contingent liabilities of which it is aware.

Notes to and Forming Part of the Financial Statements

For the year ended 30 June 2001

Note Description

Note 1: Summary of Significant Accounting Policies

1.1 Basis of Accounting

The financial statements are required by clause 1(b) of Schedule 1 to *the Commonwealth Authorities and Companies Act 1997* and are a general purpose financial report.

The statements have been prepared in accordance with:

- Finance Minister's Orders (being the *Commonwealth Authorities and Companies [Financial Statements 2001-2002] Orders)*;
- Australian Accounting Standards and Accounting Interpretations issued by Australian Accounting Standards Board;
- other authoritative pronouncements of the Board; and
- Consensus Views of the Urgent Issues Group.

The statements have been prepared having regard to:

- the Explanatory Notes to Schedule 1 issued by the Department of Finance and Administration; and
- Finance Briefs issued by the Department of Finance and Administration.

The Corporation's Statements of Financial Performance and Financial Position have been prepared on an accrual basis and are in accordance with historical cost convention, except for certain assets, which, as noted, are at valuation. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

Assets and liabilities are recognised in the Corporation's Statement of Financial Position when and only when it is probable that future economic benefits will flow and the amounts of the assets or liabilities can be reliably measured. Assets and liabilities arising under agreements equally proportionately unperformed are however not recognised unless required by an Accounting Standard. Liabilities and assets which are unrecognised are reported in the Schedule of Commitments and the Schedule of Contingencies.

Revenues and expenses are recognised in the Corporation's Statement of Financial Performance when and only when the flow or consumption or loss of economic benefits has occurred and can be reliably measured.

1.2 Changes in Accounting Policy

The accounting policies used in the preparation of these financial statements are consistent with those used in 2000-2001.

1.3 Reporting by Outcomes

As comparison of Budget and Actual figures by outcome specified in the Appropriation Acts relevant to the Corporation is presented in Note 20. Any intra-government costs included in the figure 'net cost to Budget outcomes' are eliminated in calculating the actual budget outcome for the Government overall.

1.4 Revenue

The revenues described in this Note are revenues relating to the core operating activities of the Corporation.

Revenue from the sale of goods is recognised upon the delivery of goods to customers.

Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets.

Revenue from disposal of non-current assets is recognised when control of the asset has passed to the buyer.

Revenue from the rendering of a service is recognised by reference to the stage of completion of contracts. The stage of completion is determined according to the proportion that costs incurred to date bear to the estimated total costs of the transaction.

Revenues from Government – Output Appropriations

The full amount of the appropriation for department outputs for the year is recognised as revenue.

Resources Received Free of Charge

Services received free of charge are recognised as revenue when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Contributions of assets at no cost of acquisition or for nominal consideration are recognised at their fair value when the asset qualifies for recognition.

1.5 Employee Entitlements

Leave

The liability for employee entitlements includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the Corporation is estimated to be less than the annual entitlement for sick leave.

The liability for annual leave reflects the value of total annual leave entitlements of all employees at 30 June 2002 and is recognised at its nominal amount.

The non-current portion of the liability for long service leave is recognised and measured at the present value of the estimated future cash flows to be made in respect of all employees at 30 June 2002. In determining the present value of the liability, the Corporation has taken into account attrition rates and pay increases through promotion and inflation.

Superannuation

Employees contribute to the Public Sector Superannuation Scheme. Employer contributions amounting to $74,468 (2000-01: $69,833) for the Corporation in relation to this scheme have been expensed in these financial statements.

No liability for superannuation benefits is recognised as at 30 June as the employer contributions fully extinguish the accruing liability, which is assumed by the Commonwealth.

Employer Superannuation Productivity Benefit contributions totalled $14,859 (2000-01: $11,803) for the Corporation.

1.6 Leases

A distinction is made between finance leases, which effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased non-current assets, and operating leases, under which the lessor effectively retains substantially all such risks and benefits.

Operating lease payments are expensed on a basis, which is representative of the pattern of benefits derived from the leased assets.

1.7 Borrowing Costs

No borrowing costs were incurred by the Corporation during the year.

1.8 Grants

The Corporation recognises grant liabilities as follows.

Most grant agreements require the grantee to perform services or provide facilities, or to meet eligibility criteria. In these cases, liabilities are recognised only to the extent that the services required have been performed or the eligibility criteria have been satisfied by the grantee. (Where grant monies are paid in advance of performance or eligibility, a prepayment is recognised).

In cases where grant agreements are made without conditions to be monitored, liabilities are recognised on signing of the agreement.

1.9 Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution.

1.10 Financial Instruments

Accounting policies for financial instruments are stated at Note 19.

1.11 Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and revenues at their fair value at the date of acquisition.

1.12 Property (Land, Buildings and Infrastructure), Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the Statement of Financial Position, except for purchases costing less than $1,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Revaluations

Land, buildings, infrastructure, plant and equipment are revalued progressively in accordance with the 'deprival' method of valuation in successive 3-year cycles, so that no asset has a value greater than three years old.

Freehold land, buildings on freehold land and leasehold improvements are each revalued progressively on a geographical basis. The current cycles commenced in this 1989-1999.

Plant and equipment assets, furniture and fittings and all information technology assets (not under operating leases) were revalued in 2001-02.

Assets in each class acquired after the commencement of a progressive revaluation cycle are not captured by the progressive revaluation then in progress.

In accordance with the deprival methodology, land is measured at its current market buying price. roperty (other than land), plant and equipment are measured at their depreciated replacement cost. Where assets are held which would not be replaced or are surplus to requirements, measurement is at net realisable value. At 30 June 2002, the Corporation had no assets in this situation.

All valuations are independent.

Recoverable Amount Test

Schedule 1 requires the application of the recoverable amount test to the Corporation's non-current assets in accordance with AAS 10 *Recoverable Amount of Non-Current Assets*. The carrying amounts of these non-current assets have been reviewed to determine

whether they are in excess of their recoverable amounts. In assessing recoverable amounts, the relevant cash flows have been discounted to their present value.

Depreciation and Amortisation

Depreciable property plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the Corporation using, in all cases, the straight-line method of depreciation. Leasehold improvements are amortised on a straight-line basis over the lesser of the estimated useful life of the improvements or the unexpired period of the lease.

Depreciation/amortisation rates (useful lives) and methods are reviewed at each balance date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate. Residual values are re-estimated for a change in prices only when assets are revalued.

Depreciation and amortisation rates applying to each class of depreciable asset are based on the following useful lives:

	2002	2001
Buildings on freehold land	40 years	–
Leasehold improvements	Lease term	Lease term
Plant and equipment	4 to 10 years	4 to 10 years

The aggregate amount of depreciation allocated for each class of asset during the reporting period is disclosed in Note 5D.

1.13 Taxation

The Corporation is exempt from all forms of taxation except fringe benefits tax and the goods and services tax.

1.14 Insurance

The Corporation has insured for risks through the Government's insurable risk managed fund, called 'Comcover'. Workers compensation is insured through Comcare Australia.

1.15 Comparative Figures

Comparative figures have been adjusted to conform to changes in presentation in these financial statements where required.

1.16 Rounding

Amounts have been rounded to the nearest dollar.

Note 2: Economic Dependency

The Cotton Research & Development Corporation was established under the *Primary Industries and Energy Research and Development Act, 1989.*

The Corporation is dependent on appropriations from the Parliament of the Commonwealth for its continued existence and ability to carry out its normal activities.

Note 3: Events Occurring After reporting Date

No matters or circumstances have arisen since the end of the financial year which significantly affected or may affect the operations of the Corporation, the results of these operations or state of affairs of the Corporation in subsequent years.

Note 4: Operating Revenues

	2002 $	2001 $
Note 4A - Revenues from Government		
Commonwealth Contributions	7,208,067	6,773,753
Industry Levies	6,004,553	6,929,850
Total Appropriations	13,212,620	13,703,603
Note 4B - Sales of Goods and Services		
Goods	978	775
	978	775
Goods and services were sold to:		
Government	–	–
Non-Government	978	775
	978	775
Note 4C - Interest		
Deposits	705,840	782,004
	705,840	782,004
Note 4D - Other		
Royalties	717,093	704,418
Project refunds	183,105	360,344
Other	7,069	
	907,267	1,064,762

Note 5: Operating Expenses

	2002 $	2001 $

Note 5A - Employee Expenses

Remuneration (for services provided)	810,814	612,991
Other employee expenses	20,234	70,532
	831,048	683,523

The Corporation contributes to the Commonwealth Superannuation (CSS) and the Public Sector (PSS) Superannuation schemes, which provide retirement, death and disability benefits to employees. Contributions to the schemes are at rates calculated to cover existing and emerging obligations. Contribution rates are 12.5% of salary (PSS). An additional average 3% is contributed as Employer Productivity Superannuation Contributions.

Note 5B - Supplier Expenses

Supply of goods and services	276,068	230,810
Operating lease rentals	41,487	66,299
	317,555	297,109

Note 5C - Grants Expense

The Corporation makes grants to support the research and development of issues relating to the Australian cotton industry.

NON-PROFIT INSTITUTIONS		
Commonwealth organisations	4,863,923	4,573,807
State departments	3,786,231	3,720,728
Universities and colleges	1,477,202	1,566,021
Other research institutions	2,314,295	2,189,646
Corporate activities	603,713	528,893
	13,045,364	12,579,095
Grants to commercial entities	356,613	284,116
Total	13,401,977	12,863,211

Note 5D - Depreciation and Amortisation

Depreciation of property, plant and equipment	24,507	22,042
Amortisation of leased assets	671	8,065
	25,178	30,107

The aggregate amounts of depreciation or amortisation expensed during the reporting period for each class of depreciable asset are as follows:

Leasehold improvements	671	8,065
Plant and equipment	24,507	22,042
	25,178	30,107

Note 5E – Write-down of assets

Property, plant and equipment – revaluation decrement	33,599	-
	33,599	-

Note 6: Financial Assets

	2002 $	2001 $
Note 6A - Cash		
Cash at bank and on hand	1,436,437	2,515,010
Deposits at call	11,528,858	11,604,357
	12,965,295	14,119,367
Balance of cash as at 30 June shown in the Statement of Cash Flows	12,965,295	14,119,367
Note 6B - Receivables		
Goods and services	393,832	414,415
Less: provision for doubtful debts	-	-
	393,832	414,415
GST receivable	95,887	83,211
Other receivables	2,335,477	1,235,939
	2,825,196	1,733,565
Receivables (gross) are aged as follows:		
Not overdue	2,335,477	1,235,939
Overdue by:		
Less than 30 days	489,719	497,626
30 to 60 days		-
60 to 90 days		-
More than 90 days		-
	2,825,196	1,733,565
	2,825,196	1,733,565

Note 7: Non-Financial Assets

	2002 $	2001 $
Note 7A - Land and Buildings		
Freehold land - at cost	83,667	-
Freehold land - 2002 valuation adjustment	(9,914)	-
Total land	73,753	-
Buildings on freehold land - at cost	246,074	-
Accumulated depreciation	-	-
Buildings on freehold land - 2002 valuation adjustment	(19,827)	
Total buildings	226,247	-
Leasehold improvements - at cost	34,355	34,355
Accumulated amortisation	(34,355)	(33,684)
	-	671
Total Land and Buildings	300,000	671
Note 7B - Infrastructure, Plant and Equipment		
Office Equipment - at cost	68,106	43,246
Accumulated depreciation	(19,517)	(13,406)
Office Equipment - at 1999 – 2002 valuation	48,589	29,840
Computer Equipment - at cost	87,738	59,431
Accumulated depreciation	(51,188)	(28,670)
Computer Equipment - at 1999 -2002 valuation	36,550	30,761
Fixtures & Fittings - at cost	61,434	22,443
Accumulated depreciation	(13,698)	(13,962)
Fixtures & Fittings – at 1999 – 2002 valuation	47,736	8,481
Improvements - at cost	34,355	34,355
Accumulated depreciation	(34,355)	(33,684)
Improvements – at 1999-2002 valuation	-	671
Total Infrastructure, Plant and Equipment	132,875	69,082

The revaluations were in accordance with the revaluation policy stated at Note 1 and were completed in June 2002 by Peter.J.Spackman Valuations Pty. Ltd., an independent valuer.

7C Analysis of Property, Plant and Equipment

TABLE 1 - RECONCILIATION OF THE OPENING AND CLOSING BALANCES OF PROPERTY, PLANT AND EQUIPMENT

	Land	Buildings on freehold land	Buildings leasehold improvement	Total land & buildings	Office equipment	Computer equipment	Fixtures & fittings	Total
	$	$	$	$	$	$	$	$
Gross value as at 1 July 2001	-	-	34,355	34,355	43,246	59,431	22,443	159,475
Additions – Purchase of Assets	83,667	246,074	-	329,741	24,860	28,307	38,991	421,899
Revaluations: write-ups/(write downs)	(9,914)	(19,827)	-	(29,741)	(19,517)	(51,188)	(13,698)	(114,144)
Gross value as at 30 June 2002	73,753	226,247	34,355	334,355	48,589	36,550	47,736	467,230
Accumulated Depreciation/Amortisation as at 1 July 2001	-	-	33,684	33,684	13,405	28,670	13,962	89,721
Depreciation/amortisation charge for the year	-	-	671	671	5,860	16,185	2462	25,178
Revaluations: write-ups/ (write-downs)	-	-	-	-	(19,265)	(44,855)	(16,424)	(80,544)
Accumulated Depreciation/ Amortisation as at 30 June 2002	-	-	34,355	34,355	-	-	-	34,355
Net book value as at 30 June 2002	73,753	226,247	-	300,000	48,589	36,550	47,736	432,875
Net book value as at 1 July 2001	-	-	671	671	29,841	30,761	8,481	69,754

Net revaluation decrements in the table above comprises:

- For land – net revaluation decrement of $9,914
- For buildings on freehold land – a net decrement of $19,827
- For plant and equipment – a net decrement of $3,858

Note 8: Provisions

	2002 $	2001 $
Note 8 - Employee Provisions		
Salaries and wages	30,014	24,372
Leave	128,380	103,406
Superannuation	3,360	2,538
Aggregate employee liability	161,754	130,316
Employee provisions are categorised as follows:		
Current	106,707	87,321
Non-Current	55,047	42,995
	161,754	130,316

Note 9: Payables

Note 9A - Supplier Payables

Trade creditors	80,682	112,916
	80,682	112,916

All supplier payables are current

Note 9B - Grants Payable

Commonwealth organisations	33,000	-
State departments	119,900	58,862
Universities and Colleges	82,035	159,893
Other research institutions	67,949	-
	302,884	218,755

All grants payable are current

Note 10: Equity

Item	Accumulated results		Statutory Funds		Asset revaluation reserve		Total reserves		TOTAL EQUITY	
	2002 $000	2001 $000	2002 $000	2001 $000	2002 $000	2001 $000	2002 $000	2001 $000	2002 $000	2001 $000
Opening balance 1 July	15,460,698	13,783,504							15,460,698	13,783,504
Operating result	217,348	1,677,194							217,348	1,677,194
Closing balance as at 30 June	**15,678,046**	15,460,698							**15,666,986**	15,460,698

Note 11: Cash Flow Reconciliation

	2002 $	2001 $
Reconciliation of operating surplus to net cash provided by operating activities:		
Operating surplus before extraordinary items	217,348	1,677,194
Depreciation and amortisation	25,178	30,107
Write down of non current assets	33,599	-
(Increase)/decrease in receivables	(1,091,631)	(404,637)
(Increase)/decrease in other assets	-	(10,362)
Increase/(decrease) in employee provisions	31,438	29,764
Increase/(decrease) in supplier payables	(32,234)	90,876
Increase/(decrease) in grants payable	84,129	215,755
Net cash from/(used by) operating activities	(732,173)	1,628,697

Note 12: Remote Contingencies

The Corporation has no contingent liabilities of which it is aware.

