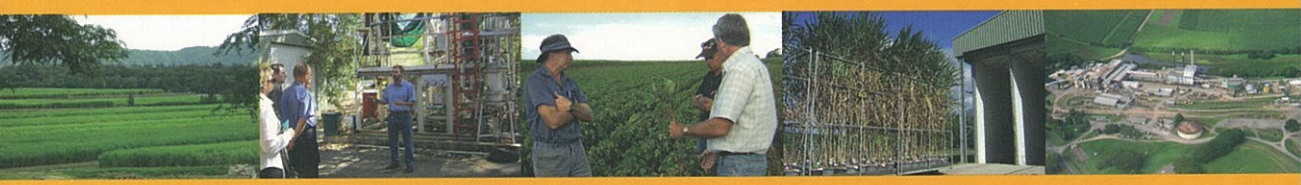
Australian Government

Sugar Research and Development Corporation

Sugar Research and Development Corporation

Annual Report 2004 – 2005



TO THE PARLIAMENTARY SECRETARY

2 September 2005
Senator the Hon. Richard Colbeck
Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Senator Colbeck,

In accordance with the requirements of the *Primary Industries and Energy Research and Development Act 1989* (the PIERD Act), I submit the Annual Report of the Sugar Research and Development Corporation (SRDC) for 2004-05. The activities of the Corporation are reported against the objectives, strategies, outputs and outcomes of the SRDC Research and Development Plan (R&D Plan) 2003–08 and are consistent with the 2004-05 Annual Operational Plan and Portfolio Budget Statement.

The report of operations included in the Annual Report has been made in accordance with a resolution of the Directors of SRDC on 2 September 2005. SRDC Directors are responsible under section 9 of the *Commonwealth Authorities and Companies Act 1997* for the preparation and content of the report of operations in accordance with the Finance Minister's orders.

As required by the PIERD Act, the Board at its meeting in July 2004 reviewed SRDC's R&D Plan 2003–08. As you are aware, the R&D Plan was approved in December 2002 by Senator the Hon Judith Troeth, the then Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry.

Considerable cultural and structural change continues in the sugar industry due to a number of factors including the Governments reform program. The SRDC Board is confident that its R&D Plan 2003–08 remains consistent with the reform initiatives and is continuing to provide a research and development framework to support the reform process. SRDC believes, and has received strong industry endorsement, that systems thinking and improved capacity for innovation, which are the hallmarks of the SRDC Plan 2003–08, are necessary to ensure a sustainable future for the Australian sugar industry.

I commend this report to you.

Yours sincerely,

R G Granger
Chair
Sugar Research and Development Corporation

CONTENTS

PO Box 12050
George Street
Brisbane Q 4003

Telephone: (07) 3210 0495
Facsimile: (07) 3210 0506
Email: srdc@srdc.gov.au
Web: http://www.srdc.gov.au

ISSN 1039-3250

Text design and typesetting by Sun Photoset Pty Ltd, Brisbane
Cover design by AEC Group, Townsville
Printed in Australia by Watson Ferguson & Co, Brisbane

1 2004–05 KEY ACHIEVEMENTS

Aligning harvest payment with actual cost of best harvesting practices.

With SRDC support, the way that harvesting contractors do business is improving rapidly.

With the present payment system, there is no financial incentive for harvester operators to slow the machine down to allow cane to be cleaned more effectively and thus supply higher quality cane. Harvester operators are also faced with considerable variation in costs depending on farm layout and distance to the mill transport sidings.

A collaborative project team covering the areas of Mackay, Maryborough and the Burdekin has determined the actual costs of harvesting so that industry can use this information in their business planning and so maximise the returns to industry. The team developed and tested new payment arrangements. These included some recompense to harvester operators for the additional costs of fuel, time and maintenance for:

- harvesting poorly grown cane,
- harvesting poorly presented cane crops, and
- longer haul distances to transport siding points.

Many harvester operators have negotiated a new payment system for the 2005 harvest period. This comprises a lower fixed base price per tonne of cane, but with all diesel fuel for harvesters and haul-out machines paid directly by the farmer.

The farmer is financially rewarded for low-cost harvesting and penalised for inefficient farm layout and poor crop presentation, whilst the payments to harvester operators are now more aligned with the true costs of harvesting.

Ultimately, it is anticipated that harvest payment systems will be based on the actual cost of the harvesting operation and the quality of cane delivered.

Farming systems research being taken up by cane farmers

Cane farmers across Australia are moving to wider row spacings to better match the wheel-track width of modern tractors and harvesters. Research supported by SRDC in the Sugarcane Yield Decline Joint Venture (SYDJV) showed improved farm profitability and sustainability from controlled traffic farming, minimum tillage and well-grown legume break crops at the end of each cane-cropping cycle.

With conventional cultivation, the rows of cane are compacted by harvesters and haul-out vehicles. The essential repair of soil compaction at the end of the cane-cropping cycle involves intensive cultivation, at significant cost.

With wider row spacing, the rows are not compacted and therefore little or no tillage is needed between crop cycles. Farmers are finding that with wider row cropping the yield of cane is similar but the cost is significantly less due to reduced tillage, less fuel and labour.

Cane farmers are also adopting soybean break crops and capitalising on the research results of the 'Yield Decline' research results. For example, adopting soybean break crops lead to fewer pests and diseases, increased beneficial soil fauna, increased soil nitrogen and improved soil texture.

With the initial move to controlled traffic, there are a number of cane farmers who are now implementing precision farming, where guidance and yield monitoring systems are helping farmers to further reduce their inputs costs.

Increasingly, growers are aware that improved farm management systems, including those based on Environmental Management Systems (EMS) principles, are needed to effectively manage environmental risks and improve profitability. In response to this, CANEGROWERS and SRDC have engaged contractors to develop and roll-out the Farm Management System, sponsored by the National Heritage Fund, across the Australian sugar industry.

New Learning Opportunities

The sugar industry, through SRDC, has invested in a wide range of projects to build the capacity of the sugar industry to improve, learn and innovate.

Sugar industry people have also been eager and willing to learn from producers in industries such as cotton and grains, as well as from growers from other sugar areas.

There is increasing interest in Travel and Learning Opportunity projects (TLOP), which has delivered significant advances in the skills, knowledge, understanding and confidence of people from the growing, harvesting, milling, and research, development and extension sectors of the Australian sugar industry.

An increasing number of young industry people are seeking SRDC support to further themselves within the sugar industry, both through TLOPs as well as scholarships. SRDC scholarship holders are studying a wide range of topics including pest management, environmental issues and biotechnology.

A number of projects focused on enabling industry people to travel to other regions to learn about the latest developments in farming systems, grower groups and other topics. SRDC has helped people visit Brazil, South Africa, Guatemala and Florida, where the latest overseas advances are assessed for their applicability to improve the Australian sugar industry.

AICD Graduation with Minister, the Hon. Warren Truss.

Women in Sugar

During 2004–05, SRDC has partnered with numerous groups and organisations to successfully build the capacity and capability of women within the Australian sugar industry.

Some of the highlights of this initiative are as follows:

- Supporting 2 women from the Australian sugar industry to participate in an Australian Institute of Company Directors course in Canberra, sponsored by the Australian Government Department of

Agriculture, Fisheries and Forestry. Ms Sarah Standen (Manager, CANEGROWERS – Babinda) and Ms Christine Hancock (Manager, CANEGROWERS – Mulgrave) were selected as the sugar industry representatives in the program, and will continue to benefit from the mentoring program throughout 2005–06.

- Representatives of the Bundaberg Women in Sugar group, plus support staff from both BSES and DPI&F, travelled to Narrabri. The purpose was to compare and contrast the sugar and cotton industries. Feedback from the participants was very positive with the majority of survey respondents indicating they have implemented or intend to implement improved farming practices as a result of the trip. These improvements include minimum till, fallow cropping, variety guides, and Best Management Practices in general.

- Members of the Herbert-based Developing Education with Focus on Sugar (DEFOS) group travelled to Warwick to participate in the annual Queensland Women's Rural Network conference. Topics covered included financial management, young women in agriculture, natural resource management issues, climate, and succession planning. The group also visited SRDC in Brisbane as part of the tour. The project provided an excellent networking opportunity with the participants now acknowledging that the challenges and opportunities faced by women in the sugar industry are very similar to those faced by other rural industries in Queensland.

Harvesting for Improved Industry Performance

A review and analysis of all recent research on mechanical harvesting in relation to cane and sugar loss, undertaken by BSES Ltd, SRI and Macarthur Agribusiness, was summarised and published in the SRDC booklet "Cane Harvesting to Improve Industry Performance", which was launched in Bundaberg in February 2005 by Senator the Hon Richard Colbeck, Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry.

The review indicated that there are substantial monetary gains to be made across the Australian sugar industry when implementing harvesting best practice. Harvesting best practice requires that harvesters are operated at lower ground speeds and with reduced primary extractor fan speed in average to large crops to allow cane to be effectively cleaned without high cane loss.

Senator Colbeck also announced a call for projects from regional industry partners to evaluate improved harvesting practices and measure the gains from implementing these. Seventeen proposals were received of which 10 were accepted.

Examples of the projects include:

- Integrating harvester best practice and transport efficiency in Mulgrave,

- Evaluation of a modified chopper to improve bin weights at Bundaberg,

- Evaluating improved harvester payment systems that better reflect the actual costs of harvesting in the Herbert, and

- Evaluation of a low-cost electronic logging system for recording harvest performance parameters at Tully.

The Sugarcane Value Chain

SRDC's investment in "Value Chain Integration" research aims to improve integration and efficiency of operations across the growing, harvest, transport and milling sectors of the Australian sugar industry, at both mill and regional levels.

A project in New South Wales is increasing the profitability and long-term sustainability of the NSW sugar industry by moving towards utilising the whole crop for electricity generation and sugar. Material progress has been achieved in 2004–05, with best management practice for cropping, harvesting and transport systems in the NSW industry compatible with sugar and energy production systems now in place.

In Mackay a whole of value chain management strategy has been implemented to reduce costs and improve profitability for all sectors of the Mackay sugar industry. A computer-based system to integrate components of the value chain has been developed to improve decision-making across the value chain. Some 40 GPS tracking systems have been installed in harvesters and a cane payment system based on near infra-red (NIR) analysis implemented for the 2005 harvest thus allowing better information for harvest and transport management.

In Maryborough and the Burdekin, a team of CSIRO researchers worked with representatives of all industry sectors to predict the economic costs and benefits of a range of scenarios and guide investment decision making. As a result of these analyses, the Local Reference Groups in Maryborough and Burdekin are in a better position to evaluate alternative uses for biomass from the sugarcane crop, and to make well-informed investment decisions.

Excellence in Grower Groups

In April, SRDC presented 6 regional Excellence in Grower Group awards, each of $12,000. Due to the high standard of applications, several encouragement awards were also presented.

In recent years, many Australian sugarcane growers have worked together and formed specific interest groups to explore new and better ways of farming. The process of growers working together is recognised as a powerful way of exploiting the good ideas of people in the group. Members of these groups often state that they are getting significant benefits from the sharing of ideas, from learning better ways of farming and from adopting improved practices on their own farms.

The awards acknowledged innovative grower groups who are identifying, developing, and implementing smart cane farming practices that are more profitable and environmentally sustainable. The awards help grower groups to improve the economic, environmental and social wellbeing both for themselves and their local community. The awards promote the past successes of the groups as well as supporting even greater performance into the future.

The feedback and publicity received as a result of these awards indicates that the successes achieved by these groups have provided great impetus for new groups. This is reflected in the number and standard of applications received for both Grower and Harvester Group Innovation Project initiatives.

Faster selection will bring cost savings and earlier variety releases

For the industry to remain competitive, new cultivars are continually required to maintain pest and disease resistance, and to provide constant improvement in crop productivity and/or quality.

Variety selection programs have been conducted in each region, due to climatic variation and other factors. However, there has been little definitive information about how clones selected in one region performed in others.

A project, involving CSIRO Plant Industry and BSES, grew trials in all sugar-growing regions to determine the most efficient ways of identifying the best new varieties.

The major finding of the project is that clone performance, within any particular region, is highly relevant to other regions.

A key recommendation of the project has already been implemented, in that readily identifiable superior clones are now exchanged between regional programs more quickly, and tested in more advanced trials.

Earlier releases, by 3 to 4 years, of new varieties and faster varietal improvement form the most significant outcomes of this project which concluded in 2005.

2 OVERVIEW OF SRDC IN 2004–05

What SRDC Does

The SRDC R&D Plan 2003–08 documents SRDC's core business and corporate outcome.

SRDC's Core Business is:

To foster an innovative and sustainable Australian sugar industry through targeted investment in research and development

*An **Innovative** sugar industry will build capacity in people to ... Capitalize on and Embrace advances in Science, Engineering and Technology.*

*A **Sustainable** sugar industry will optimally combine the 3 Ps ... Profit (economy), Planet (environment), and People (society).*

SRDC's Corporate Outcome expresses SRDC's overall goal of :

A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.

SRDC invests in research conducted by others rather than carrying out research itself. SRDC takes a strategic view of the needs and opportunities for R&D in the sugar industry, based on feedback from industry, then sources and funds appropriate R&D activities to pursue these opportunities.

SRDC is one of fifteen similar R&D Corporations (RDCs) who invest in the conduct of R&D and implementation of outcomes for Australian rural industries. The features of the RDC model, on which SRDC is based, are outlined below.

Features of the R&D Corporations Model

The rural R&D Corporations (RDCs) take a **leading national role** in planning, investing in and managing R&D for their respective industries.

RDCs are not research "grant" agencies. Their enabling legislation requires them to treat R&D as an **investment in economic, environmental and social benefits** to their industries and to the people of Australia.

Rather than focussing mainly on generating new knowledge for its own sake, RDCs strive to **deliver high rates of return** on R&D investment by influencing the full range of interactions along the innovation chain.

Striving for high returns on investment also leads RDCs to apply significant resources to **translating research outputs into practical outcomes**.

RDCs are required to conduct their activities in accordance with strategic R&D plans and annual operational plans that **take account of the R&D needs of end-users** and other stakeholders. The plans are approved at ministerial level.

Although RDCs fund basic research, **a high proportion of activity is applied R&D** – both short-term and long-term.

RDCs are **fully accountable** to their major stakeholders and to the wider community.

SRDC invests in R&D projects which are categorised under the four programs of the R&D Plan 2003–08, and are described in Table 1 below. Details of the outputs and outcomes of each program are highlighted in Section 4.

SRDC obtains income from levies paid by the sugar industry, matching funds from the Australian Government, and interest. The levy in 2004–05 remained at $0.14 per tonne of sugarcane harvested, divided equally between growers and millers.

Table 1: Programs of the SRDC R&D Plan 2003–08

Program	Title	Goal	Target Profile (% of total R&D investment)
A	Value Chain Integration	Adoption of whole-of-system solutions based on integrated management of the value chain, particularly at mill area and regional levels	20–25
B	Farming Systems	Adoption of sustainable sugarcane production systems based on integrated management of resources at farm level	45–50
C	Processing and Distribution Systems	Adoption of flexible cost-effective systems for sustainable harvest, transport, milling and marketing based on innovative design	15–20
D	Industry Capacity	Building human capacity for change, learning and innovation in the sugar industry	10–15

SRDC's People

SRDC is directed by a Board consisting of a Chair, an Executive Director, a Government Director, and six non-executive Directors. Directors other than the Executive Director are appointed by the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry (Senator the Hon. Richard Colbeck). The Executive Director is appointed by the Board. On 30 April 2005 the six non-executive Directors completed their three-year term. At date of publication five re-appointments have been made and the annual report of the Selection Committee outlining this process is the final page of this Annual Report.

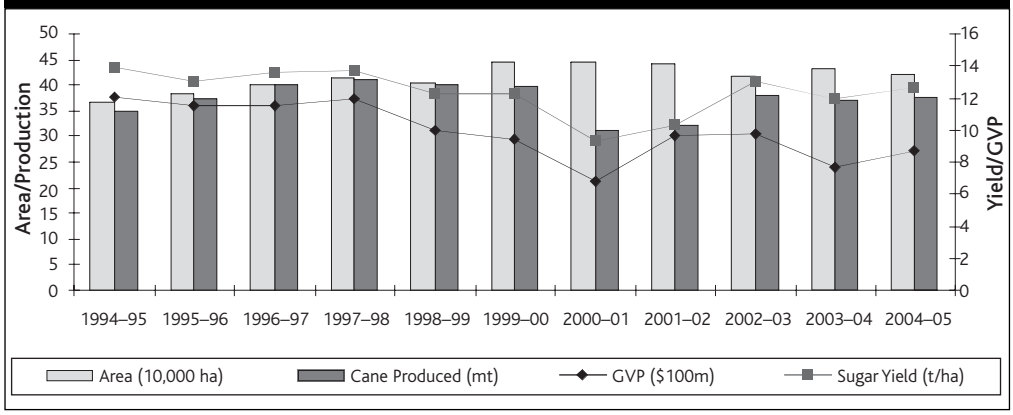
SRDC has five full-time and three part-time staff in addition to the Executive Director. Full details of SRDC staffing are provided in Section 5.

From left: Executive Director Dr Russell Muchow, Sen the Hon Richard Colbeck and SRCD Chair Mr Robert Granger.

SRDC Board (from left): Mr David Williamson, Mr David Braddock, Dr Mac Hogarth, Mr Russell Muchow, Ms Patrice Brown, Dr Mary Corbett, Mr Robert Granger and Mr Andrew Barfield.

A Snapshot of 2004–05

Figure 1: Production and income data for the Australian sugar industry (since 1994)



The area and amount of cane harvested, sugar yield and gross value of production of sugarcane (GVP) for the Australian sugar industry since 1994 are presented in Figure 1.

The area harvested decreased slightly in 2004–05. However, cane production and sugar yield both increased compared to the previous year. Industry income, as measured by GVP, increased, and reflects the increased return per tonne received for the 2004 harvest.

SRDC's project statistics as at 30 June 2005:

The number of projects continues to rise with smaller value projects such as Travel and Learning Opportunity projects increasing. This also reflects the increase in the number of investigators and organisations associated with these projects.

Table 2: SRDC Project Statistics as of 30 June

	30-June-2005	30-June-2004
Projects	133	125
Scholarships	15	14
Project investigators	388	318
Research organisations	77	49

Table 3: Project reports received		
	2004–05	2003–04
Milestone Reports	260	264
Final reports	47	68

SRDC's income and expenditure for 2004–05 compared to that forecast in the Annual Operational Plan are set out in Table 4, below. Full financial statements are included in Section 6.

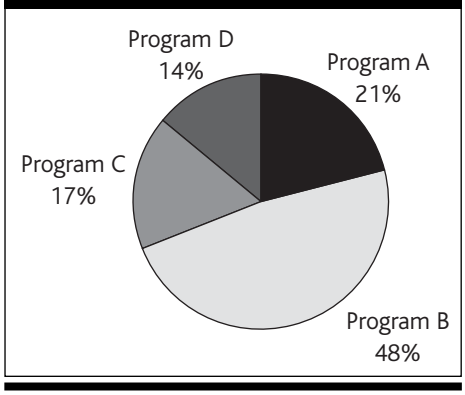
The distribution of project funding across the four programs is illustrated in Figure 2. The allocations across the Programs are currently aligned to those targeted in the SRDC R&D Plan 2003–08.

SRDC's cash reserves at 30 June 2005 were $7.1 million. This is above SRDC's target of reserves equivalent to 50% of the following year's budget. With the current uncertainty of future crop size due to influences of climate, industry reform and restructuring, and of future sugar prices, SRDC's policy is to maintain cash reserves at current levels to cover any unplanned operating deficit as a consequence of crop size and GVP being lower than forecast.

Table 4: Forecast and actual income and expenditure for 2004–05		
	Forecast $m	Actual $m
Income:		
Industry Levies	5.328	5.131
Australian Government PIERD Act Contribution	4.336	3.527
Australian Government FMS Contribution	0.219	0.229
Other	0.410	0.552
Total Income	**10.293**	**9.438**
Expenditure:		
R&D Projects	8.127	7.184
Operation of SRDC	1.552	1.453
Total Expenditure	**9.679**	**8.637**

Sourced from: AOP 2004–05 and approved variation dated 20th January 2005

Figure 2: Distribution of project funding as at 30 June 2005

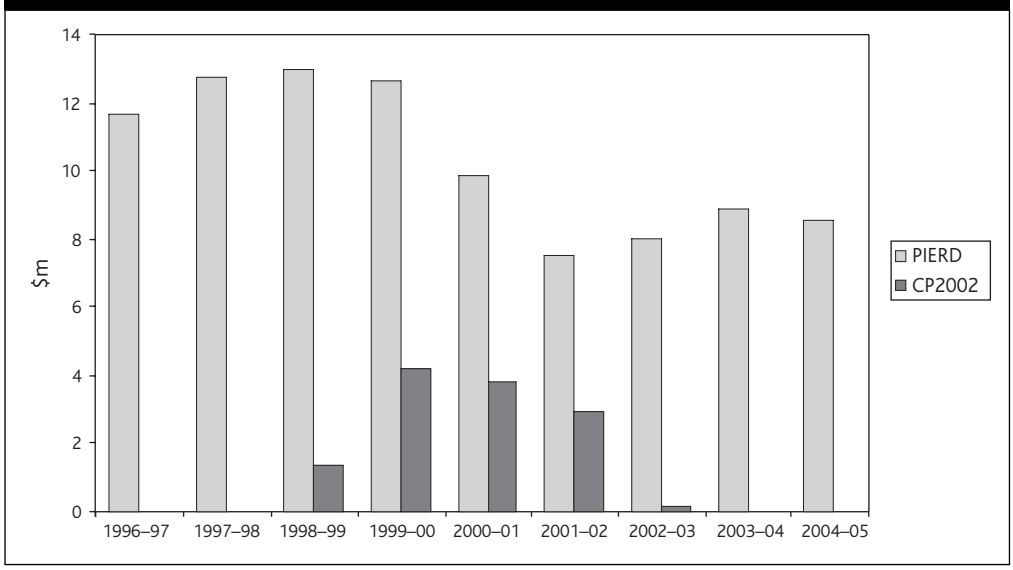


The PIERD Act requires SRDC to make effective use of Australia's scientific resources, and SRDC has significantly expanded the number of organisations involved in sugar R&D from 18 in 1990–91 to our current levels.

Outputs and outcomes from SRDC's investments in 2004–05 (including those realised from investments in earlier years) are documented in Section 4.

Section 4 addresses the achievement of the six key outcomes identified in the R&D Plan 2003–08 in conjunction with the National Research Priorities and the Rural R&D Priorities of the Australian Government, and reports against the performance indicators nominated in the 2004–05 AOP.