Note 13: External Financing Arrangements

The Corporation has no existing loan facility arrangements.

Note 14: Director Remuneration

The number of directors of the Corporation included in these Figures are shown below in the relevant remuneration bands		
$Nil - $10,000	2	2
$10,001 - $20,000	5	5
$20,001 - $50,000	1	1
$100,001 - $200,000	1	1

Aggregate amount of superannuation payments in connection with the retirement of directors	–	–
Other remuneration received or due and receivable by directors of the Corporation	257,112	264,547
Total remuneration received or due and receivable by directors of the Corporation:	257,112	264,547

Note 15: Related Party Disclosures

Directors of the Corporation

The Directors of Cotton Research & Development Corporation during the year were:

Bridget Jackson (Chair)
Dick Browne (Vice-Chair)
Ralph Schulzé (Executive Director)
Jeff Bidstrup
Bobbie Brazil
Neil Forrester
Adam Kay
Jim Peacock
Graeme Hamilton

The aggregate remuneration of Directors is disclosed in Note 14.

Other transactions with Directors or Director related entities

The following grants were made to Director related entities. They were approved under the normal terms and conditions of the Corporation. Following full disclosure of their relevant interests, the Directors took part in the decisions of the Board.

	2002 $	2001 $
Grants made to director related entities (CSIRO Entomology, Plant Industry, Land & Water, Textile & Fibre Divisions)	4,863,923	4,573,807

Note 16: Remuneration of Officers

The aggregate amount of total remuneration of Officers shown is

The number of Officers who received or were due to receive total remuneration of $100,000 or more:

	2002 Number	2001 Number
$100,000-$115,000	1	1

The officer remuneration includes all officers concerned with or taking part in the management of the economic entity during 2001-02 except the Executive Director. Details in relation to the Executive Director have been incorporated into Note 14 – Remuneration of Directors.

Note 17: Remuneration of Auditors

	2002	2001
Remuneration to the Auditor-General for auditing the financial statements for the reporting period.	7,150	7,150

No other services were provided by the Auditor-General during the reporting period.

Note 18: Average Staffing Levels

	2002	2001
The average staffing levels for the Corporation during the year were	9.8	6.6

Note 19: Financial Instruments

Note 19A – Terms, conditions and accounting policies

Financial Instrument	Notes	Accounting Policies and methods (including recognition criteria and measurement basis)	Nature of underlying instrument (including significant terms and conditions affecting the amount, timing and certainty of cash flows).
Financial assets		Financial assets are recognised when control over future economic benefits is established and the amount of the benefit can be reliably measured.	
Deposits at call	6A	Deposits are recognised at their normal amounts. Interest is credited to revenue as it accrues.	Temporarily surplus funds, mainly from monthly drawdowns of appropriation, are placed on deposit at call with the Corporation's banker. Interest is earned on the daily balance at the prevailing daily rate for money on call and is paid at month end.
Term Deposit	6A	Term deposits is recognised at cost. Interest is accrued as it is earned.	Term deposits are with various banks as per the Corporation's Investment Policy.
Receivables for goods & services	6B	These receivables are recognised at the nominal amounts due less any provision for bad and doubtful debts. Provisions are made when collection of the debt is judged to be less rather than more likely.	Credit terms are net 14 days (2000–2001: 14 days)
Financial Liabilities		Financial liabilities are recognised when a present obligation to another party is entered into and the amount of the liability can be reliably measured	
Trade creditors	9A	Creditors and accruals are recognised at their nominal amounts, being the amounts at which the liabilities will be settled. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).	Settlement is usually made net 30 days.

Note 19B - Interest Rate Risk

		Floating Interest Rate		*Fixed Interest Rate Maturing In* 1 year or less		1 to 2 years		*Non-Interest Bearing*		*Total*		*Weighted Average Effective Interest Rate*	
		2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001
Financial Instrument	Notes	$	$	$	$	$	$	$	$	$	$	$	$
FINANCIAL ASSETS													
Cash at Bank	6A	-139,870	-6,892							-139,870	-6,892	N/a	N/a
Cash on Hand	6A							500	500	500	500	N/a	N/a
Deposits at call	6A	1,575,807	2,521,403							1,575,807	2,521,403	3.9	4.0
Term Deposits	6A			8,578,858	10,604,356	2,950,000	1,000,000			11,528,858	11,604,356	5.3	5.91
Receivables for goods & services	6B							2,825,196	1,733,565	2,825,196	1,733,565	N/a	N/a
Total		1,435,937	2,514,511	8,578,858	10,604,356	2,950,000	1,000,000	2,825,696	1,734,065	15,790,491	15,852,932		
Total Assets										16,223,366	15,922,685		
FINANCIAL LIABILITIES													
Trade Creditors	9A							80,682	112,916	80,682	112,916	N/a	N/a
Grant Liabilities	9B							302,884	218,755	302,884	218,755	N/a	N/a
Total								383,566	331,671	383,566	331,671	N/a	N/a
Total Liabilities										545,320	461,987		

Note 19C - Net Fair Values of Financial Assets and Liabilities

	Note	2001-02 Aggregate net fair value $	2000-01 Aggregate net fair value $
FINANCIAL ASSETS			
Cash at Bank	6A	(139,870)	(6,892)
Cash on Hand	6A	500	500
Deposits on call	6A	1,575,807	2,521,402
Term Deposits	6A	11,528,858	11,604,357
Receivables for Goods and Services	6B	2,825,196	1,733,565
		15,790,491	15,852,932
FINANCIAL LIABILITIES			
Trade Creditors	9A	80,682	112,916
Grant Liabilities	9B	302,884	218,755
		383,566	331,671

Financial assets

The net fair values of cash, deposits on call and non-interest-bearing monetary financial assets approximate their carrying amounts.

Financial liabilities

The net fair values for trade creditors and grant liabilities, all of which are short-term in nature, are approximated by their carrying amounts.

Note 19D - Credit Risk Exposures

The Corporation's maximum exposures to credit risk at reporting date in relation to each class of recognised financial assets is the carrying amount of those assets as indicated in the Statement of Financial Position.
The Corporation has no significant exposures to any concentrations of credit risk.
All figures for credit risk referred to do not take into account the value of any collateral or other security.

Note 20: Reporting of Outcomes

Note 20A – Outcomes of the Corporation

The Corporation is structured to meet the following outcome:

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

Note 20B - Major Corporation Revenues and Expenses by Output Group

Output Group 1	2002 $	2001 $
Operating revenues		
Revenues from Government	7,208,067	6,773,753
Industry contributions	6,004,553	6,929,850
Sale of goods and services	978	775
Other non-taxation revenues	1,613,107	1,846,766
Total operating revenues	14,826,705	15,551,144
Operating expenses		
Employees	831,048	683,523
Suppliers	317,555	297,109
Grants	13,401,977	12,863,211
Depreciation and amortisation	25,178	30,107
Write-down of assets	33,599	
Total operating expenses	14,609,357	13,873,950

Note 20C - Major Classes of Corporation Assets and Liabilities by Output Group

Output Group	2002 $	2001 $
Output specific Corporation assets		
Goods and services receivable	393,832	414,415
Net GST receivable	95,887	83,211
Land & Buildings	300,000	-
Plant and equipment	132,875	69,753
Total specific Corporation assets	922,594	567,379
Other Corporation assets		
Cash at bank and on hand	1,436,437	2,515,010
Deposits at call	11,528,858	11,604,357
Other receivables	2,335,477	1,235,939
Total other Corporation assets	15,300,772	15,355,306
Output specific Corporation liabilities		
Employees	161,754	130,316
Suppliers	80,682	112,916
Grants	302,884	218,755
Total specific Corporation liabilities	545,320	461,987

Note 20D - Major Classes of Administered Revenues and Expenses by Outcome

No administered revenue or expenses were incurred.

Note 20E - Major Classes of Administered Assets and Liabilities by Outcome

No administered assets or liabilities were incurred.

Appendixes

Cotton Research and Development Corporation

crdc

2001-2002
Annual Report

APPENDIX A
THE RESEARCH PROGRAM

During the reporting year the Corporation funded more than 200 research, development, travel, technology transfer, seminar and workshop projects. Agreements for the carrying out of research and development activities are made under Sections 13 and 14 of the *Primary Industries and Energy Research and Development Act 1989*. Corporation grant agreements are contracts entered into with research providers and are established on a whole-of-project-life basis.

The CRDC No. assigned to each project indicates the organisation undertaking the research. Research providers funded during the 2001-02 year are listed below.

Researcher Providers

Code	Organisation
AAW	A & A Williams Pty Ltd
ACEC	Australian Cotton Exhibition Centre
ANU	Australian National University
AWA	Agriculture Western Australia
CRC	Australian Cotton Cooperative Research Centre
CRDC	Cotton Research and Development Corporation
CSE	CSIRO Entomology
CSP	CSIRO Plant Industries
CWT	CSIRO Textile and Fibre Technology
DAN	NSW Agriculture
DAQ	Queensland Department of Primary Industries
DPIF	Department of Primary Industries and Fisheries, Northern Territory

Code	Organisation
FT	4T Consultants Pty Ltd
MCK	McKenzie Soil Management Pty Ltd
NEC	National Centre for Engineering in Agriculture
QUT	Queensland University of Technology
RIR	Rural Industries Research and Development Corporation
SLM	CSIRO Land and Water
UA	University of Adelaide
ULA	LaTrobe University
UNE	University of New England
UQ	University of Queensland
US	University of Sydney
UTS	University of Technology, Sydney
UWS	University of Western Sydney

CRDC PROJECTS 2001-02

Prog	CRDC No	Title	Researcher	Email	Tel	Start Date	Cease Date	Budget 2001-02	
PROGRAM A: INSECT MANAGEMENT									
A	AWA2C	Defining an integrated pest management (IPM) system for INGARD cotton in north-western Australia.	Dr Amanda Annells	aannells@agric.wa.gov.au	08 9166 4061	1/7/99	30/9/02	$90,921	1
A	CRC17C	Post Doc - Sarah Mansfield: Enhancing the impact of early season predation on Helicoverpa spp.	Dr Sarah Mansfield	Sarah.Mansfield@csiro.au	02 6799 1500	16/1/01	16/1/04	$143,085	2
A	CRC30C	Postgraduate - Ingrid Rencken: Role of native vegetation in harboring beneficial insects and reducing insect pest damage in cotton	Ms Ingrid Rencken	irencken@metz.une.edu.au	02 6773 2403	1/1/02	30/4/05	$14,500	3
A	CRC36C	Managing Helicoverpa spp. on cotton with semio(signalling)- chemicals	Dr Chris Moore	chris.moore@dpi.qld.gov.au	07 3362 9482	1/7/01	30/6/04	$99,965	4
A	CRC40C	The comparison of spider communities in cotton around Australia.	Dr Mary Whitehouse	Mary.Whitehouse@csiro.au	02 6799 1538	1/3/02	30/9/03	$23,804	5
A	CRDC112C	Integrated Pest Management (IPM) survey and Roundup Ready survey.				1/7/00	30/9/01	$10,000	6
A	CRDC148C	Review of resistance program projects.				1/7/01	20/6/02	$41,051	7
A	CRDC149C	Survey: INGARD #4.				1/7/00	30/9/01		8
A	CRDC150C	Upgrade of "Pest and Beneficials Guide".				1/7/01	30/6/02	$0	9
A	CRDC151C	INGARD survey (performance report) #5.				1/7/01	30/6/03	$20,000	10
A	CRDC152C	Dog training for detection of heliothis pupae in cotton fields.	Mr Craig Murray	craig@dog-training-specialist.com	07 5530 1120	1/7/01	30/6/02	$13,100	11
A	CRDC153C	The impact of insecticides beneficials. A budget for research outcomes of the beneficials workshop.				1/7/01	30/6/02	$0	12