Figure 3: SRDC Project Expenditure 1996–97 to 2004–05



Note: CP2002 relates to an additional $13.45 m provided by the Australian Government for R&D between 1990 and 2002.

3 CHAIR AND EXECUTIVE DIRECTORS' REPORT

SRDC Executive Director Dr Russell Muchow and Chair Mr Robert Granger.

The Australian sugar industry continued to face the challenges of international competition throughout 2004–05, with the strong pressure for continued change. SRDC's investments supported industry and Government requests to underpin positive initiatives in support of this requirement. There is an emergence of successes and gains resulting from many R&D projects which, through industry partnerships, are providing the platform for a profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.

International market competition and fluctuating exchange rates were significant factors with the Queensland sugar pool price being $255 per tonne in 2004–05 compared with $232 per tonne in 2003–04. The price, at this early juncture for 2005–06, appears to be heading for greater than $280 per tonne. However with the volatile marketplace, the imperative for change still remains

In response to industry feedback, the Australian Government reform initiative, and longer-term projections, SRDC has continued to invest in R&D in accordance with its R&D Plan 2003–08. We are pleased to report a number of initiatives undertaken in 2004–05.

In August 2004, and again in April 2005, SRDC hosted workshops in all sugarcane regions to consult with industry participants, researchers and the community. These consultations reinforced the current strategic focus of the SRDC investment portfolio. The workshops also highlighted regional successes, facilitated the development of new project opportunities and provided a face-to-face opportunity for stakeholder interaction and feedback.

As part of these workshops, inaugural awards for Regional Excellence in Grower Groups were presented. These awards of $12,000, in each of 6 regions, were presented to groups of growers who were at the forefront of initiating positive change in their regions. SRDC was encouraged by the large number of applications received, which highlighted grass roots innovation within the industry. Consequently, a number of Encouragement Awards of $1000 each were also presented in some regions.

SRDC initiated a new type of project, Group Innovation Projects, in 2004–05. These followed on from the success of the Travel and Learning Opportunity initiative in 2003–04, and allowed industry groups to initiate and lead projects relevant to their specific enterprises. In 2004–05, there were two separate Calls for this type of project. The initial Call followed the launch by Senator Richard Colbeck of the "Cane Harvesting for Improved Industry Performance" Report where harvesting groups were invited to submit proposals designed to road test some of the recommendations of the report. There were 10 successful groups, with

funding totalling more than $450,000 allocated to these projects.

The subsequent Call in 2005 was of a more general nature for grower groups to build capacity in undertaking their own R&D, trials and demonstrations. There was great interest in this Call, with funding of $410,000 contracted for 9 grower groups, from NSW to Far North Queensland. SRDC is keen for all of these groups, whilst seeking to achieve success in their own region, to communicate and exchange ideas with like-minded groups in other regions.

Workshops for all of these groups have been scheduled for 2005–06 to provide an opportunity for reflection, feedback and discussion of past experiences. This will also provide SRDC with guidance and direction for future Calls for Grower Group Innovation Projects.

In view of the changing environment in which SRDC operates, there was also a need to alter the way in which we do business. SRDC has strategically invested in a Knowledge Application Program Manager. This appointment seeks to increase application of the knowledge flowing from R&D investments to underpin change, and to ensure greater stakeholder engagement in developing new R&D opportunities.

SRDC's R&D Plan 2003–08 is closely aligned to the Australian Government's industry reform priorities, the Australian Government's National Research Priorities and the Rural R&D Priorities. These outcomes were reviewed with both industry and government on a regular basis in 2004–05, to ensure that SRDC remains abreast of all stakeholder needs.

Australia has traditionally led the world in the development of sugar industry technology including variety improvement, farm productivity, harvesting, transport, milling and bulk sugar handling. Despite an impressive track record, future viability is not assured through advances in technology alone. SRDC has committed significant funds to the CRC for Sugar Industry Innovation through Biotechnology, as well as other projects to support scientific and technological advances in the biotechnology arena. There are some early breakthroughs, but the potential big ticket successes are still some time off.

Gains in cost efficiency are being achieved by our international competitors through effectively integrating operations across the sugar value chain, which also create more value-adding opportunities. Despite the fact that cost efficiency is critical in determining the future shape of the industry, there are still major impediments, such as history, culture and capacity to change, to overcome. During 2005–06, SRDC has planned a Forum, Workshop and Call for projects to implement improved value chain integration opportunities in the sugarcane industry.

The terms of trade continue to challenge the Australian sugar industry. Over recent years, the world sugar price has not only declined but become more volatile, due to dramatic increases in production in Brazil, and distortions in world markets. SRDC funded a project providing base data that contributed to the successful WTO challenge against EU sugar export subsidies.

The sugar industry cannot afford to ignore increasing community demands for environmentally sustainable performance. Much of the Australian sugar industry is situated adjacent to the Great Barrier Reef lagoon and World Heritage rainforests. There is a growing acceptance in industry of the

fact that improved profits and positive environmental outcomes are not mutually exclusive.

Smart farm management practices are critical to improved economic and environmental performance, along with a greater focus on business management and human capacity. The platform of 75% of growers adopting green-cane trash-blanketing and 68% undertaking minimum tillage operations indicates uptake of R&D investments researching enhanced farming systems.

In addition to other industry commitments during 2004–05, SRDC has partnered with CANEGROWERS in a National Heritage Trust funded project to develop a Farm Management System (FMS) for the sugar industry. This will build upon foundations laid by CRC Sugar, Industry Codes of Practice, COMPASS, Water Use Efficiency programs and a variety of regional programs.

With growers, millers and harvesters needing to embrace change, so must the research community. R&D planning, direction and priorities must reflect the needs and changing goals of industry, particularly where traditional business models are discarded or varied. SRDC continues to foster a partnership approach to R&D with active involvement of industry working with researchers on most projects.

This changing environment, the expansion of grower groups and the influence that travel and learning opportunity projects are having on thinking, provides a complex environment for future R&D.

Within this new and changing environment, there are a few critical success factors which must be embraced. Some of these include:

- strategic leadership,
- a whole-of-system focus,
- increasing responsiveness to market signals,
- environmental responsibility
- social engagement,
- higher performance with reduced resources, and
- stronger partnership and inclusiveness with industry.

SRDC will, as part of its charter, take a strategic leadership position through targeted investments in future R&D outcomes which are aligned to industry and Government priorities. We are encouraged by regions identifying potential areas for gain, through the development of cross-sector R&D partnerships.

Mr RG Granger
Chair

Dr RC Muchow
Executive Director

4 REPORT OF PORTFOLIO OPERATIONS

Achieving the SRDC Outcomes and Addressing Government Priorities

The SRDC Corporate Outcome described in the R&D Plan 2003–08 is:

A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.

In support of SRDC's Corporate Outcome, the R&D Plan 2003–08 outlines six Key Outcomes which SRDC, in collaboration and partnership with its stakeholders, will deliver during the period of the Plan. Additionally, SRDC is required to address both the National Research Priorities and the Rural R&D Priorities of the Australian Government, which were announced in December 2002 and March 2003 respectively. The Rural R&D Priorities are framed within the National Research Priorities and provide a focus on issues relevant to rural industries.

This section provides examples of key achievements from SRDC's investment activities during 2004–05, using the six key outcomes of the SRDC R&D Plan as the framework for an integrated description of achievements.

Outcome 1: An increasing and more reliable cane supply, primarily through the implementation of robust farming systems that enhance economic and environmental performance, and are less vulnerable to the impacts of adverse factors such as disease and climate variability

Increasing the volume and reliability of cane supply is one of the keys to profitability in the sugar industry through maximising returns per unit of costs. This has become more critical in recent years due to lower prices and the impact of drought, disease and alternative land uses on sugarcane production. Whilst acknowledging the economic imperatives, farming practices also need to minimise impacts on the environment and other ecosystems. This requires integrating different elements (including varieties, water and nutrient inputs, pest management and timely operations) into a workable and robust package. Systems thinking and a focus on the implementation of improved practices are therefore critical to success.

A significant proportion of SRDC investment is directed towards this outcome. In reality, SRDC views each aspect of farming systems R&D as elements to be integrated. This addresses the National R&D Priority of an environmentally sustainable Australia together with the complementary Rural R&D Priority of Sustainable Natural Resource Management.

To ensure a productive farming system, it is important to protect the Australian sugar industry from exotic diseases and pests. Investments in this area address the National Research Priority of Safeguarding Australia and the Rural R&D Priority of Protecting Australia from invasive diseases and pests. The sugar industry is vulnerable to attack from invading pests and diseases, considering its location in the tropics adjacent to countries, where sugarcane is grown and its pests are established. SRDC has supported, and will continue to promote, activities to identify potential risks and establish contingency plans to deal effectively with possible incursions. SRDC has also invested substantial funding in recent years on diagnostic and taxonomic

investigations to assist with insect and disease quarantine, and on development of plans to assist in preparation for and management of any invasion.

Having a range of high-performing sugarcane varieties is important for a productive cane farming system. The provision of improved varieties has been a long-term component of the industry's approach to productivity, and continues to be a key area of investment. SRDC is continuing to invest in R&D for genetic improvement, but recognises that the realisation of such genetic gains will only be possible by combining better soil management with timely management of inputs within an integrated farming system.

The SRDC R&D Plan targets closer integration of conventional and biotechnological approaches to the breeding of sugarcane varieties. The sugarcane plant improvement program addresses the National and Rural R&D Priorities of using frontier technologies for building and transforming Australian industries.

Key Achievements to meet Outcome 1

Innovative billet planting moves a step closer

Successful billet planting is a critical step in establishing profitable sugarcane crops.

A major SRDC-funded research project showed that for top quality billet planting, key requirements include:

- Cane must be grown in conditions suitable for producing sound, straight billets, and harvesters must be adapted to minimise damage to the billets. The new booklet *Guide for Sugarcane Planting* discusses how to produce planting material, harvest it optimally and plant the crop to ensure maximum emergence of vigorous shoots.

- Accurate placement of billets by the planter. BSES has produced a prototype of a radical new planter design that shows promise in reducing the volume of planting material by 70–80% while still achieving ideal shoot emergence, although at a lower work rate. For the first time, the planter incorporates precision metering of billets, to replace the crude mass-flow elevating slat-type

metering systems currently in use in the sugar industry. The planter optimises billet drop height and minimises soil disturbance through incorporation of the double-disc soil opener.

The design is still a year or so away from commercial reality but tests this year on Bundaberg and Isis farms provided promising results.

Adapting soybean for profitable rotations in sugarcane farming systems

Recommendations from the results of the SYDJV include the incorporation of other crops into sugarcane rotations, for improved soil health. The introduction of these alternative crops, of which soybeans is one, also creates an opportunity for new revenue streams. Varietal evaluation of new soybean varieties has progressed to a stage where a new variety has been selected and named 'Stuart'.

This variety will be marketed by the Northern Australian Soybean Industry Association, and is protected by Plant Breeders Rights. 'Stuart' will be commercially released later in 2005. 'Stuart' was specifically selected to complement sugarcane rotations in coastal and tropical Queensland by providing a soybean variety with high grain yields of a light-hilum type suited to some higher-value human consumption markets. 'Stuart' is broadly adapted to both summer and winter season cropping in north Queensland and has good resistance to root lesion nematodes, soybean rust, bacterial pustule, bacterial blight, downy mildew and purple seed stain.

Adaptation to both the summer wet season and winter dry season is important to help overcome the problem of poor quality seeds for planting soybean, which is common in the tropics. Dry season crops mature at a time when conditions are highly conducive to production of high quality planting seed, and seed need only be stored for a short time before planting.

Increased profitability and water use efficiency through best use of limited water under supplementary irrigation

Water for irrigation is limited in several areas of the sugar industry. This project aims to maximize sugar yields with minimum water usage. An important finding from the project is that farmers get the greatest benefit from applying much of the available water early in the crop growth period before the wet season. The probability of rainfall during the wet season should be used to weigh the risk of using much of the available water early in the period.

Many growers believe that dry conditions prior to harvest reduce the vigour of the subsequent ratoon. An experiment in the Burdekin showed that drying off between 2 and 7 months in a dry year did not significantly affect growth and yield of the subsequent ratoon, provided the new ratoon was irrigated soon after harvest. The driest treatment was not severe enough to cause stalk death, so this experiment did not represent the extremely dry conditions experienced in many areas during the past two years where stalks and stools were killed by drought.

Lodging is widespread in the Australian sugar industry particularly in the irrigated and high rainfall regions. Previous research has shown that lodging can reduce yields by as much as 25%. While the reduction in growth that occurs after lodging has been well simulated in APSIM-Sugarcane, there has been no documented knowledge of what triggers lodging until now. Rainfall, soil moisture and crop mass criteria for lodging were identified and were incorporated into APSIM-Sugarcane. A paper was published showing how these rules markedly improved yield simulations in experiments where lodging occurred.

The impact of lodging was also assessed in regard to the best time to use limited water in Bundaberg and found that under conditions of limited irrigation, lodging was not a great problem and did not influence irrigation management significantly. However lodging had a significant effect on the yield response to irrigation, and this should be taken into account when making decisions about increasing access to water either through purchasing more allocation or through building on-farm storages.

Implementation of irrigation practices for profitable resource efficient sugarcane production in the Ord

The Ord River Irrigation Area, like most irrigation areas in Australia, is sensitive to over-application of water. A survey of irrigation practices and perception in the Ord revealed that irrigation practices have changed considerably since the original benchmarking survey was conducted in 1996–97. The original survey reported an average water application per crop of 40 ML/ha with an average of 27 irrigations. The most recent survey reported an average usage of 21 ML/ha with 16 irrigations. The SRDC-funded projects in the Ord have been an important factor in reducing irrigation water applications to sugarcane in the Ord.

In 2004–05, there have been some rapid and significant developments in irrigation technology. One grower who followed the original guidelines was pivotal in the development of the ideas now incorporated into the new technology. This grower saved more than 1000 ML over his whole farm by more scientific scheduling of irrigation, based on evapotranspiration potential that determines crop growth rates. The need for a real time, simple and rapid scheduling system became obvious during interactions between growing, extension and science components of the action leaning process. The end result is a web-based scheduling system which automatically downloads hourly weather data from the Ord and works out when the next irrigation should be scheduled for each paddock. The web scheduling system was demonstrated to growers at a workshop in March 2005 and the response was very positive.

Improving the plant breeding selection system for Fiji leaf gall disease resistance

Fiji leaf gall (FLG) is a potentially devastating disease spread by planthoppers. Over the last few years, it has been difficult to obtain reliable ratings on new varieties because the disease has been less prevalent. A new greenhouse/field method for screening clones for resistance to FLG has been successfully developed by BSES. In a recent full scale trial, reliable ratings were obtained for 639 clones. A test of planting trials in autumn was also successful and this will allow greater utilisation of the greenhouse facilities. These results confirm that the greenhouse/field method is a reliable technique that can be implemented in the BSES-CSIRO selection program, and all FLG

resistance trials in the future will use this method. The results from these trials were used in the BSES-CSIRO selection meetings in 2005.

The new technique provides results in six months compared to 18 months for the traditional method. It will allow clones to be screened earlier in the selection program which will make significant improvements in efficiency by eliminating susceptible clones before they are planted in the expensive final-stage yield trials.

Reducing the Australian sugar industry's genetic vulnerability to sugarcane smut

Sugarcane smut is a destructive disease that has spread to all sugarcane producing areas except Fiji, Papua New Guinea and the east coast of Australia. It was first recorded in the Ord River Irrigation Area (ORIA) in Western Australia in July 1998, which has increased the threat to the rest of the Australian industry. However, in order to safeguard sugarcane breeding populations in eastern Australia, keeping laboratory stocks of smut is not permitted. This means that the screening of breeding populations for smut reaction is impossible in eastern Australia.

Screening of Australian clones for resistance to smut is continuing in Indonesia with more than 900 clones already tested. The seventh smut resistance trial, which contains 202 clones, was planted in October 2003 and the plant crop results for this trial are now available. A further 248 clones were dispatched to Indonesia and are now growing in quarantine. A new contract has been negotiated and signed with the Indonesian Sugar Research Institute to conduct an expanded smut screening program. The new program will reduce the generation time for breeding smut resistant clones by 2–3 years. The list of 550 clones for the first shipment of the new program has been prepared. The first shipment from northern Queensland has been sent to Indonesia.

The number of smut-resistant crosses made by BSES increased from 21.9% in 2000 to 72% in 2003. This is largely due to the success of the photoperiod facility that has been dedicated to making smut-resistant crosses. The seed from these crosses has allowed the Central and Burdekin programs to exceed the target of 50% seedlings from resistant crosses in stage-one selection trials and other programs are close to achieving this target. Three promising new smut-resistant Q varieties have been released to growers.

A review of the BSES-CSIRO smut-breeding strategy was conducted by BSES-CSIRO plant breeding and pathology groups. The meeting made a slight adjustment to the target for making resistant crosses. The new target is to make 25% of all crosses in the BSES-CSIRO breeding program between highly resistant parents and 25% of crosses with an intermediate rating for the parents.

A smut quiz and a presentation on smut were prepared and distributed to BSES extension officers. The quiz is an innovative way of assessing grower awareness of the threat from smut and the need to plant resistant varieties. Quizzes have been conducted at five industry meetings and over 90% of growers were able to correctly identify smut. However, only 27% of growers have considered smut resistance when selecting varieties to plant on their farms. Magazine articles have been written to encourage growers to plant smut-resistant varieties. All districts have some resistant and intermediate varieties with growers being encouraged to plant these varieties.

A number of the smut-resistant varieties identified in this project are being propagated in the ORIA for release to growers.

Application of molecular markers to sugarcane breeding

The project is progressing well toward the practical application of DNA markers in Australian sugarcane breeding programs, following three pathways considered to have greatest chance of favourable impact. These are: (i) association mapping, (ii) improving elite crosses, and (iii) introgression of exotic germplasm. All research is being conducted using germplasm relevant to current core breeding programs, and linked to the aims and structure of these programs.

Some highlights in 2004–05 were:

- The most comprehensive genetic linkage map to date in sugarcane was published and QTL mapping in biparental populations has identified genome regions (and markers in those regions) associated with CCS and cane yield components.
- Markers associated with resistance to important diseases have been identified. A second phase of association mapping research is planned with a view to subsequent implementation in commercial breeding programs.
- Clones derived from selfing an elite parent successfully generated progeny in crosses with other elite parents. This result proves the practical feasibility of the approach proposed in this project to improve elite parents and crosses.
- Genetic diversity studies in *S. officinarum* have indicated that the majority of diversity in this species has been captured in commercial parental clones. A set of 20 clones capturing most of the unused diversity has been targeted for future breeding effort.
- Genetic diversity studies in *Erianthus arundinaceus* (a related species to sugarcane with some desirable traits) have shown that the Australian collection (obtained mostly from Indonesia) is very uniform, in contrast to very diverse Chinese material.

Progeny from >100 crosses derived from Chinese *Erianthus spp*. and *S. spontaneum* are being propagated in quarantine, in preparation for use in crosses and establishment in evaluation trials during 2005. Some of these were released from quarantine in May 2005 and planted in trials in the Burdekin region.

Evaluation and re-structuring of regional selection programs to maximise efficiency and speed of cultivar release

Continual delivery of new cultivars is required to maintain resistance to existing and new pests and diseases, and to provide constant improvement in crop productivity, quality and profitability for an internationally competitive sugar industry. Sugarcane breeding comprises two major activities:

- genetic variation, which is created by crossing parents (selected on historical performance of their progeny in the case of proven parents, or performance for heritable traits in trials in the case of new parents), and
- the best clones for release are selected through a multi-stage selection process involving progressively more intense testing of fewer clones over several years in multiple sites.

In Australia, the geographic variation in climate and other conditions in the different regions, the difficulties of moving sugarcane planting material, and differences between regions for some diseases (e.g. the Fiji disease line between the Central and Burdekin regions) had resulted in six cultivar crossing and selection programs. Each of these programs specifically targets the regions of North (inc. Atherton Tableland), Herbert, Burdekin, Central, South and northern NSW. The small Ord irrigation area is serviced via testing and selection of elite clones from all of these other regional trials. Currently crosses are made for each of the four specific regions based on performance of parents (in trials or via progeny performance) in that region. Clones from crosses are initially chosen from small plots in one site per region. Breeders conduct multi-row plot trials across sites and seasons, with intensive testing within regions, and later exchange the most promising clones between regions.

The major outcome will be the earlier release of superior varieties in all regions, not just the region where the variety was originally selected. Protocol alterations should reduce the time from identification of superior varieties outside their region of origin from more than 5 to 2 years. Benefits from this and from the faster rates of genetic gain are economically substantial.

Over the past 20–30 years, many improvements have been made to the technical aspects of crossing and evaluation. With this project and others, the industry is entering a new phase of best-practice breeding analysis utilising industry-wide databases and powerful computer algorithms to better predict performance and interactions of clones among environments and across traits.

Introgression of new genes from Saccharum officinarum

Modern sugarcane cultivars are derived from two main ancestral species: *Saccharum officinarum*, which is the main source of high sucrose levels, and *S. spontaneum*. Only a few clones of either species have ever been incorporated into commercial cane-breeding programs around the world. A collection of *S. officinarum* clones has been characterized for important phenotypic traits and for genetic diversity using DNA markers. This work also provided an opportunity to assess the value of using DNA marker-assisted selection in introgression breeding in sugarcane.

While not deliberately planned at the outset, the work undertaken in this project developed into the largest single effort in genetic and QTL mapping in sugarcane to date. This work has also generated general knowledge about sugarcane genetics, QTL mapping, and potential strategies for marker-assisted breeding in sugarcane, which will have application in sugarcane breeding beyond introgression of *S. officinarum*. Quantitative trait loci controlling CCS was readily detected in all three populations studied. As expected, CCS was found to be controlled through the action of numerous genes or genetic regions, rather than a small number of major genes. The results illustrated how QTL analysis in populations derived from exotic germplasm can be used in detection and introgression of favourable alleles from exotic germplasm, that would not otherwise be apparent based on observations of overall phenotype. However, the results also pointed to challenges in application of marker-assisted breeding, which need to be taken into account, in future programs.

Despite the potential value of an ongoing introgression breeding program based on new *S. officinarum* clones, the genetic diversity study showed that a major proportion of the genetic diversity within *S. officinarum* has already been captured in the core breeding program parents. This is consistent with a hypothesis that *S. officinarum* as a species arose in evolutionary terms relatively recently and from a limited genetic base. For this reason, perhaps major new sources of genetic diversity for sugarcane breeding in the future will more likely arise from other species, especially *S. spontaneum*, and efforts with *S. officinarum* should not override those given to other species.