A	CRDC168C	Survey of aphid management practices 2000/2001.				1/7/00	30/9/01	$5,000	13
A	CRDC171C	Review of spray application research, development, and extension (Dr Steve Parkin).	Dr Steve Parkin	steve.parkin@bbsrc.ac.uk	+44 (0) 1525 864 030	1/7/01	30/6/02	$6,673	14
A	CRDC175C	Heliothis egg collections for the national resistance testing program. (Use & Coordination of $ provided by AIRAC committee of Avcare).	To be appointed			1/7/01	30/6/02	$11,041	15
A	CRDC179C	Australian Cotton Research Institute expansion of insectary.	Mr Bruce Reddan	bruce.reddan@agric.nsw.gov.au	02 6799 1508	1/7/01	30/6/03	$100,000	16
A	CRDC182C	Silverleaf Whitefly knockdown pesticide screen in cotton - Emerald				8/2/02	30/6/02	$16,560	17
A	CRDC183C	Introduction of the exotic parasitoid, Eretmocerus hayati to improve control of silverleaf whitefly	Dr Paul De Barro	paul.debarro@ento.csiro.au	07 3214 2811	11/2/02	30/6/05	$30,300	18
A	CRDC186C	Electrostatic nozzles on aircraft and helicopters	Mr Fred Nolan	gwydir@gwydir.com.au	02 6751 1499	11/3/02	30/6/02	$9,990	19
A	CRDC187C	Silverleaf Whitefly Projects				7/2/02	30/6/02	$0	20
A	CRDC198C	Spray Application Workshop	Mr Bill Gordon	b.gordon@mailbox.uq.edu.au	07 5460 1289	31/5/02	30/6/02	$29,360	21
A	CSE76C	Augmentation and conservation of Helicoverpa parasitoid populations in cotton	Dr Mary Whitehouse	Mary.Whitehouse@csiro.au	02 6799 1538	1/7/98	30/6/02	$0	22
A	CSE82C	Postgraduate - Erica Crone: Characterisation of a potential new insecticidal transgene.	Ms Erica Crone	erica.crone@csiro.au	02 6246 4159	15/3/99	14/3/03	$26,667	23
A	CSE83C	Why is Bemisia tabaci biotype B not a problem in NSW cotton?	Dr Paul De Barro	paul.debarro@ento.csiro.au	07 3214 2811	1/7/99	30/6/02	$102,121	24

A	CSE84C	Insect pest resistance and the role of induced responses to damage in Australian cottons.	Dr Geoffrey Baker	geoff.baker@csiro.au	02 6246 4406	1/7/98	30/6/03	$92,641	25
A	CSE86C	Quantifying behavioural responses of Helicoverpa moths to trap crops for area wide management	Mr Martin Dillon	Martin.Dillon@csiro.au	02 6799 1518	1/7/99	30/6/02	$145,808	26
A	CSE88C	Postgraduate - Michael Zuckerman: Protease resistant insecticidal proteins for controlling Helicoverpa species.	Mr Michael Zuckerman	Michael.Zuckerman@csiro.au	02 6246 4124	1/7/00	31/12/03	$12,083	27
A	CSE89C	Genetics of Bt resistance in Helicpverpa Armigera: Understanding Bt resistance	Dr Rod Mahon	rod.mahon@csiro.au	02 6246 4082	1/7/00	30/6/03	$121,385	28
A	CSE90C	Ecological studies of Helicoverpa populations related to the successful implementation of IPM systems based on Bt transgenic cottons.	Mr Colin Tann	Colin.Tann@csiro.au	02 6799 1500	1/7/00	30/6/03	$136,207	29
A	CSE95C	Honeybee dissemination of Heliothis NPV onto cotton flowers.	Mr Martin Dillon	Martin.Dillon@csiro.au	02 6799 1518	1/7/01	30/6/02	$46,996	30
A	CSE96C	Resistance of helicoverpa armigera to cry2A.	Dr Ray Akhurst	Ray.Akhurst@csiro.au	02 6246 4123	1/7/01	30/6/04	$86,253	31
A	CSE97C	Selection and field efficacy of improved Helicoverpa NPV insecticides for Australian cotton (now DAQ 124C)	Dr Andrew Richards	andrew.richards@ento.csiro.au	02 6246 4114	1/7/01	30/6/04	$18,328	32
A	CSE99C	Major National Research Facilities (MRNF) bid for a containment facility in Brisbane (Bid unsuccessful).				1/7/01	30/6/02	$0	33
A	CSP103C	Management of early season damage and secondary pests in cotton	Dr Lewis Wilson	lewis.wilson@csiro.au	02 6799 1500	1/7/99	30/6/02	$195,800	34
A	CSP145C	Improving understanding of the ecology and management of cotton aphid.	Dr Lewis Wilson	lewis.wilson@csiro.au	02 6799 1500	1/9/01	30/6/04	$99,018	35

A	DAN138C	Insecticide Resistance Management in Bemisia tabaci type B (Silverleaf Whitefly SLW).	Dr Robin Gunning	robin.gunning@agric.nsw.gov.au	02 6763 1128	1/7/99	30/6/02	$51,064	36
A	DAN139C	Pesticide Resistance in Cotton Aphid and Twospotted Mite	Dr Grant Herron	grant.herron@agric.nsw.gov.au	02 4640 6333	1/7/99	31/10/02	$106,706	37
A	DAN140C	Management of Resistance to Conventional Chemicals in Helicoverpa spp.	Dr Robin Gunning	robin.gunning@agric.nsw.gov.au	02 6763 1128	1/7/99	30/6/04	$152,238	38
A	DAN141C	Role of Conventional and Novel Insecticides in Integrated Pest Management in Cotton	Mr Viliami Heimoana	viliamih@mv.pi.csiro.au	02 6799 1516	1/7/99	30/6/02	$144,767	39
A	DAN151C	Conservation and utilisation of beneficial insects and other biological control agents for IPM in cotton II.	Dr Robert Mensah	robert.mensah@agric.nsw.gov.au	02 6799 1525	1/7/01	30/6/04	$155,323	40
A	DAN152C	Resistance monitoring and management of transgenic Bt cotton	Dr Ho Dang	ho.dang@agric.nsw.gov.au	02 6799 1500	1/7/01	30/9/02	$209,962	41
A	DAN155C	Postgraduate - Brendon Griffiths: Simple field based test kit for pyrethroids.	Mr Brendon Griffiths	griffb@bigpond.com	07 4671 5990	1/7/01	30/6/02	$5,480	42
A	DAN158C	Post Doc - Emma Cottage: Mechanisms insecticide resistance in the cotton aphid, Aphis Gossypii.	Dr Emma Cottage	emmacottage@hotmail.com	02 6763 1130	1/10/01	30/6/02	$54,000	43
A	DAQ92C	Postgraduate - David Lea: “Risk factors for silverleaf whitefly outbreaks in cotton”	Mr David Lea	lead@dpi.qld.gov.au	07 4688 1436	1/2/99	30/6/02	$29,000	44
A	DAQ95C	In-field development of novel options for Helicoverpa control in central Queensland	Mr Paul Grundy	Paul.Grundy@dpi.qld.gov.au	07 4992 9172	1/9/99	30/6/02	$85,334	45
A	DAQ96C	IPM in dryland cotton on the Darling Downs	Dr Brad Scholz	Brad.Scholz@dpi.qld.gov.au	07 4688 1312	1/7/99	30/6/02	$130,421	46
A	DAQ97C	Development of trap cropping protocols for heliothis management on cotton in central Queensland	Dr Richard Sequeira	Richard.Sequeira@dpi.qld.gov.au	07 4983 7410	1/7/99	30/6/02	$100,322	47

A	DAQ102C	Risk factors for silverleaf white fly outbreaks in cotton	Mr David Lea	lead@dpi.qld.gov.au	07 4688 1436	1/7/99	30/6/02	$13,900	48
A	DAQ105C	Improved application and formulation of viral biopesticides against Helicoverpa.	Dr Andrew Reeson	andrew.reeson@dpi.qld.gov.au	07 3896 9362	1/7/00	30/6/05	$110,594	49
A	DAQ110C	Pest status and management of shield bugs in cotton	Dr Moazzem Khan	khanm@dpi.qld.gov.au	07 4160 0705	1/7/01	30/6/04	$112,211	50
A	DAQ111C	New biopesticides against emerging sucking pests	Dr David Holdom	holdomd@dpi.qld.gov.au	07 3896 9575	19/6/02	30/6/05	$100,000	51
A	DAQ112C	Heliothis management in south Queensland farming systems	Dr Melina Miles	milesm@dpi.qld.gov.au	07 4688 1369	1/7/01	30/6/04	$70,237	52
A	DAQ113C	Postgraduate - Amanda Cleary: The effect of cereal stubble on Helicoverpa activity in early season cotton.	Miss Amanda Cleary	clearya@dpi.qld.gov.au	07 4688 1262	1/8/01	30/8/04	$29,000	53
A	DAQ116C	Assessment of the potential for resistance to Gemstar.	Dr Caroline Hauxwell	caroline.hauxwell@dpi.qld.gov.au	07 3896 9362	1/7/01	30/6/04	$70,381	54
A	DAQ118C	Monitoring silverleaf whitefly (SLW) (bemisia tabaci type B) in cotton.	Mr Bernard Franzmann	franzmb@dpi.qld.gov.au	07 4688 1313	1/7/01	30/6/02	$48,100	55
A	DAQ119C	Aphid biocontrol in cotton.	Mr Bernard Franzmann	franzmb@dpi.qld.gov.au	07 4688 1313	1/7/01	30/6/02	$60,000	56
A	UNE31C	Postgraduate - Emma Louise Cottage: Management of resistance in Bemisia tabaci to insect growth regulators and juvenile hormone mimics.	Dr Emma Cottage	emmacottage@hotmail.com	02 6763 1130	1/2/98	30/9/01	$6,000	57
A	UNE33C	Postgraduate - David Britton: Studies of slow-release formulations for semiochemicals in cotton pest management	Mr David Britton	dbritton@metz.une.edu.au	02 6773 3021	1/8/99	31/1/03	$29,000	58
A	UNE36C	Postgraduate - Sam Lowor: Pheromones for occasional pests of cotton.	Mr Samuel Lowor	slowor@metz.une.edu.au	02 6773 3021	1/1/02	30/6/04	$3,718	59

A	UQ26C	Ecology of Trichogramma egg parasites in the Ord River Irrigation Area and thier role in cotton IPM (Project only started Jan 2000).	Prof Myron Zalucki	m.zalucki@mailbox.uq.edu.au	073365 2194	1/7/99	28/2/03	$5,963	60
A	UQ28C	Postgraduate - Andrew Davies: Ecology of the Trichogramma egg parasites in the Ord River Irrigation Area and their role in cotton IPM.	Mr Andrew Davies	apdavies@agric.wa.gov.au	08 9166 4073	28/2/00	27/2/03	$29,000	61
A	UQ29C	Postgraduate - Mark Wade: Biology, ecology and utilisation of the Damsel Bug as a predator in cotton - towards real IPM.	Mr Mark Wade	markrwade@yahoo.com.au	07 3365 7995	28/2/00	27/2/03	$29,000	62
A	UQ30C	Understanding the behaviour of egg laying Helicoverpa moths: New designs for integrated control in cotton.	Dr Paul Cunningham	p.cunningham@mailbox.uq.edu.au	07 3365 1876	1/8/00	30/6/03	$94,966	63
A	UQ31C	The Impact of LDP Spray Application upon the Biological Efficacy of Cotton Insecticides	Dr Jamie Nicholls	jamie.nicholls@mailbox.uq.edu.au	07 5460 1292	1/7/00	30/9/02	$182,245	64
A	UQ32C	Population Genetics of Heliothis Migration, Recruitment and Origins.	Mr Glenn Graham	G.Graham@cpitt.uq.edu.au	07 3365 3519	1/7/00	30/6/03	$103,365	65
A	UWS3C	Evaluation of mineral oils for cotton IPM	Assoc Prof Andrew Beattie	a.beattie@uws.edu.au	02 45701287	1/7/01	30/6/03	$114,341	66
							TOTAL	$4,185,295	
PROGRAM B: DISEASES AND WEEDS									
B	ANU6C	Testing the tomato I-2 resistance gene for its ability to confer Fusarium resistance in cotton	Dr David Jones	jones@rsbs.anu.edu.au	02 6125 4192	1/1/00	27/9/02	$22,995	1
B	CRC18C	Postgraduate - Florian Yan: Cotton soil health: Influences on cotton root diseases.	Florian Yan	floriyan@yahoo.com	02 9351 2935	1/7/00	30/6/03	$29,000	2

B	CRC29C	Postgraduate - John Harvey: Diversity and pathogenicity of Thielaviopsis Basicola (Black Root Rot).	Mr John Harvey	Gearfreak@hotmail.com	07 3366 1442	1/2/01	31/1/04	$40,275	3
B	CRC31C	Postgraduate - Richard Kent: The role of weeds as alternative hosts of Fusarium wilt in cotton.	Mr Richard Kent	rkent@metz.une.edu.au	02 6773 3961	1/1/02	31/12/04	$19,150	4
B	CRDC155C	Large scale field trials of biocontrol agents for control of Fusarium Wilt.	Mr Dallas Gibb	dallas.gibb@agric.nsw.gov.au	02 6799 1547	1/7/01	30/6/02	$157,000	5
B	CRDC167C	Weeds extension material - WeedPAK (See UNE32C).	Dr Stephen Johnson	Stephenj@mv.pi.csiro.au	02 6799 2438	1/7/01	30/6/02	$21,198	6
B	CRDC178C	Equipment for conducting post-emergent herbicide trials using shielded sprayers on problem weeds in the Darling Downs.	Mr Mike Burgis	michael.burgis@cfi.org.au	07 4638 5356	1/7/01	30/6/02	$6,000	7
B	CRDC197C	Capital Item - PCR Machine (Thermal Cycler)	Mr John Harvey	Gearfreak@hotmail.com	07 3366 1442	31/5/02	30/6/02	$9,159	8
B	CSP113C	Australian native cottons as sources of resistance and new pathotypes of fusarium wilt	Dr Bo Wang	Bo.Wang@csiro.au	02 6246 4989	1/1/01	31/12/03	$142,244	9
B	CSP114C	Post Doc - Dr. Helen McFadden: Discovery of genes involved in the expression of cotton resistance responses ot Fusarium wilt by the application of microarray technology	Dr Helen McFadden	Helen.McFadden@csiro.au	02 6246 5377	1/7/00	30/9/03	$145,414	10
B	CSP115C	Targeted expression of genes for manipulation of the systemic acquired resistance responses of cotton for improved tolerance to fungal pathogens	Dr Helen McFadden	Helen.McFadden@csiro.au	02 6246 5377	1/7/00	30/6/03	$127,861	11
B	CSP143C	Identification and management of Bunchy Top syndrome in cotton (Year 2&3 of CRDC121C).	Dr Amelia Reddall	amelia.reddall@csiro.au	02 67 991500	1/7/01	30/6/03	$187,197	12