GrubPlan 2: Developing improved risk assessment and decision-support systems for managing greyback canegrub

Greyback canegrub is the most damaging insect pest of Australian cane. Outbreaks have been unpredictable but this project is developing ways of pre-empting increases in number of the pest, thus allowing more cost-effective control programs. Numbers of grubs and their diseases are being monitored across north Queensland in March each year. Damage has been relatively low in most districts except central Queensland although numbers are increasing in the Mulgrave mill area. Predictions for damage in the Mulgrave area based on previous year estimates proved accurate for the 2004 year. Incidence of the grub pathogen, Adelina, is also increasing across the Mulgrave area, so this may affect the accuracy of predictions for both 2005 and 2006. Diseases were not found in grubs collected in the outbreaks in the Mackay region in 2004.

Other factors such as the size of the crops are collected for the monitored fields and their neighbours. These data together with the incidence of grub pathogens and climatic conditions are being tested for their influence on prediction of grub outbreaks.

A new cropping system for the Central District

The improved cane farming system based on minimum tillage, controlled traffic and well-managed break crops is being evaluated by farmers throughout Central Queensland, which comprises the Mackay, Proserpine and Sarina mill areas. Trials have been established with 15 growers who are implementing the new cropping system. A further 15 growers are involved in trials investigating fallow break crops. These trials will address issues such as varietal suitability, pest and weed control, system changeover costs and machinery modifications. A legume planter has been purchased and has been used by growers to plant 100 hectares of soybean with approximately 60% of the area being zero tillage planting. Field days are an important part of the demonstrations. The impact of the different farming systems on water quality is being assessed by farmers, their advisers and the wider community.

Baseline survey data investigating current knowledge, skills, attitudes and practices for improved farming systems were obtained from both the focus groups and the general

growing community. This information will be used to guide the future direction of the project and to evaluate its impact.

Investigating opportunities for a grain and legume industry in a coastal sugarcane cropping regime

The potential grain/legume crops for the Isis Cane Supply Area to be addressed by the study have been identified following consultation with the Isis Target 100 operational team. The list of crops is flexible, and will expand as the investigation proceeds. The list currently exceeds 40 crop varieties.

A proforma has been developed for the assessment under which the crops are to be examined. Currently, these subjects include areas such as crop use, soil type suitability, climatic requirements, varieties, planting conditions, agronomic considerations (e.g. irrigation, weed control etc), pest and disease restrictions, harvesting logistics, marketing, gross margins, potential benefits to the sugarcane system etc.

The planting time and climatic conditions have been identified as the compounding factors on the suitability of the break crops to be planted in the Isis Cane Supply area. The marketability, gross margins and potential benefits have also been listed as being significant in determining the suitability of the crop.

Grower interest in break cropping was also ascertained through an Isis Target 100 Productivity Benchmark Survey which sampled a population of 70 growers. From this survey, 97% of growers expressed interested in growing break crops in rotation with cane. Growers wanted more information on cropping options and the gross margins of potential cropping options.

Outcome 2: Facilitation of change which promotes adoption of whole-of-system solutions to enhance revenue and cost efficiency across the value chain at mill area and regional levels

SRDC's investments towards this outcome also address the Rural R&D Priority of Improving competitiveness through a whole of industry approach.

Program A of the R&D Plan 2003–08, Value Chain Integration, provides a specific focus for investment in R&D directed towards whole-of-system solutions. This Program has experienced increased funding since 2003 in comparison to the previous R&D plan.

A major thrust towards this outcome is R&D on whole-of-system impacts of alternative cane supply management systems. Several projects are building on previous work which identified the potential for sustainable economic improvements by redesigning harvest and transport scheduling using systems modelling tools.

SRDC has contributed to a series of studies to support Australia's role in international trade negotiations, which address the Rural R&D Priority of improved trade and market access. No further studies were undertaken during 2004–05, but SRDC remains responsive to the need for R&D to support the position of the Australian sugar industry in trade negotiations.

Managing the impacts of climate variability is an important factor in enhancing whole-of-system performance. SRDC is a partner in the joint RDC Managing Climate Variability Program which commissioned its first projects during 2004–05.

Key Achievements to meet Outcome 2

A cooperative systems model for the Mackay regional sugar industry

During the 2004 crushing season, several prototypes of Cooperative Systems Model components were evaluated by representatives of the relevant industry sectors. These systems included:

- On-line analysis of cane using NIR technology, and feedback of sugar content and cane quality results via a web portal.
- A system for electronic consignment of cane deliveries.
- Harvester tracking and data acquisition for calculating and mapping information including area harvested, ground speed and field efficiency.
- A new system of cane payment.

Development is still proceeding on other components including:

- A web-based paddock input recording system (fertiliser, irrigation etc).
- Linkage of harvester data to the Harvest Haul model for cost analysis.
- Integration of third party tools to assist farm management, such as SugarMax and VarietyMax from CSIRO.

Evaluation of the individual tools has been quite positive. More importantly, the broader concept of the Cooperative Systems Model providing the infrastructure to implement value chain management strategies is gaining acceptance, as more businesses adopt it.

Most significantly, Mackay Sugar's growers have agreed to adopt a new system of cane payment developed during the project. The system is a major departure from the traditional cane price formula that has tended to divide millers and growers. Instead, it provides the milling and growing sectors with a fixed share of the proceeds not only from sugar but also from other income from molasses and co-generation of electricity. This focuses the value chain on increasing total revenues, rather than arguing about individual shares while total revenues shrink.

There is also adoption of both harvester tracking and data solutions evaluated during the project. Mackay Sugar is installing 43 GPS units in its largest harvesting groups to monitor area harvested and field efficiency. They will also be using the technology to help hasten the adoption of Harvesting Best Practice by measuring the key parameters involved and relating them to results.

Similar units are being fitted to all Mackay Sugar locomotives. The initial objective is to implement tracking and collision avoidance systems, but a further objective is to "close the loop" between the harvesting and transport sectors to optimise scheduling and improve customer service.

A regional partnership approach to developing a sustainable sugarcane system

A significant reduction in the size of the crop, as well as other changes, has occurred in the Mossman mill area since 2002. Despite these, the local sugar industry has recognised the need to change and has taken steps to ensure that they will survive. A project which commenced in 2002 sought to improve the efficiency of operations across the Mossman supply chain, involving representatives from all sectors of the local sugar industry including Mossman Central Mill, Mossman CANEGROWERS, Queensland Mechanical Cane Harvesters Association and Mossman Agricultural Services.

A process of voluntary self-assessment of Best Management Practice has been developed with industry in the Mossman Central Mill cane supply region. This self-assessment process forms the basis on which an extension program targetting areas of low adoption of BMP was developed in consultation with Mossman cane farmers. The results of the self-assessment were collated and presented to participating farmers who were asked to then validate the ranking of BMP. Farmers were also asked to nominate the factors that were stopping them from progressing to higher level adoption of BMP. Once these impediments were identified, farmers were asked to

identify the actions needed to help them overcome these impediments. These were then prioritised by the farmers and the prioritised actions form the basis of the extension program.

The program to enhance the business management skills of farmers involved an initial program of raising the awareness of growers to the process and benefits of business planning. A series of workshops was then conducted with a farmer group to assist them produce their own individual business plans. These workshops involved working through a business plan template developed for local farming conditions using a local example, and then individual growers working on their own plans separately. A survey as part of the follow up to the BMP self-assessment process will be undertaken by early 2006 to give a more accurate picture of the total level of business plan development.

Changes to mill operations and work practices since 2002 such as moving from a 7-day operation to a 5-day operation, reductions in staffing numbers and particularly the number of locomotive crews have resulted in significant savings to mill operating costs. These changes have had a significant effect on harvesters with more than half of the Mossman harvester fleet operating at or near daily capacity. The gross returns to harvesters show considerable variation with a range of $426/ha to $543/ha based on a flat rate of $7.00/tonne charge for harvesting. In addition, a separate project commenced in 2005 that seeks to quantify and reduce the harvesting cost in the Mossman region at a group, farm and block level.

Measurement and feedback systems for improving market signals for harvesting

Payment for harvesting of cane has been based on a fixed rate per tonne of cane delivered to the mill pick-up point. This does not reflect the true cost of harvesting of different sized crops, lengths of fields and distance from delivery points. Bringing together harvester operators from different regions, this project has highlighted the potential of new harvest payment systems to improve overall efficiency and profitability.

Harvesting Best Practice (HBP) includes a reduction in pour rate through the harvester to improve cane quality and reduce sugar loss. There is no incentive in the traditional harvest payment system, based simply on dollars per tonne of cane delivered to a siding to reduce pour rate as this increases harvesting costs.

Some alternative payment methods identified by the project were:

- Base rate per tonne of cane delivered plus fuel for harvesters and haul-outs paid directly by the farmer. This system is now widely used in 2005.
- A lower base rate plus the farmer paying for the fuel used, which is charged at a higher than market price to reflect additional wage costs in poor crops, short fields or long hauls to delivery points
- Hourly Rate
- Sliding scale base rate depending on yield of crop plus fuel paid by farmer
- Current system – set price per tonne of cane.

Integrating and optimising farm-to-mill decisions to maximise industry profitability

This project explores opportunities to reduce costs at the harvesting and transport interface of the sugarcane supply chain, using an integrated modelling approach.

The Herbert case study has progressed rapidly in the adaptation of the harvesting and transport models, development of scenarios and pathways towards adoption. Several scenarios were considered for implementation in 2005 and 2006. By extending the time window of harvest to between 2 a.m. and 6 p.m., the waiting time for bins by harvesters can be reduced by more than 50%. This is a major benefit for the harvesting sector, given that transport unreliability is one of the biggest social disruptions in the Herbert. It will also achieve better use of transport capital. The region is progressing towards implementation of this scenario in 2005. During 2005, the region will also implement an optimised harvester roster, which will further reduce waiting time for bins. Through a large local industry workshop, specialised working groups were set up for transport and harvesting, to explore and validate bigger picture scenarios for 2006, while at the same time promoting wider support. In May 2005, the Herbert received approval from the Australian government of $3.6m funding to implement the siding and harvesting rationalisation scenarios that the region has been producing through this project.

The research team also worked with Mulgrave and Mossman to produce scenarios for extended time windows of harvest and prescriptive siding rosters. Both regions plan to adopt these scenarios in 2005, with Mulgrave noting potential savings of $2m in bin maintenance.

Moving from case studies to whole of industry: Implementing methods for wider industry adoption

Upon completion of a regional case study research activity, how should researchers and industry apply learnings "beyond" a case study region to achieve greater impact? CSIRO researchers are currently working with industry to understand how changes occur in several case study regions, to answer this question.

At the conclusion of the project in 2007, the project team will deliver recommendations to others on, how to go "beyond case studies", and achieve greater benefits from our research investment in regionally-specific case study research. A team led by CSIRO researchers Dr Yvette Everingham, Dr Geoff Inman-Bamber and Dr Emma Jakku has worked closely with a range of industry personnel in Tully, Plane Creek, Bundaberg and northern NSW with the key technologies of seasonal climate forecasting, irrigation scheduling and nitrogen management.

Participants in the case study regions, together with members of the research team, have characterized the three key technologies and identified the perceived economic impact of the new technologies across the three case study regions. Current and targeted levels of awareness of the technologies in the case study regions have also been identified. A robust evaluation strategy has been developed to monitor progress as the project improves the understanding of adoption. A mid-term review in April 2005 concluded that the project was progressing well with preliminary findings already being reported to the International Symposium on Society and Resource Management.

Integrated value chain scenarios for enhanced mill region profitability

The whole-of-value-chain model (VCM) was applied to define the regional net benefits of harvest and milling the whole crop for maximising potential for electricity co-generation. The specific mills considered were Maryborough, and Invicta and Pioneer, in the Burdekin region. All analyses were undertaken participatively with the local reference groups in the region.

The technical problems associated with harvesting and transporting the whole crop were underestimated. In both regions, efficiency of the harvesting and transport arrangements could be improved, providing unexpected capacity for handling the whole crop. The capital expense of the co-generation plant and associated installation costs were identified as a major obstacle for co-generation ventures given current returns on the sale of power and Renewable Energy Certificates. At one mill, the lack of a suitable site for the storage of bagasse to fuel out-of-season electricity generation was also a major impediment to the co-generation venture. These findings highlight the advantages of the innovative modelling approach applied in this project compared to past analysis based on simplified assumptions, which missed important interlinkages across the value chain.

Removal of trash blankets with whole-crop-harvesting was predicted to have negative impacts in the farming sector because trash blankets conserve moisture and reduce weed control costs. In Maryborough, where much of the region is trash blanketed, the farming sector disbenefits as a result of whole–crop harvesting. The harvesting and transport sectors were also expected to incur additional costs as a result of whole-crop harvesting. However these analyses estimated, for the first time, that the whole-of-value-chain achieves a substantial net benefit from trash blanketing.

Improving yield forecasting capability to enhance market strategies for the Australian sugar industry

The Australian sugar industry would benefit from improved estimates of cane yield before the commencement of the crushing season. This is in part due to the limited

storage capacity at ports and the need to sell sugar from storage sheds throughout the harvest season. SugarCam models have been developed for predicting yields across the Ingham, Ayr, Mackay and Bundaberg terminal regions.

These models were tested during the 2004 season and used operationally to predict the size of the crop for the 2005 harvest. Forecasts are initiated on the 1st December prior to harvest. The simulated forecasts produced in December 2003 for the 2004 season were very accurate. The forecasts were within 2% of the size of the final crop for Ingham, Ayr and Mackay. The forecast produced in December 2003 for Bundaberg had a larger but still acceptable error (13%) considering the time of year that the forecast was produced. As more climate data from the 03/04 summer were incorporated into the model, this error margin reduced.

Early season forecasts, based on a scientific approach, provide marketers with an opportunity to start shaping their marketing strategies earlier than they previously could. Producing early estimates by December each year remains extremely challenging. Typically, December forecasts produced from the SugarCam models have the largest error bars. A new approach to forecasting early season estimates has recently been developed to increase accuracy at this time. Rather than predicting the actual tonnages, a categorical (e.g., small, medium or large crop) prediction is made. This approach can provide marketers with a probability associated with a small, medium or large crop, and could have provided a saving factor to industry if it were operational in years like 1991 and 1992, and more recently in years like 2000 and 2001.

Outcome 3: Demonstration of environmental sustainability to the satisfaction of all stakeholders

sustainable natural resource management.

Sustainable use and management of natural resources is a key focus of the SRDC R&D Plan 2003–08 in the context of delivering triple bottom line benefits to the sugar industry and the Australian community.

Together, the new and continuing activities in SRDC's portfolio will assist the industry and the Australian community to address the strategies, priorities and targets in the Australian and Queensland Governments' Reef Water Quality Protection Plan of October 2003. This outcome also addresses the Rural R&D Priority of maintaining and improving confidence in the integrity of Australian agricultural, food, fish and forestry products.

Key Achievements to meet Outcome 3

Farm Management Systems for the Sugar Cane Industry

A sugarcane Farm Management System (FMS) based on Environmental Management System (EMS) principles and incorporating farm profitability is being funded from the Natural Heritage Trust under the "Pathways to Industry EMS" program. SRDC manages the program on behalf of the sugar industry. The Farm Management System involves farmers identifying and managing risks to the environment and enhancing productivity while keeping records to demonstrate environmental stewardship and improve farm performance.

Sub-program 1: The prototype Sugar FMS Tools web site has been developed and is currently being demonstrated to a range of

industry representatives for feedback. This includes access to the draft databases, templates and guidelines. The online version will be available in September 2005.

The draft list of current applicable Commonwealth and Queensland legislation has been finalised, including brief descriptions of implications for cane growers as well as contacts or links for more information. Similar records for New South Wales and Western Australia are currently being developed.

A series of risk assessment records has been developed and added to the standard online database for the Soil Nutrition Management activity group as a demonstration. These have been developed in the context of associated BMPs and the risk assessment templates. Risks for other activity groups are being developed under sub-program 2 and will be added to the online database as they become available. BMPs for other activity groups are currently being identified and will be added to the online database as they become available. Draft versions of most web-based templates and guidelines have now been developed and added to the prototype Sugar FMS Tools web site.

Sub-program 2: The contractor, Agrecon, is developing a list of risks and performance indicators for Australian cane production. These have been based on a wide range of sources mostly outside of the sugar industry but which apply to land management issues facing growers. The priority is for objective measures that can be readily measured by growers.

Regional indicators developed for the Central Region pilot project have been compared with those from other industries and a general industry-wide database is being developed. This will then be used as a basis from which each region can determine their particular variations, including current baseline conditions, benchmarks and performance variability.

Agrecon has implemented a 'working demonstration' of indicators for Soil Nutrition Management and demonstrated this to grower groups and support staff in the Burdekin and Mackay areas.

This database is now being expanded to cover all activity groups to provide the regions with a starting point for their regional indicators and threshold values. This should improve the feedback process and ensure more discussion and potential 'local ownership' within an industry-wide standard.

Sub-program 3: An FMS training program is scheduled to start later in 2005 once FMS materials become available from other FMS subprograms. Agrecon is raising awareness of the benefits of an integrated approach to FMS and has achieved general agreement on this approach across many sectors of the sugar industry. This has highlighted the need for a consolidation of tools to simplify the recording, decision-making and reporting requirements of growers in order to encourage their use of FMS.

Sub-program 4: Many agricultural industries have existing certification schemes, based primarily on quality assurance requirements. A range of auditing options has been identified. Options include:

- COMPASS self-audit for sugarcane growers
- Mossman Joint Venture accreditation scheme
- C4ES Independent Audit Environmental Assessment Framework (including links to other industry sectors)
- A Best Management Practices (peer review) program such as that in the cotton industry
- A certification scheme for sustainable agriculture (as in WA)
- Eco-management and Audit Scheme (EMAS) as in the European Union
- ISO14001 & associated accreditation (from ISO-compatible self-assessment to third party auditing)

There are potentially also other assessable outputs from an FMS, such as Soil Conservation Plans, Property Vegetation Management Plans and Land and Water Management Plans. Draft guidelines and tools are still being developed for the sugar industry. It is anticipated that the FMS templates and databases will be completed soon, after which the auditing materials will be finalised.

Sub-program 5: The evaluation survey undertaken by CSR Sugar provided a snapshot of the Australian sugar industry. The main focus of the survey was to develop a picture of the current awareness and understanding of growers of environmental issues and farm planning or Farm Management Systems as a way of dealing with farming and protecting the environment.

In general, growers are aware of the significant environmental issues in their region and many have adopted farm management practices that are designed to reduce potential environmental impacts from farming. However, most growers did not believe that given the practices adopted by farmers, the level of runoff from agriculture could continue to have a negative impact on the environment.

Growers were generally positive about the role of farm planning or FMS as a means of managing any potential environmental impacts and demonstrating to the community that their practices are environmentally responsible. Most growers have a farm plan but given the scope of the survey it was difficult to ascertain the level

to which they plan. Many indicated their farm plan was 'located in their head'.

Development of a constructed wetland for improving water quality in sugarcane drainage, and ensuring its community acceptance and industry adoption

Acid discharge in drainage water from acid-sulfate soils is a concern in the Northern Rivers area of NSW. A 2ha cane field site has been developed as an artificial wetland, where drainage water will have sufficiently slow flow and long retention time to enable sufficient deposition of sediments and precipitation of metal complexes that remove acidity from the water. The wetland meets the NSW Government's requirements for management of acid sulfate soils. This result may provide a precedent for other such developments in NSW or elsewhere, but each will need to be addressed on a case-by-case basis.

Accelerated adoption of best-practice nutrient management

This project is promoting best-practice nutrient management in six districts within the Australian sugar industry. Importantly, progress in these areas will serve as a basis for expanding the concepts to the rest of the industry. The regional consultative groups that have been established are considered essential to the communication, consultation and participation processes within the project.

Interestingly, these consultative groups have indicated that 'best-practice nutrient management' means different things to different people. However, the underlying concept of sustainability featured in many of the 'definitions' that were presented. The grower surveys that have been conducted so far indicate general acceptance of the principles of best-practice nutrient management. However, on-farm practices do not always reflect this attitude.

The views of the consultative groups and the regional grower-groups suggest that the reasons for slow adoption of best-practice nutrient management are varied. Factors include fear of the unknown and/or loss in production, lack of a good understanding of soils and nutrition, risk, timing of operations, ease of using a single fertiliser mixture and/or rate across blocks, lack of suitable fertiliser mixtures, traditional generic fertiliser recommendations, cost, inability to apply variable rates with currently owned equipment, and a reluctance to change. Other aspects of the project, such as the development of the Soil Capability and Management Packages (SCAMP), and preparation of grower-orientated short-courses to facilitate the development are progressing.

Outcome 4: Diversification of the income stream from products derived from sugarcane

The main avenues of diversification being currently pursued in SRDC's portfolio are electricity generation by mills and alternative products under investigation through the CRC for Sugar Industry Innovation through Biotechnology (CRCSIIB). This work addresses the complementary National and Rural R&D Priorities of using frontier technologies for building and transforming Australian industries and the Rural R&D Priority of improving competitiveness through a whole of industry approach.

Studies conducted through the CRCSIIB are investigating means of producing specialist materials such as bio-plastics, oligosaccharides, enzymes and pharmaceuticals in elite sugarcane varieties, and extraction and fermentation technologies which can lead to improved processes for production of foodstuffs, nutraceuticals and feedstocks.

In May 2006, SRDC will sponsor a Bagasse and Trash Utilisation forum, to facilitate the collation and integration of a number of projects exploring alternative income streams from sugarcane.

Key Achievements to meet Outcome 4

Low cost and energy efficient ambient drying of large-scale bagasse and trash stockpiles for increased industry income from power generation

Modelling produced and investigated four self-drying concepts for stockpiles of bagasse and a preferred design has been identified with features that can be readily implemented. It is anticipated that the costs associated with the preferred design will not be excessive.

Model predictions indicate that bagasse moisture reductions down to 43% (from an initial value of 50%) are achievable for the preferred design. The model indicates that significantly lower bagasse moistures are achievable with alternative stockpile configurations but these designs were considered impractical and therefore not adopted.

The Industry Reference Group has endorsed the future trialling of the preferred design on a section of the Broadwater stockpile to be constructed in the 2005 crushing season. Planning for the construction of necessary modifications to the existing stockpile at Broadwater is currently underway.

CRC for Sugar Industry Innovation through Biotechnology (CRCSIIB)

SRDC is a core party to the CRC for Sugar Industry Innovation through Biotechnology (CRCSIIB) which commenced in August 2003. SRDC will commit $4.9m of project funding over seven years commencing in 2003–04. The CRC has considerable potential to rejuvenate the sugar industry and contribute strongly to the national economy through elite sugarcane varieties with high sugar production or which can produce specialist materials.