B	DAN153C	Managing Black Root Rot of Cotton	Dr Om Jhorar	omj@mv.pi.csiro.au	02 6799 1531	1/7/01	30/6/04	$144,749	13
B	DAN154C	Diseases of Cotton VII	Dr David Nehl	davidn@mv.pi.csiro.au	02 6799 1500	1/7/01	30/6/04	$147,943	14
B	DAN156C	Weed management packages for cotton.	Mr Graham Charles	graham.charles@agric.nsw.gov.au	02 6799 1524	1/7/01	31/10/02	$107,599	15
B	DAQ107C	Ecology and development of management strategies for fusarium wilt in cotton.	Dr Joe Kochman	Joe.Kochman@dpi.qld.gov.au	07 4688 1245	1/7/00	30/6/04	$279,188	16
B	DAQ117C	Best Weed Management strategies for dryland cropping systems with cotton. A scoping study (Joint project ACCRC, Weeds CRC).	Dr Ian Taylor	iant@mv.pi.csiro.au	02 6799 2409	1/7/01	30/6/02	$17,500	17
B	MU2C	Postgraduate - Christina Hall: Defence mechanisms of cotton against Fusarium oxysporum f.sp. vasinfectum and control of fusarium wilt.	Ms Christina Hall	c.hall3@pgrad.unimelb.edu.au	03 8344 5039	26/3/02	31/12/04	$14,500	18
B	UNE32C	Ecology and management of Bladder Ketmia (Hibiscus trionum) and other emerging problem Malvaceae weeds.	Dr Stephen Johnson	Stephenj@mv.pi.csiro.au	02 6799 2438	1/1/00	30/6/03	$103,712	19
B	US48C	Postgraduate - Fiona Frances Ballard: "Identification and characterisation of genes for resistance to bacterial bligh in the cotton plant".	Ms Fiona Ballard	fballard@bio.usyd.edu.au	02 9351 4477	1/3/99	30/1/03	$15,249	20
							TOTAL	$1,737,933	
PROGRAM C: SOILS									
C	CLW1C	Environmental impacts of genetically modified cotton on soil biological processes-effects of farming systems	Dr Vadakattu .V.S.R. Gupta	gupta.vadakattu@csiro.au	08 8303 8579	1/7/01	30/6/04	$67,223	1
C	CRC11C	Understanding the salinity threat in cotton growing areas of Australia Phase III - Implementation and Management	Dr John Triantafilis	johnt@acss.usyd.edu.au	02 9351 2398	1/7/99	30/6/02	$194,846	2

C	CRC12C	Long-term effects of cotton rotations on the sustainability of cotton soils II	Mr Nilantha Hulugalle	nilanthah@mv.pi.csiro.au	02 6799 1533	1/7/99	30/6/02	$111,489	3
C	CRC19C	Identification and remediation of nutritional stresses in cotton crops	Dr Ian Rochester	ian.rochester@csiro.au	02 6799 1520	1/7/00	30/6/03	$167,869	4
C	CRC32C	Capital Item: Purchase of Minihizotron for the study of Root dynamics in cotton-based farming systems.	Mr Nilantha Hulugalle	nilanthah@mv.pi.csiro.au	02 6799 1533	1/7/00	30/6/02		5
C	CRC33C	Postgraduate - Simon Speirs: Characterising soil structural stability and form of sodic soil used for cotton production.	Mr Simon Speirs	s.speirs@acss.usyd.edu.au	02 9351 2944	3/9/01	31/12/04	$24,166	6
C	CRDC156C	Cotton trash: hazardous waste	Dr Ivan Kennedy	i.kennedy@acss.usyd.edu.au	02 9351 3392	31/5/02	30/6/03	$100,000	7
C	CRDC185C	Soil Management Training Courses - Hillston	Dr David McKenzie	d.mckenzie@soilmgt.com.au	02 6361 1912	22/4/02	30/4/02	$10,380	8
C	CSP144C	Cool room for ACRI based projects (CSP140C).	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/00	30/6/02		9
C	SLM2C	Management of herbicide effects on soil biological processes essential for plant health and nutrition	Dr Vadakattu .V.S.R. Gupta	gupta.vadakattu@csiro.au	08 8303 8579	1/7/00	30/6/03	$68,292	10
C	US56C	Postgraduate - Sevag Bedrossan: Potassium status and mineralogy of soil in relation to premature senescence in cotton in Northern NSW	Mr Sevag Bedrossian	s.bedrossian@acss.usyd.edu.au	02 9351 2917	1/1/00	1/1/03	$32,000	11
C	US60C	Capital Item: Soil hydraulic measurement apparatus.	Prof Alex McBratney	alex.mcbratney@acss.usyd.edu.au	02 9351 3214	1/7/00	30/6/02		12
							TOTAL	$776,265	

PROGRAM D: WATER									
D	CRC37C	Measuring the influence of water quality on drainage through irrigated cotton soils.	Ms Rachael Zischke	rachael.zischke@nrm.qld.gov.au	07 38969336	1/7/01	30/6/04	$112,925	1
D	CRDC146C	A scoping study on the use of large mobile irrigation systems in the Australian cotton industry.	Dr Steven Raine	raine@usq.edu.au	07 4631 1691	1/5/01	31/7/01		2
D	CRDC157C	Investigation into the feasibility of partial rootzone drying in cotton irrigation systems.				1/7/01	30/6/02	$0	3
D	CRDC158C	Water relations of the cotton plant (CSP).	To be appointed			1/7/01	30/6/04	$100,000	4
D	CSP116C	Developing integrated farm water management for cotton production	Dr Sunil Tennakoon	sunil.tennakoon@csiro.au	02 6799 1536	1/7/00	30/6/03	$109,486	5
D	DAN159C	Improving irrigation management of cotton grown on red soil using subsurface drip irrigation (Continuation of US54C).	Mr Ben O'Brien	bennyob@ozemail.com.au	02 9351 3393	1/1/01	31/12/01	$7,250	6
D	LWA1C	Northern Murray Darling Basin - Deep drainage scoping study (Joint project ACCRC, QDNRM, QDPI, LWA, MDBC).	Mr Peter Day	prday@bigpond.com	08 8278 9288	1/7/01	30/6/02	$5,000	7
D	US62C	Postgraduate - Sam Buchanan: Hydrological impacts of irrigation in the Bourke district.	Mr Sam Buchanan	ua973698@student.adelaide.edu.au	02 9351 2398	1/1/02	31/12/04	$14,500	8
								$349,161	
PROGRAM E: BEST MANAGEMENT PRACTICES AND ENVIRONMENT									
E	AAW1C	1. Enhancement of BMP Manual into an Environmental management System. 2. Development of further BMP Manual modules.	Mr John Williams	allanw@austarnet.com.au	02 93608500	1/7/00	6/30/02	$107,160	1
E	AAW3C	Proposal development for Best Management Practices for managing the quality of Australian cotton post farm gate.	Mr Allan Williams	allanw@austarnet.com.au	02 6793 5301	1/1/02	30/6/02	$9,000	2

E	CRC20C	Bioremediation enzyme for endosulfan sulphate	Dr John Oakeshott	john.oakeshott@csiro.au	02 6246 4157	1/7/00	30/6/03	$67,899	3
E	CRDC24C	Best Management Practice	Mrs Rachel Holloway	rachel@crdc.com.au	02 6792 4088	1/7/97	30/6/02	$157,882	4
E	CRDC69C	Cotton Industry Codex Representation.	Mr Kevin Bodnaruk	akc_con@zip.com.au	02 9499 3833	1/2/01	1/2/02	$3,899	5
E	CRDC110C	Cotton Industry Best Management Practice Audit Office.	Mrs Jon-Maree Baker	bmp_auditoffice@northnet.com.au	02 6792 5460	1/7/99	31/3/02	$55,200	6
E	CRDC129c	Cotton Industry Environmental Audit - Scoping Study.				1/7/00	30/6/02	$0	7
E	CRDC159C	Biodiversity on the cotton farm.				1/7/01	30/6/02	$0	8
E	CRDC160C	Environment Audit II				1/7/01	30/6/02	$0	9
E	CRDC161C	BMP Harvest, ginning & shipping: A scoping study (see AAW3C)				1/7/01	30/6/02	$0	10
E	CRDC188C	Map Products for Cotton Biodiversity Project	Mr Bruce Peasley	bpeasley@dlwc.now.gov.au	02 6722 1800	8/4/02	30/6/02	$2,000	11
E	CRDC189C	Biodiversity in the Australian Cotton Industry: A literature review	Assoc Prof Nick Reid	nrei3@metz.une.edu.au	02 6773 2759	18/4/02	31/10/02	$20,000	12
E	DAQ98C	Improved pesticide application performance	Mr Peter Hughes	peter.hughes@dpi.qld.gov.au	07 4688 1564	1/7/99	30/9/02	$120,750	13
E	UCQ1C	Postgraduate - Adam Loch: Estimating the impacts of Best Management Practices on public values for environmental tradeoffs in the Fitzroy Basin.	Mr Adam Loch	adamloch@maxspeed.net.au	07 4987 6637	1/2/02	20/3/02	$0	14
E	UQ27C	Optimisation of large droplet placement (LDP) technology for the aerial application of insecticides in cotton.	Dr Jamie Nicholls	jamie.nicholls@mailbox.uq.edu.au	07 5460 1292	1/7/98	30/9/02	$132,221	15
E	UQ33C	Laboratory and field evaluation of the narrow spectrum Unimizer Nozzle.	Mr Gary Dorr	g.dorr@mailbox.uq.edu.au	07 5460 1173	1/12/01	30/11/02	$59,950	16
E	UTS2C	Relationship between pesticides in Passive Samplers to Riverwater Concentrations and Macroinvertebrate Populations	Mr Alex Leonard	A.Leonard@uts.edu.au	02 9514 4050	1/7/99	30/6/02	$154,000	17
							TOTAL	$889,961	

PROGRAM F: COMMUNITY AND ECONMICS									
F	ACEC1C	The Australian Cotton Exhibition Centre.	Mrs Marion McLeod	marion@turboweb.net.au	02 6792 4088	1/7/00	30/6/02		1
F	CRDC145C	Joint Funded Farm Occupational Health and Safety R&D Programs (RIRDC - continued from CRDC18C).	Assoc Prof Lynette Fragar	lfragar@doh.health.nsw.gov.au	02 6752 8210	1/7/01	30/6/02	$18,000	2
F	CRDC162C	Income and expenses of cotton production - BOYCE Chartered Accountants.				1/7/01	30/6/02	$17,295	3
F	CRDC169C	Biotechnology community education program.				1/7/01	30/6/02	$0	4
F	CRDC170C	ICAA/RIRDC Cost of production joint project.	Mr Philip Thompson	pthompson@boyceca.com	02 6752 7799	1/7/01	30/6/02	$9,091	5
F	CRDC199C	Cotton Price Distortions and Exchange Rates and Cotton Prices	Dr George Reeves	greeves@intecon.com.au	02 6248 6699	31/5/02	30/6/02	$16,000	6
							TOTAL	$60,386	
PROGRAM G: PROCESSING AND MARKET									
G	CRDC163C	Examination of available commercial data on NEPS, and traceback to field management.	Mr David Venz	dvenz@bigpond.com	02 6752 9162	1/6/01	30/6/02		1
G	CTFT1C	A Survey of Cotton Wax Contents in Australian Cotton	Dr Stuart Gordon	stuart.gordon@tft.csiro.au	03 5246 4000	1/7/01	30/6/02	$38,397	2
G	CTFT2C	Cotton fineness and Maturity Measurement using the Sirolan-Laserscan.	Dr Geoffrey Naylor	geoff.naylor@csiro.au	03 5246 4000	1/1/02	30/6/03	$52,905	3
G	CTFT3C	Participation in an international interlaboratory trial to develop standard reference cotton samples for fibre fineness and maturity.	Dr Geoffrey Naylor	geoff.naylor@csiro.au	03 5246 4000	1/7/01	30/6/03	$20,000	4
G	CTFT5C	White speck detection in dyed cotton yarn.	Dr Geoffrey Naylor	geoff.naylor@csiro.au	03 5246 4000	1/1/02	30/6/02	$30,000	5

G	CWT4C	Measuring Cotton Fibre Fineness and Maturity using the Sirolan-Laserscan	Dr Geoffrey Naylor	geoff.naylor@csiro.au	03 5246 4000	1/7/99	31/12/01	$0	6
G	CWT6C	Measuring cotton fibre maturity using polarised light microscopy	Dr Stuart Gordon	stuart.gordon@tft.csiro.au	03 5246 4000	1/7/00	30/6/03	$94,029	7
G	NEC7C	Field to Fabric research program	Dr Grant Roberts	ipswicht&cc@hypermax.net.au	07 4631 1394	1/7/00	30/6/03	$179,272	8
							TOTAL	$414,603	
PROGRAM H: PLANT BREEDING AND BIOTECHNOLOGY									
H	ANU4C	Cloning genes to manipulate cotton fibre cellulose production for improved fibre traits.	Dr Joanne Burn	burn@rsbs.anu.edu.au	02 6125 4539	1/7/98	6/2/02	$29,330	1
H	CSE70C	Postgraduate - Constanza Angelucci: Binding sites for the Cry 1 Ac delta-endotoxin of Bacillus Thuringiensis in Helicoverpa Armigera.	Ms Constanza Angelucci	conniea@ento.csiro.au	02 6246 4124	1/7/97	31/12/02	$9,250	2
H	CSP96C	Breeding Improved Cotton Varieties	Dr Greg Constable	greg.constable@csiro.au	02 6799 1522	1/7/98	30/6/03	$326,814	3
H	CSP102C	Isolation of Novel Cotton Promotors to drive the Robust Expression of useful Genes in Transgenic Cotton.	Dr Emmanuelle Faivre-Nitschke	Faivre@pi.csiro.au	02 6246 5395	1/7/98	31/8/02	$0	4
H	CSP105C	Post Doc-Belinda Townsend: Potential for the genetic manipulation of gossypol - A defence chemical with negative impacts on cottonseed products.	Belinda Townsend	B.Townsend@pi.csiro.au	02 6246 5378	1/7/99	30/6/02	$92,755	5
H	CSP117C	Development and evaluation of cottonseed oils with improved nutritional and functional properties.	Dr Qing Liu	qing.liu@csiro.au	02 6246 4919	1/11/00	30/10/03	$111,950	6
H	CSP118C	Manipulating genes to enhance cotton fibre elongation and cellulose synthesis	Dr Yong-Ling Ruan	yong-ling.ruan@csiro.au	02 6246 5470	1/9/00	3/12/03	$91,192	7
H	CSP120C	Genetic characterisation of homoeologous reconbination and chromosome inheritance in G. hirsutum x K genome alien chromosome addition lines	Dr Augusto Becerra	a.becerra@pi.csiro.au	02 6246 4984	1/7/00	30/6/03	$104,978	8

H	CSP121C	CSIRO Plant Breeding Fibre Quality Laboratory	Dr Greg Constable	greg.constable@csiro.au	02 6799 1522	1/7/00	30/6/05	$80,935	9
H	CSP122C	CSIRO Field Experiments at ACRI	Dr Greg Constable	greg.constable@csiro.au	02 6799 1522	1/7/00	30/6/05	$86,404	10
H	CSP135C	Postgraduate - To be appointed: Molecular analysis and manipulation of terpene biosynthesis in cotton.	To be appointed			1/1/02	1/1/05	$14,500	11
H	CSP136C	Cotton Biotechnology: Core Program.	Dr Danny Llewellyn	danny.llewellyn@csiro.au	02 6246 5470	1/7/01	1/7/04	$294,375	12
H	CSP137C	Development of a unigene set of cotton clones for general microarray analysis of gene expression in cotton plants.	Dr Yingru Wu	yingru.wu@csiro.au	02 6246 4914	1/7/01	30/9/04	$104,639	13
H	DAQ89C	Cotton Strain and Cultivar testing in Queensland	Mr Gavin Mann	Gavin.Mann@dpi.qld.gov.au	07 4992 9123	1/7/98	30/6/03	$139,010	14
H	MU1C	Transgenic cotton for the control of Fusarium Wilt	Dr Robyn Heath	robynlh@unimelb.edu.au	03 8344 4272	28/2/02	28/2/05	$26,960	15
H	UA7C	Post-Doc - Sharon Orford: Genetic manipulation of fibre quality in Australian cotton	Dr Sharon Orford	sharon.orford@adelaide.edu.au	08 8303 3013	1/7/00	30/6/04	$39,798	16
H	UA8C	Postgraduate - Sven Delaney: Development of gene promoters for cotton fibre development.	Mr Sven Delaney	sven.delaney@adelaide.edu.au	08 8303 3013	1/2/01	31/12/03	$32,000	17
H	UA11C	Postgraduate - Damien Lightfoot: Fibre improvement through modulation of transitions in cotton development.	Mr Damien Lightfoot	ua973698@student.adelaide.edu.au	08 8303 3013	1/3/02	28/2/05	$15,000	18
H	UA12C	Postgraduate - John Humphries: Analysis of TTG1 homologues in cotton for roles in fibre initiation	Mr John Humphries	ua983001@student.adelaide.edu.au	08 8303 3013	11/2/02	11/2/05	$15,000	19
							TOTAL	$1,614,890	

PROGRAM I: FARMING SYSTEMS AND AGRONOMY									
I	CRC34C	Agronomic aspects of Bt efficacy in transgenic cotton.	Dr Ian Rochester	ian.rochester@csiro.au	02 6799 1520	1/7/01	30/6/04	$98,770	1
I	CRDC164C	UNR Harvest alternatives workshop, and field research.				1/7/01	30/6/02		2
I	CSP106C	Enhancing Development, Support and Evaluation of Computerised Decision Support	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/98	30/6/02	$83,673	3
I	CSP123C	Applying cotton crop physiology to production issues	Dr Stephen Milroy	stephen.milroy@csiro.au	02 6799 1500	1/7/00	30/6/03	$136,415	4
I	CSP124C	Predicting and enhancing cotton compensation following pest damage	Dr Tom Lei	tom.lei@csiro.au	02 6799 1500	1/7/00	30/6/03	$179,020	5
I	CSP138C	Refining crop agronomy for dry season cotton production in NW Australia.	Dr Brian Duggan	brian.duggan@csiro.au	08 9166 4059	1/7/01	30/6/04	$152,160	6
I	CSP139C	Application of crop simulation within the Australian cotton industry.	Mr Dirk Richards	Dirk.Richards@csiro.au	02 6799 1500	1/7/01	30/6/04	$113,365	7
I	CSP140C	The impact of temperature extremes on cotton performance.	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/01	30/6/04	$109,790	8
I	CSP141C	Postgraduate - Rose Roche: Training in crop physiology - Functional responses of cotton to environment mediated via internal nitrogen dynamics.	Ms Rose Roche	rose.roche@csiro.au	02 67991500	1/7/01	30/6/04	$29,000	9
I	CSP142C	Phosphorus and potassium nutrition of cotton.	To be appointed			1/7/01	30/6/04	$120,490	10
I	DAN145C	Operational costs for cotton experiments - III	Mr Bruce Reddan	bruce.reddan@agric.nsw.gov.au	02 6799 1508	1/7/99	30/6/02	$102,875	11
I	DAQ104C	GRDC2C - Using seasonal climate forecasts for more effective grain-cotton production systems (joint project)	Mr Graham Harris	harrisg@dpi.qld.gov.au	07 46398886	1/7/99	31/12/03	$50,000	12

I	DNR3C	Integrated Area Wide Management (AWM) in rural landscapes.	Mr Bill Wilkinson	wilkinw@dnr.qld.gov.au	07 4987 9308	1/9/01	1/9/02		13
I	DPIF2C	Investigation of cotton growing at different sites under different farming systems in the Northern Territory.	Mr Andrew Dougal	John.Thomson@nt.gov.au	08 8973 9728	1/7/01	30/6/04	$77,556	14
I	US42C	Development of "Nutrilogic" for Precision Agriculture - a Decision Support System for Agrotechnology transfer in the Cotton Industry	Mr Craig Stewart	c.stewart@agec.usyd.edu.au	02 9351 3706	1/7/98	31/12/01	$0	15
I	US44C	Postgraduate - Craig Stewart: Development of "Nutrilogic" for precision agriculture. A decision support system for agrotechnology transfer in the cotton industry.	Mr Craig Stewart	c.stewart@agec.usyd.edu.au	02 9351 3706	1/7/98	31/12/01	$12,000	16
							TOTAL	$1,265,114	
PROGRAM J: TECHNOLOGY TRANSFER AND EXTENSION									
J	CRC8C	IPM Training Coordinator.	Mr William Dalton	bill.dalton@dpi.qld.gov.au	07 4671 1388	1/4/98	31/12/01	$0	1
J	CRC13C	Trainee Industry Development Officer	Ms Annie Spora	anne.spora@agric.nsw.gov.au		1/7/99	30/6/02	$69,539	2
J	CRC21C	Cotton production systems for Southern NSW (Griffith IDO).	Dr Scott Hardwick	scott.hardwick@grf.clw.csiro.au	02 6960 1547	1/7/00	30/6/03	$96,605	3
J	CRC22C	National Cotton Extension Coordinator	Ms Ingrid Christiansen	ingridc@mv.pi.csiro.au	02 6799 2402	1/7/00	30/6/05	$120,305	4
J	CRC35C	IPM Training Coordinator.	Mr William Dalton	bill.dalton@dpi.qld.gov.au	07 4671 1388	1/1/02	30/6/05	$74,511	5
J	CRC41C	NSW Industry Development Officer (IDO, Trainee)	To be appointed			1/1/02	30/6/04	$45,000	6
J	CRC42C	QLD Industry Development Officer (IDO, Trainee)	To be appointed			1/1/02	30/6/04	$37,500	7
J	CRDC165C	Review of other rural industry extension programs.				1/7/01	30/6/02	$0	8

J	CRDC166C	Economics of production: Benchmarking IPM.				1/7/01	30/6/02	$0	9
J	CRDC174C	An evaluation of the changes in practices and attitudes to Integrated Pest Management (IPM) and Area Wide Management (AWM).	Ms Ingrid Christiansen	ingridc@mv.pi.csiro.au	02 6799 2402	1/7/01	30/6/02	$4,089	10
J	CSP125C	Continued development and field evaluation of micro-computer cotton management packages	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/00	30/6/03	$128,220	11
J	DAN143C	Industry Development Officer - Warren	Ms Kirrily Rourke	kirrily.rourke@agric.nsw.gov.au	02 6847 4507	1/7/99	30/6/02	$92,951	12
J	DAN144C	Industry Development Officer - Gunnedah	Mr Mark Hickman	mark.hickman@agric.nsw.gov.au	02 6742 9279	1/7/99	30/6/02	$101,720	13
J	DAQ100C	Extension Agronomy for Cotton Production in CQ.	Mr David Kelly	David.G.Kelly@dpi.qld.gov.au	07 4983 7411	1/7/99	30/6/04	$105,442	14
J	DAQ114C	Cotton Industry Development Extension Officer - Border Rivers.	Ms Annie Spora	anne.spora@agric.nsw.gov.au		1/7/01	30/6/04	$88,609	15
J	DAQ115C	Cotton Industry Development Extension Officer - Dirranbandi & St. George.	Miss Sarah Kerlin	sarah.kerlin@dpi.qld.gov.au	07 4620 8123	1/7/01	30/6/04	$87,225	16
								$1,051,716	
PROGRAM K: HUMAN RESOURCES									
K	CLW2C	Travel - Dr V. Gupta: Dr Stotzky's Lab, New York, USA	Dr Vadakattu .V.S.R. Gupta	gupta.vadakattu@csiro.au	08 8303 8579	19/10/01	1/10/02	$0	1
K	CRC39C	Travel - Dr Pat Collyer: Chairman of the USA Cotton Disease Council - Review of Australian Fusarium Research.				1/2/02	28/2/02	$3,265	2
K	CRDC172C	Travel: 13th Biennial Australasian Plant Pathology Conference, Cairns, 2001 (Joe Kochman, Dan Klupfel).	Dr Joe Kochman	Joe.Kochman@dpi.qld.gov.au	07 4688 1245	24/9/01	28/9/01	$2,473	3

K	CRDC173C	Sponsorship for the 2004 International Congress of Entomology, Brisbane, Australia.				1/7/01	30/6/02	$4,545	4
K	CRDC176C	Travel - Robin Gunning: Visit to laboratory in Pretoria, South Africa, for the study of esterase involvement.	Dr Robin Gunning	robin.gunning@agric.nsw.gov.au	02 6763 1128	1/11/01	14/12/01	$2,800	5
K	CRDC177C	Travel - Ho Dang: International Conference on Resistance in pest and disease control 2001, Rothamstead, UK.	Dr Ho Dang	ho.dang@agric.nsw.gov.au	02 6799 1500	24/9/01	26/9/01	$4,021	6
K	CRDC180C	Travel - Grant Roberts: 2002 Beltwise Cotton Conference, USA.	Dr Grant Roberts	ipswicht&cc@hypermax.net.au	07 4631 1394	1/1/02	31/1/02	$6,970	7
K	CRDC181C	Travel - Emma Tiller: Visit to ACRI Narrabri	Ms Emma Tiller	emmat@cres.anu.edu.au	02 6125 4759	9/2/02	30/9/02	$900	8
K	CRDC184C	Travel - Dr Curt Brubaker to attend ICGI 2002 workshop, Nanjing, China	Dr Curt Brubaker	Curt.Brubaker@csiro.au	02 6246 5085	3/6/02	7/6/02	$2,975	9
K	CRDC191C	Travel - Whitefly Study Tour to USA - R. Sequeria, H. Millar, D. Parlatto, D. Kelly, P. Grundy	Dr Richard Sequeira	Richard.Sequeira@dpi.qld.gov.au	07 4983 7410	30/5/02	31/7/02	$28,317	10
K	CRDC193C	2002 AFFA Science and Innovation Awards for Young People				1/3/02	30/6/02	$10,909	11
K	CRDC200C	CRC Research Meeting Toowooomba (Postgraduates)				31/5/02	31/7/02	$6,206	12
K	CSE98C	Travel - Ray Akhurst: 4th Pacific Rim Conference on the Biotechnology of Bacillus Thuringiensis and its Environmental Impact.	Dr Ray Akhurst	Ray.Akhurst@csiro.au	02 6246 4123	1/7/01	30/6/02	$6,000	13
K	CSE100C	Travel - Sarah Mansfield: First international symposium on biological control of anthropods, Hawaii, USA.	Dr Sarah Mansfield	Sarah.Mansfield@csiro.au	02 6799 1500	15/9/01	22/9/01	$3,376	14
K	CSP108C	ACRI Computer Network Support	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/98	30/6/02	$107,484	15
K	CSP128C	Enhancing Access to climate and weather data	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/00	30/6/03	$47,600	16

K	CTFT4C	Travel - 2002 Beltwide Cotton Conference USA, & 2002 ITMF Fibre Maturity Working group Meeting, Europe (Part of CWT6C).	Dr Stuart Gordon	stuart.gordon@tft.csiro.au	03 5246 4000	1/7/01	30/6/02	$5,000	17
K	DAN150C	Safety at Harvest (Video Production).	Mr Gus Shaw	gus.shaw@agric.nsw.gov.au	02 6742 9236	1/3/01	30/9/02	$5,000	18
K	RIR8C	Australian Rural Leadersip Program - Course 9, 10	Mr John Quantrill	arlp@interact.net.au	02 6281 0680	1/7/01	30/6/03	$37,500	19
K	UA9C	Honours-John Humphries: A functional analysis of TTG1 regulatory homologues in cotton.	Mr John Humphries	ua983001@student.adelaide.edu.au	08 8303 3013	1/2/01	30/10/01		20
K	UA10C	Honours-Damien Lightfoot: The control of temporal gene expression during cotton fibre development.	Mr Damien Lightfoot	ua973698@student.adelaide.edu.au	08 8303 3013	1/2/01	30/10/01		21
K	UNE35C	Travel - David Britton: International Society for Chemical Ecology 2001 Conference. Lake Tahoe, California, USA	Mr David Britton	dbritton@metz.une.edu.au	02 6773 3021	7/7/01	12/7/01	$4,180	22
K	US55C	UNDERGRADUATE SCHOLARSHIP PROGRAM - Sydney Uni	Mr Les Copeland	l.copeland@acss.usyd.edu.au	02 9351 2935	1/7/99	30/6/04	$6,800	23
K	US61C	Sponsor prize "Proficiency in fourth year agronomy in the B.Sc.Agr. degree program."	Mr Lindsay Campbell	Lindsay.Campbell@cropsci.usyd.edu.au	02 9351 2941	1/7/01	30/6/04	$500	24
							TOTAL	$296,822	212
						GRAND TOTAL		$12,642,146	