The CRCSIIB's second year has been one of significant achievement. Overall the projects have been making excellent progress, moving closer to the desired goal – to add new value to Australian sugarcane.

2004–05 has seen the interaction with Affymetrix resulting in the release of an oligonucleotide chip for expression studies in sugarcane. This advance will provide a great

opportunity for expression studies in sugarcane world wide. The first experiments using the new chip have demonstrated its value as a research tool.

Also during this year, the most comprehensive genetic linkage map available to date on sugarcane was published, and QTL mapping in biparental populations identified genome regions (and markers in those regions) associated with CCS and cane yield components. From this work researchers identified markers associated with commercially significant traits in sugarcane and are now testing their value across a number of sugarcane populations.

Researchers also described the cellular location of many of the critical components that govern the accumulation of sucrose in the sugarcane stems. This includes the identification of the enzymes that breakdown sucrose together with the transporters that move sucrose across a number of key membranes in the plant storage cells.

The marker work identified a series of DNA markers that explain a very significant proportion of cane plant's variation in resistance to sugarcane smut, a disease of significant threat to the current commercial varieties grown in Australia. Such an association provides the BSES breeding program with an excellent opportunity to change the overall resistance level of the parents used in the Australian breeding program. The next step is to evaluate the markers in collaboration with the current evaluation of sugarcane smut resistance as evaluated in Indonesia.

Assessment of the Diversity Array Technology (DArTs) during the year identified it as a potentially valuable tool for the genetic analysis of sugarcane. The technology, when further developed, will provide an option for the BSES breeding program to have access to high throughput analysis of genetic composition across many loci in large numbers of breeding material.

Of great promise is the Atrazine bioremediation work which is showing encouraging signs of delivering a commercially focused product within a year. Atrazine is a herbicide used extensively in sugarcane production in Australia. Significant progress has been made by our researchers in the development of a gene/enzyme system for single-step, cofactor-independent detoxification of Atrazine that meets performance criteria for commercial development.

The CRCSIIB has started to develop the foundation for producing value-added materials from sugarcane-derived feedstocks or from by-products and wastes produced in the harvesting, milling, and refining of sugar. Examples include alcohols, biofuels, fibre products, biopolymers, biosurfactants, industrial enzymes and renewable biomaterials to replace industrial petrochemicals such as those used in the production of plastics. The work has demonstrated the efficiency of specific amino acid sequences for targeting proteins to subcellular compartments, produced over 200 transgenic lines of cane for two sugarcane bioplastic production strategies, and shown how to synthesise appreciable amounts of a sucrose derivative (sorbitol) as an alternative low calorific sweetener in the future.

The CRCSIIB has also established an Agrobacterium-mediated transformation system for sugarcane as well as a linear DNA transformation system. These technologies

will enable the insertion of single copies of a required sequence into sugarcane as well as enabling the introduction of only the coding sequence of a gene, thereby avoiding the inclusion of the plasmid backbone of the vectors.

In the bioprocessing area projects have established the superior performance of sugarcane compared to corn-based Biorefineries mapping out the way for leading-edge opportunities for the sugar industry in the future.

The CRC now has three students successfully completing their Honours degrees and a further eight students have now completed their PhD confirmation, making a total of 17 students working on higher degrees within the CRC system.

The CRC's Summer Research Internship was very successful with nine undergraduates involved in a six-week research training program based at a number of our participant's laboratories and offices.

During 2004–05 the CRC established an internet and intranet system to help foster general awareness of the CRC both within the parties and to the general public. This complements an effective communication program reaching a wide range of audiences, from rural Queensland through to international business groups.

During the next twelve months there will be a significant review of the R&D portfolio, particularly in terms of its ability to meet the goals set by the CRC in delivering benefits to the Australian sugar industry. The review is intended to provide focus to our R&D effort and to incorporate commercial considerations as well.

Outcome 5: Enhancement of human capacity and partnerships between industry, research and regional communities to underpin change, learning and innovation

This Outcome addresses the Rural R&D Priority of creating an innovative culture.

Program D (Industry Capacity) of the SRDC R&D Plan 2003–08 is specifically devoted to building the human capacity for change, learning and innovation in the sugar industry.

SRDC contributes to several initiatives in partnership with the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) and other Rural R&D Corporations, including the DAFF's Industry Partnerships Corporate Governance for Rural Women Initiative, the Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry, and the Cooperative Venture for Capacity Building for Innovation in Rural Industries.

SRDC strongly promoted its call for Travel and Learning Opportunity proposals (TLOP) for 2004–05. While not excluding traditional travel by researchers to workshops and conferences, SRDC targeted capacity building in industry personnel either through travelling away or through having others visit their regions. There were three calls for TLOPs during 2004–05 which resulted in over 30 projects directly involving more than 300 industry people.

Key Achievements to meet Outcome 5

Building capacity to lead and implement regional transformation

To address the shortfall in skills in the Australian sugar industry – namely leadership skills, alliances across regional industry, and managing under uncertainty – CSR and SRDC partnered to enable around 125 industry participants to undertake the Industry Capacity Building (ICB) Program.

The first four ICB programs have been completed and the fifth and final program is due to be completed by August 2005. A full evaluation of the ICB Program will be completed in late 2005, where the actual benefits of the ICB Program to participants and industry sponsors will be quantified.

Each participant in the ICB Program has completed six modules of intensive blocks of course work and skills development. Between modules, participants have each applied their skills to a Strategic Industry Project. Tangible benefits of improved leadership skills and knowledge include improved profitability and improved ability for individuals to work cooperatively on whole-of-industry issues.

Herbert Cultural Imprint Analysis – A pathway to greater understanding and co-operation in decision making

The Herbert Cultural Imprint Analysis aims to improve the way in which sectors of the Herbert sugar industry work together by utilising the expertise of three social science researchers with expertise in organisational psychology, and managing and evaluating change. The expected benefits of this project are improved cooperation among sugar industry people, and ultimately, a more profitable and sustainable Herbert sugar industry and a more vibrant Herbert regional community.

Over 130 representatives of the Herbert sugar industry and local community participated in a large workshop aimed at generating awareness of how people in the Herbert region currently work together, and how people can "bust" existing bad behaviours.

This project is led by Gavin Hughes from CSR Sugar, and three consultants, Ian Plowman, Neels Botha and Jeff Coutts. The first year of this project has achieved some change among industry and community members in the knowledge about and attitude towards other key stakeholder groups. Furthermore, some participants have developed a clear indication of the need to change past practices and to do things differently in the future.

Innovating and Developing Human Capacity in Rural Industries

The Cooperative Venture for Capacity Building for Innovation in Rural Industries (CVCB) was established in 2001 by R&D corporations to enhance capacity building in rural industries in Australia. The CVCB has invested in R&D that focuses on enhancing the understanding of learning, improving organisational arrangements to support rural human capacity building, and inspiring innovative farming practices.

Key outputs and outcomes delivered by the CVCB since its inception include:

- A user-friendly database of Australian rural extension/education projects to improve understanding among rural industries of the different models of extension/education and to improve awareness of the range of extension/education programs implemented across Australian rural industries.

- Identification of key factors that inhibit grower participation in learning activities across a wide range of rural industries. Recommendations to RDCs on how to improve participation by growers in learning experiences have been presented, and adopted by SRDC. Some of the key recommendations include:
  - express the benefits of learning in terms that have meaning for individual growers
  - localise learning
  - formalise extension officers' training in social learning processes and participatory approaches, and
  - monitor and revise learning programs as change occurs in an area
- Improved understanding of how to design, implement and evaluate grower-driven research has been delivered by Jane Fisher and Peter Carberry from CSIRO Sustainable Ecosystems in Toowoomba. The research team has worked closely with grower groups in the grains, viticulture and sugar industries to identify what has worked and what can be learned from the past. Lessons from this project have significantly enhanced the design of the SRDC Grower Group Innovation Project (GGIP) which was launched by SRDC in 2004–05. Lessons have also been taken up by specific sugar industry grower groups, to improve the planning, implementation, and evaluation of their research work.

Excellence in Grower Group Awards

As outlined in the highlights section of this report regional Awards of $12,000 were presented during 2004–05. The winners of the regional awards were:

SRDC Director Dr Mary Corbett with members of the Central Tweed group.

New South Wales – Central Tweed group – The group started in 1974 representing 25 businesses, which originally aimed to address harvesting inefficiencies. The group has confidence in the long-term sustainability and viability of the industry. The entire group has formulated and implemented Drain Management Plans and were early experimenters and adopters of Minimum Till techniques. The group co-operatively owns and operates several items of machinery, to increase efficiencies that would not be possible with individually owned machinery. The group has maintained harvesting costs at 1974 levels whilst increasing productivity by 30% and is still seeking innovations to improve.

SRDC Chair, Mr Robert Granger, Jay Hubert (Grain in Cane) and SRDC Director, Mr David Braddock.

Southern Queensland – CANEGROWERS Grain in Cane – The group has been operational since 2002 and represents

70 businesses interested in the incorporation of a soybean crop into the rotation of the sugarcane crop. The group has a vision of growing 5000 ha of soybeans (30% of Queensland's production) whilst maintaining their current level of productivity in the sugar industry. The present level of production is 1300 ha compared to 250ha in 2003. The group has undertaken many training courses, attended workshops, travelled to other industries and areas, hosted groups in their region, conducted field days and changed their farming practices to a more sustainable system.

SRDC Director, Ms Patrice Brown and the Sarina Sustainable Farmers Group members.

Central Queensland – Sarina Sustainable Farmers Group – Consecutive years of poor yields and returns drove these 16 growers, to seek better ways of sugarcane production in November 2001. The group has concentrated on new farming-systems-related-activities. To date, they have been demonstrating the commercial adoption of recommendations coming from the Sugar Yield Decline Joint Venture project. The group has various farm trials underway to adopt those recommendations to local conditions including, variety trials, various bed shapes and improved water filtration and fertiliser rates. Some group members have totally converted their farms to controlled traffic conditions, with all other at various stages of adoption.

Members of HCL Group with SRDC Directors.

Burdekin – HCL Group – The group began in 1994 to originally to assume control of their own harvesting, but now have evolved further with a vision to foster innovation and change to ensure a sustainable economic future for this group and the industry, as a whole. These 7 growers produce 120,000 tonnes of sugarcane and are involved in the State Government Burdekin Range to Reef Initiative. The group has a strong philosophy of co-operative action and members have been involved in many R&D projects, over the past 10 years both funded by SRDC and others.

Herbert Young Farmers, Mr and Mrs Brian Tabone with SRDC Director, Dr Mac Hogarth.

Herbert – Herbert River Young Farmers Group Inc. – This is a "grass roots" group of young farmers keen to give the next generation of growers a voice and learn through sharing skills and knowledge, with 20 active members. Group members have undertaken a variety of courses covering

leadership, environmental concerns, the future of farming and new ideas and innovations in farming techniques. Group members are now leading discussions and information sessions for other groups on Farm Succession, Farm Clusters and Co-operatives, Runoff and the environment, rotational crops with cane, soil health and the results of their own twin-row trials. The group has also been successful with a Harvesting Group Innovation project.

Members of Farming for the Future – Babinda with SRDC Chair and Directors.