CRDC PROJECTS 2002-03

Prog	CRDC No	Title	Researcher	Email	Tel	Start Date	Cease Date	Budget 2002-03
PROGRAM A: INSECT MANAGEMENT								
A	AKC1C	Cotton industry Codex representation and regulatory support.	Mr Kevin Bodnaruk	akc_con@zip.com.au	02 9499 3833	1/7/02	1/2/03	$16,530
A	AWA2C	Defining an integrated pest management (IPM) system for INGARD cotton in north-western Australia.	Dr Amanda Annells	aannells@agric.wa.gov.au	08 9166 4061	1/7/99	30/9/02	$0
A	AWA3C	Development of sustainable pest management practices for Bollgard IITM production in the Kimberley.	Dr Amanda Annells	aannells@agric.wa.gov.au	08 9166 4061	1/7/02	30/6/05	$105,239
A	CRC17C	Post Doc - Sarah Mansfield: Enhancing the impact of early season predation on Helicoverpa spp.	Dr Sarah Mansfield	Sarah.Mansfield@csiro.au	02 6799 1500	16/1/01	16/1/04	$156,632
A	CRC30C	Postgraduate - Ingrid Rencken: Role of native vegetation in harboring beneficial insects and reducing insect pest damage in cotton	Ms Ingrid Rencken	irencken@metz.une.edu.au	02 6773 2403	1/1/02	30/4/05	$29,000
A	CRC36C	Managing Helicoverpa spp. on cotton with semio(signalling)- chemicals	Dr Chris Moore	chris.moore@dpi.qld.gov.au	07 3362 9482	1/7/01	30/6/04	$93,353
A	CRC40C	The comparison of spider communities in cotton around Australia.	Dr Mary Whitehouse	Mary.Whitehouse@csiro.au	02 6799 1538	1/3/02	30/9/03	$0
A	CRC43C	Postgraduate - Gene silencing technologies to control Helicoverpa armigera.	To be appointed			1/1/03	31/12/05	$14,500
A	CRDC151C	INGARD survey (performance report) #5.				1/7/01	30/6/03	$26,500
A	CRDC179C	Australian Cotton Research Institute expansion of insectary.	Mr Bruce Reddan	bruce.reddan@agric.nsw.gov.au	02 6799 1508	1/7/01	30/6/03	
A	CRDC183C	Introduction of the exotic parasitoid, Eretmocerus hayati to improve control of silverleaf whitefly	Dr Paul De Barro	paul.debarro@ento.csiro.au	07 3214 2811	11/2/02	30/6/05	$90,794

A	CRDC207C	Workshop - Thrips Identification at ACRI on 3 October 2002 (Dr Laurence Mound)				19/8/02	3/10/02	$2,000
A	CSE82C	Postgraduate - Erica Crone: Characterisation of a potential new insecticidal transgene.	Ms Erica Crone	erica.crone@csiro.au	02 6246 4159	15/3/99	14/3/03	$2,666
A	CSE84C	Insect pest resistance and the role of induced responses to damage in Australian cottons.	Dr Geoffrey Baker	geoff.baker@csiro.au	02 6246 4406	1/7/98	30/6/03	$105,574
A	CSE88C	Postgraduate - Michael Zuckerman: Protease resistant insecticidal proteins for controlling Helicoverpa species.	Mr Michael Zuckerman	Michael.Zuckerman@csiro.au	02 6246 4124	1/7/00	31/12/03	$30,285
A	CSE89C	Genetics of Bt resistance in Helicpverpa Armigera: Understanding Bt resistance	Dr Rod Mahon	rod.mahon@csiro.au	02 6246 4082	1/7/00	30/6/03	$140,989
A	CSE90C	Ecological studies of Helicoverpa populations related to the successful implementation of IPM systems based on Bt transgenic cottons.	Mr Colin Tann	Colin.Tann@csiro.au	02 6799 1500	1/7/00	30/6/03	$146,111
A	CSE96C	Resistance of helicoverpa armigera to cry2A.	Dr Ray Akhurst	Ray.Akhurst@csiro.au	02 6246 4123	1/7/01	30/6/04	$89,950
A	CSE97C	Selection and field efficacy of improved Helicoverpa NPV insecticides for Australian cotton (now DAQ 124C)	Dr Andrew Richards	andrew.richards@ento.csiro.au	02 6246 4114	1/7/01	30/6/04	$87,388
A	CSE101C	High level Cry1Aac resistance in H. armigera	Dr Ray Akhurst	Ray.Akhurst@csiro.au	02 6246 4123	1/7/02	30/6/04	$92,500
A	CSE102C	Monitoring Bt resistance	Dr Ray Akhurst	Ray.Akhurst@csiro.au	02 6246 4123	1/7/02	30/6/05	$206,722
A	CSE103C	The impact of Area Wide Management (AWM) on beneficial Anthropod and Helicoverpa populations.	Mr Martin Dillon	Martin.Dillon@csiro.au	02 6799 1518	1/7/02	30/6/05	$161,134
A	CSE104C	Potential for the evolution of resistance to Bt by Helicoverpa armigera.	Dr Rod Mahon	rod.mahon@csiro.au	02 6246 4082	1/7/02	30/6/04	$129,788
A	CSP145C	Improving understanding of the ecology and management of cotton aphid.	Dr Lewis Wilson	lewis.wilson@csiro.au	02 6799 1500	1/9/01	30/6/04	$87,265
A	CSP147C	Incorporating aphids, insecticides and early season plant complensation and Integrated Pest Management (IPM).	Dr Lewis Wilson	lewis.wilson@csiro.au	02 6799 1500	1/7/02	30/6/05	$171,111

A	DAN139C	Pesticide Resistance in Cotton Aphid and Twospotted Mite	Dr Grant Herron	grant.herron@agric.nsw.gov.au	02 4640 6333	1/7/99	31/10/02	$0
A	DAN140C	Management of Resistance to Conventional Chemicals in Helicoverpa spp.	Dr Robin Gunning	robin.gunning@agric.nsw.gov.au	02 6763 1128	1/7/99	30/6/04	$100,000
A	DAN151C	Conservation and utilisation of beneficial insects and other biological control agents for IPM in cotton II.	Dr Robert Mensah	robert.mensah@agric.nsw.gov.au	02 6799 1525	1/7/01	30/6/04	$156,088
A	DAN152C	Resistance monitoring and management of transgenic Bt cotton	Dr Ho Dang	ho.dang@agric.nsw.gov.au	02 6799 1500	1/7/01	30/9/02	$0
A	DAN160C	Impact and Role of Novel insecticides in Integrated Pest Management	Mr Viliami Heimoana	viliamih@mv.pi.csiro.au	02 6799 1516	1/7/02	30/6/05	$150,000
A	DAN161C	Biochemical mechanisms of resistance to Bacillus thuringiensis endo-toxins in Helicoverpa armigera	Dr Robin Gunning	robin.gunning@agric.nsw.gov.au	02 6763 1128	1/7/02	30/6/04	$35,000
A	DAN162C	Insecticide resistance management in B-biotype Bemisia tabaci	Dr Robin Gunning	robin.gunning@agric.nsw.gov.au	02 6763 1128	1/7/02	30/6/05	$62,102
A	DAN163C	Insecticide Resistance Management in cotton aphid (Aphis gossypii) and cotton mite (Tetranychus urtice)	Dr Grant Herron	grant.herron@agric.nsw.gov.au	02 4640 6333	1/7/02	30/6/05	$106,278
A	DAN164C	Mechanisms of insecticide resistance in the cotton aphid, Aphis gossypii	Dr Emma Cottage	emmacottage@hotmail.com	02 6763 1130	1/7/02	30/6/04	$81,860
A	DAQ105C	Improved application and formulation of viral biopesticides against Helicoverpa.	Dr Andrew Reeson	andrew.reeson@dpi.qld.gov.au	07 3896 9362	1/7/00	30/6/05	$117,815
A	DAQ110C	Pest status and management of shield bugs in cotton	Dr Moazzem Khan	khanm@dpi.qld.gov.au	07 4160 0705	1/7/01	30/6/04	$133,664
A	DAQ111C	New biopesticides against emerging sucking pests	Dr David Holdom	holdomd@dpi.qld.gov.au	07 3896 9575	19/6/02	30/6/05	$0
A	DAQ112C	Heliothis management in south Queensland farming systems	Dr Melina Miles	milesm@dpi.qld.gov.au	07 4688 1369	1/7/01	30/6/04	$73,401
A	DAQ113C	Postgraduate - Amanda Cleary: The effect of cereal stubble on Helicoverpa activity in early season cotton.	Miss Amanda Cleary	clearya@dpi.qld.gov.au	07 4688 1262	1/8/01	30/8/04	$38,000

A	DAQ116C	Assessment of the potential for resistance to Gemstar.	Dr Caroline Hauxwell	caroline.hauxwell@dpi.qld.gov.au	07 3896 9362	1/7/01	30/6/04	$76,166
A	DAQ120C	Cultural control of key cotton pests in central Queensland	Dr Richard Sequeira	Richard.Sequeira@dpi.qld.gov.au	07 4983 7410	1/7/02	30/6/05	$160,000
A	DAQ121C	Aphid bio-control in cotton.	Mr Bernard Franzmann	franzmb@dpi.qld.gov.au	07 4688 1313	1/7/02	30/6/05	$93,630
A	DAQ122C	Development of novel pest management options for cottton in central Queensland.	Mr Paul Grundy	Paul.Grundy@dpi.qld.gov.au	07 4992 9172	1/7/02	30/6/05	$103,395
A	DAQ124C	Selection field efficacy of improved Helicoverpa NPV insecticides for Australian cotton (taken over from CSE97C)				1/1/03	31/12/05	$43,548
A	DAQ125C	Utilising parasitoids in south Queensland cotton	Dr Brad Scholz	Brad.Scholz@dpi.qld.gov.au	07 4688 1312	1/7/02	30/6/03	$60,000
A	UNE33C	Postgraduate - David Britton: Studies of slow-release formulations for semiochemicals in cotton pest management	Mr David Britton	dbritton@metz.une.edu.au	02 6773 3021	1/8/99	31/1/03	$14,000
A	UNE36C	Postgraduate - Sam Lowor: Pheromones for occasional pests of cotton.	Mr Samuel Lowor	slowor@metz.une.edu.au	02 6773 3021	1/1/02	30/6/04	$3,625
A	UQ26C	Ecology of Trichogramma egg parasites in the Ord River Irrigation Area and thier role in cotton IPM (Project only started Jan 2000).	Prof Myron Zalucki	m.zalucki@mailbox.uq.edu.au	073365 2194	1/7/99	28/2/03	$8,348
A	UQ28C	Postgraduate - Andrew Davies: Ecology of the Trichogramma egg parasites in the Ord River Irrigation Area and their role in cotton IPM.	Mr Andrew Davies	apdavies@agric.wa.gov.au	08 9166 4073	28/2/00	27/2/03	$14,500
A	UQ29C	Postgraduate - Mark Wade: Biology, ecology and utilisation of the Damsel Bug as a predator in cotton - towards real IPM.	Mr Mark Wade	markrwade@yahoo.com.au	07 3365 7995	28/2/00	27/2/03	$16,800
A	UQ30C	Understanding the behaviour of egg laying Helicoverpa moths: New designs for integrated control in cotton.	Dr Paul Cunningham	p.cunningham@mailbox.uq.edu.au	07 3365 1876	1/8/00	30/6/03	$98,122
A	UQ31C	The Impact of LDP Spray Application upon the Biological Efficacy of Cotton Insecticides	Dr Jamie Nicholls	jamie.nicholls@mailbox.uq.edu.au	07 5460 1292	1/7/00	30/9/02	$0

A	UQ32C	Population Genetics of Heliothis Migration, Recruitment and Origins.	Mr Glenn Graham	G.Graham@cpitt.uq.edu.au	07 3365 3519	1/7/00	30/6/03	$104,846
A	UWS3C	Evaluation of mineral oils for cotton IPM	Assoc Prof Andrew Beattie	a.beattie@uws.edu.au	02 45701287	1/7/01	30/6/03	$123,033
							TOTAL	**$3,960,252**
		PROGRAM B: DISEASES AND WEEDS						
B	ANU6C	Testing the tomato I-2 resistance gene for its ability to confer Fusarium resistance in cotton	Dr David Jones	jones@rsbs.anu.edu.au	02 6125 4192	1/1/00	27/9/02	$0
B	CRC18C	Postgraduate - Florian Yan: Cotton soil health: Influences on cotton root diseases.	Florian Yan	floriyan@yahoo.com	02 9351 2935	1/7/00	30/6/03	$29,000
B	CRC29C	Postgraduate - John Harvey: Diversity and pathogenicity of Thielaviopsis Basicola (Black Root Rot).	Mr John Harvey	Gearfreak@hotmail.com	07 3366 1442	1/2/01	31/1/04	$40,395
B	CRC31C	Postgraduate - Richard Kent: The role of weeds as alternative hosts of Fusarium wilt in cotton.	Mr Richard Kent	rkent@metz.une.edu.au	02 6773 3961	1/1/02	31/12/04	$37,900
B	CRDC208C	Sponsorship for visiting researcher from USA - training on nematode problems in cotton in conjunction with CRC & CSD	Dr Stephen Allen		02 6799 1530	16/2/03	1/3/03	$750
B	CRDC209C	Assessing a program for post emergent control of problem weeds in cotton using shielded sprayers	Mr John Rochecouste	rochecouste@cpaonline.com.au	07 4635 0824	1/7/02	1/8/03	$60,765
B	CSP113C	Australian native cottons as sources of resistance and new pathotypes of fusarium wilt	Dr Bo Wang	Bo.Wang@csiro.au	02 6246 4989	1/1/01	31/12/03	$146,875
B	CSP114C	Post Doc - Dr. Helen McFadden: Discovery of genes involved in the expression of cotton resistance responses ot Fusarium wilt by the application of microarray technology	Dr Helen McFadden	Helen.McFadden@csiro.au	02 6246 5377	1/7/00	30/9/03	$153,040
B	CSP115C	Targeted expression of genes for manipulation of the systemic acquired resistance responses of cotton for improved tolerance to fungal pathogens	Dr Helen McFadden	Helen.McFadden@csiro.au	02 6246 5377	1/7/00	30/6/03	$135,203

B	CSP143C	Identification and management of Bunchy Top syndrome in cotton (Year 2&3 of CRDC121C).	Dr Amelia Reddall	amelia.reddall@csiro.au	02 67 991500	1/7/01	30/6/03	$195,563
B	CSP148C	Pilot studies to determine the feasibility of potential new directions for work with Fusarium oxysporum f.sp. vasinfectum	Dr Helen McFadden	Helen.McFadden@csiro.au	02 6246 5377	1/7/02	30/6/03	$27,000
B	DAN153C	Managing Black Root Rot of Cotton	Dr Om Jhorar	omj@mv.pi.csiro.au	02 6799 1531	1/7/01	30/6/04	$161,037
B	DAN154C	Diseases of Cotton VII	Dr David Nehl	davidn@mv.pi.csiro.au	02 6799 1500	1/7/01	30/6/04	$140,053
B	DAN156C	Weed management packages for cotton.	Mr Graham Charles	graham.charles@agric.nsw.gov.au	02 6799 1524	1/7/01	31/10/02	$0
B	DAN165C	Capital Funding - Germination/plant growth cabinets	Dr Ian Taylor	iant@mv.pi.csiro.au	02 6799 2409	1/7/02	30/6/03	$52,400
B	DAN171C	Managing problem weeds of irrigated cotton production	Mr Graham Charles	graham.charles@agric.nsw.gov.au	02 6799 1524	1/10/02	30/6/03	$85,883
B	DAQ107C	Ecology and development of management strategies for fusarium wilt in cotton.	Dr Joe Kochman	Joe.Kochman@dpi.qld.gov.au	07 4688 1245	1/7/00	30/6/04	$394,162
B	DAQ123C	Best weed management strategies for dryland cropping systems with cotton	To be appointed			7/1/02	30/6/05	$40,000
B	MU2C	Postgraduate - Christina Hall: Defence mechanisms of cotton against Fusarium oxysporum f.sp. vasinfectum and control of fusarium wilt.	Ms Christina Hall	c.hall3@pgrad.unimelb.edu.au	03 8344 5039	26/3/02	31/12/04	$29,000
B	UNE32C	Ecology and management of Bladder Ketmia (Hibiscus trionum) and other emerging problem Malvaceae weeds.	Dr Stephen Johnson	Stephenj@mv.pi.csiro.au	02 6799 2438	1/1/00	30/6/03	$116,248
B	US48C	Postgraduate - Fiona Frances Ballard: "Identification and characterisation of genes for resistance to bacterial bligh in the cotton plant".	Ms Fiona Ballard	fballard@bio.usyd.edu.au	02 9351 4477	1/3/99	30/1/03	$8,895
							TOTAL	**$1,854,169**

PROGRAM C: SOILS								
C	CLW1C	Environmental impacts of genetically modified cotton on soil biological processes-effects of farming systems	Dr Vadakattu .V.S.R. Gupta	gupta.vadakattu@csiro.au	08 8303 8579	1/7/01	30/6/04	$69,826
C	CRC19C	Identification and remediation of nutritional stresses in cotton crops	Dr Ian Rochester	ian.rochester@csiro.au	02 6799 1520	1/7/00	30/6/03	$175,122
C	CRC33C	Postgraduate - Simon Speirs: Characterising soil structural stability and form of sodic soil used for cotton production.	Mr Simon Speirs	s.speirs@acss.usyd.edu.au	02 9351 2944	3/9/01	31/12/04	$29,000
C	CRC44C	Understanding the salinity threat in irrigated cotton growing areas of Australia - Phase IV - Intepretation and extension	Dr John Triantafilis	johnt@acss.usyd.edu.au	02 9351 2398	1/7/02	30/6/05	$100,000
C	CRC45C	Maintaining profitability and soil quality in cotton farming systems	Mr Nilantha Hulugalle	nilanthah@mv.pi.csiro.au	02 6799 1533	1/7/02	30/6/05	$130,000
C	CRC46C	Cotton Gin Trash and Agroforestry for Sustainable Soil Management	Dr Nilantha Hullugalle	nilanthah.mv.pi.csiro.au	02 67991500	1/7/02	31/12/05	$40,000
C	CRDC156C	Cotton trash: hazardous waste	Dr Ivan Kennedy	i.kennedy@acss.usyd.edu.au	02 9351 3392	31/5/02	30/6/03	
C	CSE105C	The influence of beneficial soil fauna on cotton production and its pests and diseases	Dr Geoffrey Baker	geoff.baker@csiro.au	02 6246 4406	1/7/02	30/6/05	$50,000
C	SLM2C	Management of herbicide effects on soil biological processes essential for plant health and nutrition	Dr Vadakattu .V.S.R. Gupta	gupta.vadakattu@csiro.au	08 8303 8579	1/7/00	30/6/03	$70,205
C	US56C	Postgraduate - Sevag Bedrossan: Potassium status and mineralogy of soil in relation to premature senescence in cotton in Northern NSW	Mr Sevag Bedrossian	s.bedrossian@acss.usyd.edu.au	02 9351 2917	1/1/00	1/1/03	$15,580
C	US64C	Development of measures of soil health	Dr Peter McGee	peterm@bio.usyd.edu.au	02 9351 3392	1/7/02	30/6/05	$91,000
C	US65C	Postgraduate - Diversity of VAM fungi in soil health				1/1/03	31/12/05	$14,500
							TOTAL	**$785,233**

PROGRAM D: WATER								
D	ANU7C	Development of a decision support system for water allocation in the Gwydir and Namoi valleys	Ms Rebecca Letcher	rebecca@cres.anu.edu.au	02 6125 8132	1/9/02	31/8/05	$159,719
D	CRC37C	Measuring the influence of water quality on drainage through irrigated cotton soils.	Ms Rachael Zischke	rachael.zischke@nrm.qld.gov.au	07 38969336	1/7/01	30/6/04	$131,844
D	CRDC158C	Water relations of the cotton plant (CSP).	To be appointed			1/7/01	30/6/04	$110,954
D	CSP116C	Developing integrated farm water management for cotton production	Dr Sunil Tennakoon	sunil.tennakoon@csiro.au	02 6799 1536	1/7/00	30/6/03	$117,290
D	NEC8C	Postgraduate - Simon White. Partial root zone drying and regulated deficit irrigation for cotton using large mobile irrigation schemes	Mr Simon White	simonwhite02@yahoo.com.au	07 4659 8831	1/9/02	31/8/05	$35,200
D	US62C	Postgraduate - Sam Buchanan: Hydrological impacts of irrigation in the Bourke district.	Mr Sam Buchanan	ua973698@student.adelaide.edu.au	02 9351 2398	1/1/02	31/12/04	$29,000
D	US63C	Capital Item- FIA 5000 Automatic flow analyser for anions	Dr Willem Vervoort	w.vervoort@acss.udyd.edu.au	02 9351 8744	1/7/02	30/6/03	$14,250
							TOTAL	$598,257
PROGRAM E: BEST MANAGEMENT PRACTICES AND ENVIRONMENT								
E	AAW4C	Sustainable natural resource management for the Australian Cotton Industry using the Best Management Practices Manual	Mr John Williams	allanw@mpx.com.au	02 93608500	1/7/02	31/12/04	$72,500
E	CRC20C	Bioremediation enzyme for endosulfan sulphate	Dr John Oakeshott	john.oakeshott@csiro.au	02 6246 4157	1/7/00	30/6/03	$69,814
E	CRDC189C	Biodiversity in the Australian Cotton Industry: A literature review	Assoc Prof Nick Reid	nrei3@metz.une.edu.au	02 6773 2759	18/4/02	31/10/02	$0
E	CRDC203C	Multiple-pesticide and odorous degradation product air monitoring in an urban centre surrounded by intensive cotton production	Dr Keith Bentley	kbentley@ozemail.com.au	02 6260 4094	1/7/02	1/4/03	$32,225
E	CRDC206C	Riparian Guidelines (in association with LWA $10k)	Dr Siwan Lovett	siwan.lovett@lwa.gov.au		15/7/02	30/6/03	$55,000
E	DAQ98C	Improved pesticide application performance	Mr Peter Hughes	peter.hughes@dpi.qld.gov.au	07 4688 1564	1/7/99	30/9/02	$0

E	DNR4C	Recording, analysing and mapping of biodiversity in cotton areas of the Emerald Irrigation Area	Mr Bill Wilkinson	wilkinw@dnr.qld.gov.au	07 4987 9308	1/7/02	30/6/04	$79,480
E	FCRC1C	Postgraduate - Aquatic biodiversity and the ecological value of ring-tank water storages on cotton farms	To be appointed			1/7/02	30/6/05	$35,100
E	GCRC3C	Baseline assessment of greenhouse gas emissiones in cotton based farming systems	Dr Peter Grace	prgrace@optusnet.com.au	07 3244 7274	1/7/02	30/6/03	$80,000
E	UQ27C	Optimisation of large droplet placement (LDP) technology for the aerial application of insecticides in cotton.	Dr Jamie Nicholls	jamie.nicholls@mailbox.uq.edu.au	07 5460 1292	1/7/98	30/9/02	$0
E	UQ33C	Laboratory and field evaluation of the narrow spectrum Unimizer Nozzle.	Mr Gary Dorr	g.dorr@mailbox.uq.edu.au	07 5460 1173	1/12/01	30/11/02	$0
							TOTAL	**$424,119**
PROGRAM F: COMMUNITY AND ECONOMICS								
F	CRDC190C	Farm Health and Safety R & D Program				1/7/02	30/6/05	$20,000
							TOTAL	**$20,000**
PROGRAM G: PROCESSING AND MARKET								
G	CTFT2C	Cotton fineness and Maturity Measurement using the Sirolan-Laserscan.	Dr Geoffrey Naylor	geoff.naylor@csiro.au	03 5246 4000	1/1/02	30/6/03	$91,864
G	CTFT3C	Participation in an international interlaboratory trial to develop standard reference cotton samples for fibre fineness and maturity.	Dr Geoffrey Naylor	geoff.naylor@csiro.au	03 5246 4000	1/7/01	30/6/03	$59,688
G	CTFT6C	Improved Quality of Ginned Australian Cotton	Dr Stuart Gordon	stuart.gordon@tft.csiro.au	03 5246 4000	1/7/02	30/6/04	$59,213
G	CWT6C	Measuring cotton fibre maturity using polarised light microscopy	Dr Stuart Gordon	stuart.gordon@tft.csiro.au	03 5246 4000	1/7/00	30/6/03	$125,263
G	NEC7C	Field to Fabric research program	Dr Grant Roberts	ipswicht&cc@hypermax.net.au	07 4631 1394	1/7/00	30/6/03	$150,000
								$486,028

PROGRAM H: PLANT BREEDING AND BIOTECHNOLOGY								
H	CSE70C	Postgraduate - Constanza Angelucci: Binding sites for the Cry 1 Ac delta-endotoxin of Bacillus Thuringiensis in Helicoverpa Armigera.	Ms Constanza Angelucci	conniea@ento.csiro.au	02 6246 4124	1/7/97	31/12/02	
H	CSP96C	Breeding Improved Cotton Varieties	Dr Greg Constable	greg.constable@csiro.au	02 6799 1522	1/7/98	30/6/03	$345,299
H	CSP102C	Isolation of Novel Cotton Promotors to drive the Robust Expression of useful Genes in Transgenic Cotton.	Dr Emmanuelle Faivre-Nitschke	Faivre@pi.csiro.au	02 6246 5395	1/7/98	31/8/02	$0
H	CSP117C	Development and evaluation of cottonseed oils with improved nutritional and functional properties.	Dr Qing Liu	qing.liu@csiro.au	02 6246 4919	1/11/00	30/10/03	$112,000
H	CSP118C	Manipulating genes to enhance cotton fibre elongation and cellulose synthesis	Dr Yong-Ling Ruan	yong-ling.ruan@csiro.au	02 6246 5470	1/9/00	3/12/03	$103,843
H	CSP120C	Genetic characterisation of homoeologous reconbination and chromosome inheritance in G. hirsutum x K genome alien chromosome addition lines	Dr Augusto Becerra	a.becerra@pi.csiro.au	02 6246 4984	1/7/00	30/6/03	$117,977
H	CSP121C	CSIRO Plant Breeding Fibre Quality Laboratory	Dr Greg Constable	greg.constable@csiro.au	02 6799 1522	1/7/00	30/6/05	$83,223
H	CSP122C	CSIRO Field Experiments at ACRI	Dr Greg Constable	greg.constable@csiro.au	02 6799 1522	1/7/00	30/6/05	$88,681
H	CSP135C	Postgraduate - To be appointed: Molecular analysis and manipulation of terpene biosynthesis in cotton.	To be appointed			1/1/02	1/1/05	$29,000
H	CSP136C	Cotton Biotechnology: Core Program.	Dr Danny Llewellyn	danny.llewellyn@csiro.au	02 6246 5470	1/7/01	1/7/04	$315,581
H	CSP137C	Development of a unigene set of cotton clones for general microarray analysis of gene expression in cotton plants.	Dr Yingru Wu	yingru.wu@csiro.au	02 6246 4914	1/7/01	30/9/04	$106,451
H	CSP146C	Postgraduate - Adriane Machado. Gene discovery in cotton fiber initiation and development by comparing cotton lintless mutants to wild type on cotton ovule cDNA microarrays	Mrs Adriane Machado	adriane.machado@csiro.au	02 6246 4942	1/7/02	30/6/05	$29,000

H	CSP149C	Isolation of Novel Cotton Promotors to drive the Robust Expression of useful Genes in Transgenic Cotton	Dr Emmanuelle Faivre-Nitschke	Faivre@pi.csiro.au	02 6246 5395	1/7/02	30/8/04	$98,663
H	CSP154C	Nutritional improvement in cottonseed oils through genetic removal of palmitic acid	Dr Qing Liu	qing.liu@csiro.au	02 6246 4919	1/7/02	30/6/04	$111,616
H	DAQ89C	Cotton Strain and Cultivar testing in Queensland	Mr Gavin Mann	Gavin.Mann@dpi.qld.gov.au	07 4992 9123	1/7/98	30/6/03	$149,811
H	HEX1C	Improving the efficiency of embryogenesis in elite cotton cultivars	Dr Robyn Heath	robynlh@unimelb.edu.au	03 8344 4272	1/7/02	30/6/05	$93,272
H	MU1C	Transgenic cotton for the control of Fusarium Wilt	Dr Robyn Heath	robynlh@unimelb.edu.au	03 8344 4272	28/2/02	28/2/05	$68,938
H	UA7C	Post-Doc - Sharon Orford: Genetic manipulation of fibre quality in Australian cotton	Dr Sharon Orford	sharon.orford@adelaide.edu.au	08 8303 3013	1/7/00	30/6/04	$61,990
H	UA8C	Postgraduate - Sven Delaney: Development of gene promoters for cotton fibre development.	Mr Sven Delaney	sven.delaney@adelaide.edu.au	08 8303 3013	1/2/01	31/12/03	$37,000
H	UA11C	Postgraduate - Damien Lightfoot: Fibre improvement through modulation of transitions in cotton development.	Mr Damien Lightfoot	ua973698@student.adelaide.edu.au	08 8303 3013	1/3/02	28/2/05	$30,000
H	UA12C	Postgraduate - John Humphries: Analysis of TTG1 homologues in cotton for roles in fibre initiation	Mr John Humphries	ua983001@student.adelaide.edu.au	08 8303 3013	11/2/02	11/2/05	$30,000
							TOTAL	**$2,012,345**
PROGRAM I: FARMING SYSTEMS AND AGRONOMY								
I	CRC34C	Agronomic aspects of Bt efficacy in transgenic cotton.	Dr Ian Rochester	ian.rochester@csiro.au	02 6799 1520	1/7/01	30/6/04	$95,902
I	CSP123C	Applying cotton crop physiology to production issues	Dr Stephen Milroy	stephen.milroy@csiro.au	02 6799 1500	1/7/00	30/6/03	$138,865
I	CSP124C	Predicting and enhancing cotton compensation following pest damage	Dr Tom Lei	tom.lei@csiro.au	02 6799 1500	1/7/00	30/6/03	$186,487

I	CSP138C	Refining crop agronomy for dry season cotton production in NW Australia.	Dr Brian Duggan	brian.duggan@csiro.au	08 9166 4059	1/7/01	30/6/04	$157,449
I	CSP139C	Application of crop simulation within the Australian cotton industry.	Mr Dirk Richards	Dirk.Richards@csiro.au	02 6799 1500	1/7/01	30/6/04	$127,274
I	CSP140C	The impact of temperature extremes on cotton performance.	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/01	30/6/04	$97,233
I	CSP141C	Postgraduate - Rose Roche: Training in crop physiology - Functional responses of cotton to environment mediated via internal nitrogen dynamics.	Ms Rose Roche	rose.roche@csiro.au	02 67991500	1/7/01	30/6/04	$30,000
I	CSP142C	Phosphorus and potassium nutrition of cotton.	To be appointed			1/7/01	30/6/04	$119,432
I	CSP150C	Capital - Leaf chamber fluorometer	Dr Tom Lei	tom.lei@csiro.au	02 6799 1500	1/7/02	30/6/03	$18,000
I	DAN166C	Operational Costs for Cotton Experiments	Mr Bruce Reddan	bruce.reddan@agric.nsw.gov.au	02 6799 1508	1/7/02	30/6/05	$84,797
I	DAQ104C	GRDC2C - Using seasonal climate forecasts for more effective grain-cotton production systems (joint project)	Mr Graham Harris	harrisg@dpi.qld.gov.au	07 46398886	1/7/99	31/12/03	$0
I	DNR3C	Integrated Area Wide Management (AWM) in rural landscapes.	Mr Bill Wilkinson	wilkinw@dnr.qld.gov.au	07 4987 9308	1/9/01	1/9/02	
I	DPIF2C	Investigation of cotton growing at different sites under different farming systems in the Northern Territory.	Mr Andrew Dougal	John.Thomson@nt.gov.au	08 8973 9728	1/7/01	30/6/04	$80,234
							TOTAL	**$1,135,673**
PROGRAM J: TECHNOLOGY TRANSFER AND EXTENSION								
J	CRC21C	Cotton production systems for Southern NSW (Griffith IDO).	Dr Scott Hardwick	scott.hardwick@grf.clw.csiro.au	02 6960 1547	1/7/00	30/6/03	$92,900
J	CRC22C	National Cotton Extension Coordinator	Ms Ingrid Christiansen	ingridc@mv.pi.csiro.au	02 6799 2402	1/7/00	30/6/05	$121,755
J	CRC35C	IPM Training Coordinator.	Mr William Dalton	bill.dalton@dpi.qld.gov.au	07 4671 1388	1/1/02	30/6/05	$151,834
J	CRC41C	NSW Industry Development Officer (IDO, Trainee)	Ms Penny van Dongen			1/1/02	30/6/04	$80,800

J	CRC42C	QLD Industry Development Officer (IDO, Trainee)	Ms			1/1/02	30/6/04	$70,877
J	CSP125C	Continued development and field evaluation of micro-computer cotton management packages	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/00	30/6/03	$139,056
J	CSP151C	Support development and independent evaluation of cotton management packages	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/02	30/6/05	$97,757
J	DAN167C	Cotton Industry Development Officer - Lower Namoi	Ms Anne Spora	anne.spora@agric.nsw.gov.au		1/7/02	30/6/05	$103,580
J	DAN168C	Cotton Industry Development Officer - Upper Namoi	Mr Mark Hickman	mark.hickman@agric.nsw.gov.au	02 6742 9279	1/7/02	30/6/05	$120,000
J	DAN169C	Cotton Industry Development Officer - Macquarie	Ms Kirrily Rourke	kirrily.rourke@agric.nsw.gov.au	02 6847 4507	1/7/02	30/6/05	$103,580
J	DAQ100C	Extension Agronomy for Cotton Production in CQ.	Mr David Kelly	David.G.Kelly@dpi.qld.gov.au	07 4983 7411	1/7/99	30/6/04	$98,914
J	DAQ114C	Cotton Industry Development Extension Officer - Border Rivers.	Ms Annie Spora	anne.spora@agric.nsw.gov.au		1/7/01	30/6/04	$94,523
J	DAQ115C	Cotton Industry Development Extension Officer - Dirranbandi & St. George.	Miss Sarah Kerlin	sarah.kerlin@dpi.qld.gov.au	07 4620 8123	1/7/01	30/6/04	$92,636
							TOTAL	**$1,368,212**
PROGRAM K: HUMAN RESOURCES								
K	CLW2C	Travel - Dr V. Gupta: Dr Stotzky's Lab, New York, USA	Dr Vadakattu .V.S.R. Gupta	gupta.vadakattu@csiro.au	08 8303 8579	19/10/01	1/10/02	$2,250
K	CRDC181C	Travel - Emma Tiller: Visit to ACRI Narrabri	Ms Emma Tiller	emmat@cres.anu.edu.au	02 6125 4759	9/2/02	30/9/02	
K	CRDC191C	Travel - Whitefly Study Tour to USA - R. Sequeria, H. Millar, D. Parlatto, D. Kelly, P. Grundy	Dr Richard Sequeira	Richard.Sequeira@dpi.qld.gov.au	07 4983 7410	30/5/02	31/7/02	$1,683
K	CRDC192C	Multiple Pathways at Goondiwindi State High School - an education and industry partnership				1/7/02	30/10/02	$25,000
K	CRDC196C	Wincott Group				1/7/02	30/6/03	$10,000
K	CRDC200C	CRC Research Meeting Toowooomba (Postgraduates)				31/5/02	31/7/02	$3,794

K	CRDC201C	Community Sponsorship to Australian Cotton Conferene, Brisbane Aug 2002				1/7/02	31/8/02	$0
K	CRDC202C	Travel - Dr JK Kochman to attend Conference at the US Cotton Disease Council Colloquium on Fusarium wilt in Australia	Dr Joe Kochman	Joe.Kochman@dpi.qld.gov.au	07 4688 1245	4/1/03	12/1/03	$8,485
K	CRDC204C	Travel - Participation to attend New Zealand Conference (see file for details)				1/7/02	30/6/03	$3,358
K	CRDC205C	Postgraduates - Sponsorship to Brisbane Cotton Conference, 13 -15 August 2002				13/8/02	15/8/02	$6,300
K	CSE106C	Travel: Dr. Ray Akhurst to travel to International Conference on Bacillus thuringiensis, Iguassu, Brazil	Dr Ray Akhurst	Ray.Akhurst@csiro.au	02 6246 4123	1/7/02	30/6/03	$3,300
K	CSP128C	Enhancing Access to climate and weather data	Dr Michael Bange	michael.bange@csiro.au	02 6799 1500	1/7/00	30/6/03	$48,699
K	CSP152C	Travel : Helen McFadden - Attend International congress on Plant Pathology Christchurch NZ	Dr Helen McFadden	Helen.McFadden@csiro.au	02 6246 5377	1/7/02	30/6/03	$2,500
K	CSP153C	ACRI Computing Support	Mr Tony Pfeiffer	anthony.pfeiffer@csiro.au	02 6799 1500	1/7/02	30/6/05	$130,363
K	DAN150C	Safety at Harvest (Video Production).	Mr Gus Shaw	gus.shaw@agric.nsw.gov.au	02 6742 9236	1/3/01	30/9/02	$0
K	DAN170C	Travel: Dr. David Nehl to travel to 8th International Congress of Plant Pathology, Christchurch NZ	Dr David Nehl	davidn@mv.pi.csiro.au	02 6799 1500	1/7/02	30/6/03	$4,515
K	DNR5C	Travel: Bill Wilkinson to travel to Australian Cotton Conference Brisbane	Mr Bill Wilkinson	wilkinw@dnr.qld.gov.au	07 4987 9308	1/7/02	30/6/03	$2,120
K	RIR8C	Australian Rural Leadersip Program - Course 9, 10	Mr John Quantrill	arlp@interact.net.au	02 6281 0680	1/7/01	30/6/03	$42,500
K	US55C	UNDERGRADUATE SCHOLARSHIP PROGRAM - Sydney Uni	Mr Les Copeland	l.copeland@acss.usyd.edu.au	02 9351 2935	1/7/99	30/6/04	$7,100
K	US61C	Sponsor prize "Proficiency in fourth year agronomy in the B.Sc.Agr. degree program."	Mr Lindsay Campbell	Lindsay.Campbell@cropsci.usyd.edu.au	02 9351 2941	1/7/01	30/6/04	$500
							TOTAL	$302,467
							GRAND TOTAL	**$12,946,755**

APPENDIX B ACRONYMS

In the interests of readability and ease of use, the Corporation attempts to avoid acronyms, initialisms and those abbreviations that are not self-explanatory wherever possible. However, some times it is unavoidable. Following is a list of acronyms that are used in the cotton industry or by Government, and/or that may appear in this publication.

AAAA	Aerial Agricultural Association of Australia
ABARE	Australian Bureau of Agricultural and Resource Economics
ACEC	Australian Cotton Exhibition Centre
ACGRA	Australian Cotton Growers' Research Association
ACIC	Australian Cotton Industry Council
ACCRC	Australian Cotton Cooperative Research Centre (also Cotton CRC)
ACRI	Australian Cotton Research Institute (located near Narrabri, NSW)
AFFA	Agriculture Fisheries and Forestry – Australia
ANAO	Australian National Audit Office
ARLP	Australian Rural Leadership Program
ARRIP	Australian Agricultural Research in Progress database
AWA	Agriculture Western Australia (Department of)
AWM	Area Wide Management
BMP	Best Management Practice
BRS	Bureau of Rural Sciences
Bt	*Bacillus thuringiensis* (crystal protein expressed in INGARD® Cotton)
CAC Act	*Commonwealth Authorities and Companies Act 1997*
CCA	Cotton Consultants Australia Inc.
CRC	Cooperative Research Centre
CRDC	Cotton Research and Development Corporation
CSD	Cotton Seed Distributors
CSIRO	Commonwealth Scientific and Industrial Research Organisation

DLWC	Department of Land and Water Conservation (NSW)
DNR	Department of Natural Resources (Queensland)
DOFA	Department of Finance and Administration (Federal)
ESD	Ecologically Sustainable Development
EPA	Environmental Protection Agency (NSW)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
GMAC	Genetic Manipulation Advisory Committee
GOA	Groundrig Operators Association
GRDC	Grains Research and Development Corporation
HRDC	Horticulture Research and Development Corporation (now Horticulture Australia Ltd)
ICAC	International Cotton Advisory Committee
OGTR	Office of the Gene Technology Regulator
IP	Intellectual Property
IPM	Integrated Pest Management
LWRRDC	Land and Water Resources Research and Development Corporation (now Land and Water Australia)
MDBC	Murray-Darling Basin Commission
MLA	Meat and Livestock Australia
MP	Member of Parliament
NFF	National Farmers' Federation
NRA	National Registration Authority for Veterinary and Agricultural Chemicals
NSW Ag	New South Wales Agriculture (Department of)
PIERD Act	*Primary Industries and Energy Research and Development Act 1989*
QDPI	Queensland Department of Primary Industries
RCMAC	Raw Cotton Marketing Advisory Committee
RIRDC	Rural Industries Research and Development Corporation
RRDCC	Rural Research and Development Chairs' Committee
TIMS	Transgenic and Insect Management Strategy committee
TRC	Technology Resource Centre (at the Australian Cotton Research Institute)

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crdc

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