North Queensland – Farming for the Future – This group of 30 members is part of the larger Cairns Region Economic Development Corporation. The group, whilst only being together for a year, is guiding the future direction of the sugar industry in northern Queensland, with emphasis on environmental sustainability and the integration of sugar production, together with alternative fuel options into the regional community.

Outcome 6: An effective R&D capability underpinning industry futures.

This Outcome is also a focus of Program D and addresses the Rural R&D Priority of creating an innovative culture. Within Program D, SRDC seeks to promote more effective coordination of R&D activities across industry and R&D providers, to enhance the performance of the R&D system through evaluation, review and feedback, and to encourage a broad range of R&D providers. SRDC wishes to facilitate enhanced skills in R&D personnel.

SRDC requires all R&D project proponents to nominate in their proposals the means that they will use to implement change and deliver project outcomes. SRDC conducts workshops to assist investigators who have been invited to submit full proposals to integrate adoption and evaluation into project design. This process is intended to also build capacity in project investigators through developing an ethos of, and skills in, evaluation.

Key Achievements to meet Outcome 6

Forum inspires shared thinking on improving sugar RD&E

Twenty-five industry people participated in a unique SRDC supported forum in Townsville during December 2004 on the topic of "Improved sugar research, development and extension". QDPI&F were the chief investigators for this project. Forum participants included growers from the Burdekin and Bundaberg, miller representatives from CSR, Bundaberg Sugar, Mackay Sugar, research managers from SRDC, BSES, QDPI&F, QDNR&M and SRI, BSES Extension Officers from across Queensland and NSW, an SRDC Board Member, as well as researchers from CSIRO, QDPI&F and JCU.

The forum provided participants with a unique opportunity to work together, share experiences, and think creatively about how to improve research, development and extension (RD&E) in the sugar industry. A key feature of the forum was all participants presenting their ideas to a group of other attendees, each followed by a structured question session.

This participative process ensured everyone had the opportunity to share their experiences, whilst remaining focussed on the task at hand. The forum clearly highlighted the value of "thinking outside the square", and demonstrated the value of collaboration with people from different organisations, regions, and sectors within the sugar industry all working together to achieve a common goal.

2004 SRDC/DAFF Science and Innovation Awards for Young People

The Science and Innovation Awards for Young People are designed to encourage young Australians to undertake groundbreaking research that will help boost the competitiveness of our rural industries.

Alma Hodzic, from James Cook University, won the 2004 Queensland Science and Innovation Award for Young People. Alma's project illustrated sugarcane has some sweet possibilities beyond consumption. Her project will focus on the development of sustainable technology in the area of bagasse fibre composites, by using sugarcane bagasse fibres obtained after the extraction of sugar. "This research has strong potential to benefit the Australian sugar industry and to deliver a novel biodegradable material suitable for the automotive and packaging industry," says Alma.

Caroline Condon won the 2004 SRDC Science and Innovation Award for Young People, which will enable her to complete research work to investigate a new, environmentally-friendly fertiliser in a trash-blanket fertiliser system. Ms Condon is based in Ingham and is currently employed as a sales representative for CRT Ingham Farm Centre.

Building capacity in project design and evaluation

To build capacity in project design and evaluation among Chief Investigators of SRDC-funded projects, two 2-day workshops were held for 39 individuals in December 2004 in Townsville and Brisbane.

The workshops were designed and delivered by Stephen Kelly and Heather Frame from

Victoria Department of Primary Industries and Viv McWaters, Beyond the Edge consultancy. The workshop focused on building the capacity of Chief Investigators in program logic, identifying evaluation audiences, evaluation techniques, and designing an evaluation strategy for a specific project. Feedback from participants indicated that the workshops were successful in building capacity in project design and evaluation. Key principles and recommendations to SRDC to improve the design, delivery and evaluation of SRDC-funded research projects were presented.

In 2005, a follow-on one-day workshop with participants is planned to ensure the project design and evaluation strategies are appropriately implemented within current projects, and additional expertise and advice is provided by the evaluation experts from Victoria Department of Primary Industries to Chief Investigators.

Post-graduate students continue to make excellent progress in 2004–05

To ensure the Australian sugar industry has an effective R&D capability into the future, SRDC invests in a Scholarships program. The SRDC Scholarships program continued in 2004–05 with 13 SRDC-funded post-graduate students continuing their studies.

Students were enrolled in PhD and Masters programs across a wide range of topics:

- Brendan Dyer is investigating an integrated pest management strategy for climbing rat in the far-north Queensland sugarcane system,
- Mira Durr is looking at the microbiology of acid sulfate soils in agricultural environments,
- Peter Wulf is investigating self-regulatory codes of practice and their effectiveness in achieving best environmental management practices with North Queensland primary industries,
- Matthew James investigated a data acquisition and telemetry system for the Australian sugar industry value chain,
- Kimberly Ritter investigated the genetic, biochemical and molecular basis of sugar accumulation in sugarcane,
- Chong Ngo studied molecular analysis of suckering and tillering in sugarcane,
- Elizabeth Meier is investigating the availability of nitrogen in Green Cane Trash Blanket soils in the wet tropics and its impact on productivity and profitability,
- Nicole Flint investigated sublethal and long-term effects of poor water quality on freshwater and estuarine fishes,
- Chris Brosnan is investigating expression modulating sequences for preventing transgene silencing in genetically-engineered sugarcane,
- Daniel Ward investigated strategic bating protocols for rodents in sugarcane, and

- Hu Fengdou is researching improved selection systems and data analysis for sugarcane breeding.

In 2004–05 the supervisors of all current Scholarship projects reported students were making good progress toward the achievement of their project objectives, indicating the future research needs of the sugar industry are in good hands.

Developing needs analysis skills to determine the research, development and extension needs of four North Queensland sugar milling companies

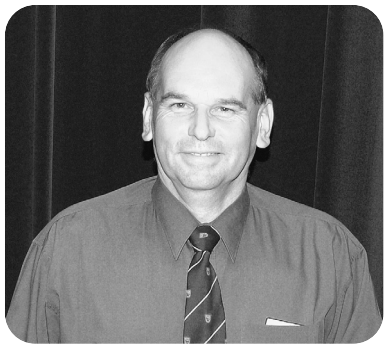
The identification of sugar factory research, development and extension needs is generally achieved through discussions between SRI staff and factory personnel. The task of identifying which of these needs should be pursued is generally decided by SRI staff, at a later date.

As a participant in the SRDC Continuous Improvement and Innovation Program 2003–04, Dr Geoff Kent from SRI was exposed to alternative techniques, besides discussion, for achieving objectives for activities such as needs analysis. This project aimed to implement some of these techniques in a two-part project:

- Development of a procedure for conducting a needs analysis workshop, and
- Conduct of needs analysis workshops with the four North Queensland sugar milling companies.

The participants expressed a wide range of opinions regarding the value of this approach and its outcomes, and the majority opinion was that the structured, quantitative approach that was used was an improvement over the traditional discussion method.

Dr Bernard Schroeder of BSES Ltd winner of the 2005 SRDC Research/Extension Award.



The Award is designed to acknowledge the outstanding contributions that are likely to enhance the triple bottom line performance of the Australian sugar industry.

Previous winners include Dr Nils Berding, Mr Trevor Willcox, Dr Russell Muchow, Dr Grant Smith, Dr Ross Broadfoot, Dr Peter Alsopp, Dr Brian Keating, and last year Dr Andrew Higgins.

Dr Schroeder is recognised in the Australian sugar industry as both an experienced and knowledgeable sugarcane agronomist and soil scientist, and a manager and leader of BSES RD&E activities.

His most significant contribution, in the eight years that he has worked in the Australian sugar industry, has been to implement a system of improved nutrient management practices across the industry.

Dr Schroeder's work has been pivotal in moving the industry from regionally-based nutrient recommendations to site and soil specific recommendations.

The industry has greatly benefited, both from a productivity as well as an environmental stewardship viewpoint from Bernard's passion and ability to bring about change in nutrient management.

Dr John Manners, Program leader, CSIRO Plant industry winner of 2005 SRDC Service to R&D Award.

The Award is designed to recognise the contribution of Research Manager and Policy Makers to the enhancement of the Australian sugar industry's competitive position.

Previous recipients include Dr Bob Clements, Dr Alan Garside, Mr Paul Sgarbossa, Dr Colin Ryan, Mr Roy Pace, Mr Ian Haigh and last year Dr Andrew Wood.

Dr Manners has made an outstanding contribution to R&D management and policy development over recent years through managing the CSIRO work commitment in sugarcane improvement, and contributing to the development of collaborative programs of research.

Dr Manners has made significant contributions to the development of both the CSIRO-BSES Joint Venture for plant improvement, and the Cooperative Research Centre for Sugar Industry Innovation through Biotechnology (CRCSIIB).

Through Dr Manners' international linkages and the development of local capacity in genomics, John has positioned the Australian sugar industry to access and value-add to the primary data available in public databases.

Dr Manners' efforts in aligning the sugarcane breeding program with the biotechnology effort have resulted in a program focused on the things it can deliver.

Internationally Dr Manners is recognised for his work on sugarcane, and is highly respected as an experienced and knowledgeable manager of R&D.

Performance Indicators in the Annual Operational Plan

The SRDC Annual Operational Plan (AOP) 2004–05 outlines five performance indicators and associated measures to assess SRDC's effectiveness in achieving its Outcome. Performance against these indicators in 2004–05 is documented in this section.

Indicator 1: Economic returns from SRDC investments in excess of a benefit: cost ratio of 5:1

Measure 1(a): Investment analyses of completed R&D projects demonstrate a benefit: cost ratio greater than 5:1

The overall conclusion from the assessments is that R&D investment will deliver important outcomes to the sugar industry. These assessments, initiated by SRDC in partnership with research agencies, have identified strategic, environmental, social and economic benefits. Environmental and resource benefits included reduced nutrient exports from farms (surface water and groundwater), lowered chemical use, increased water use efficiencies, and an improved state of the soil resource. Social benefits focused mainly on capacity building in industry leadership and learning skills, and reduced health risks to the community.

The previously assessed projects (1998–2003) produced an aggregate benefit cost ratio of 6.5:1. These estimates were based on a discount rate of 5 per cent across a 30-year time-frame, and an average sugar price during the study period. The benefits, from the projects assessed, were estimated at more than $140 million. These values include limited quantification of the value of environmental and social benefits.

Measure 1(b): Adoption rates benchmarked for at least three technologies per year

In 1999, SRDC funded a project to "Raise awareness and Adoption of Sustainable Cane Growing Practices" which has evolved, in partnership with CANEGROWERS and BSES, into COMPASS (Combining Profitability and Sustainability in Sugar).

As of 31 May 2005, 1173 COMPASS Certificates had been issued to grower participants. This represents approximately 27% (by number) of sugarcane farms in Queensland. It is expected that by the end of 2006 managers responsible for more than 50% of the total cane area will have participated in a COMPASS workshop.

Adoption of improved farming systems based on the research outputs of the Sugar Yield Decline Joint Venture (SYDJV) is proceeding well. Major components of improved systems include legume fallow crops, minimum tillage and controlled traffic with matching row spacings. According to a recent Public Environmental report released by CANEGROWERS, based on findings from the C4ES Independent Environmental Audit, 68% of growers undertake minimum tillage, which improves soil condition, retains organic carbon, reduces the need for fertiliser inputs and increases the water retention capability of these soils.

There are some other trends emerging from the SYDJV project, including increasing interest amongst canegrowers with regard to the new farming system. Legume breaks, controlled traffic and minimum tillage are gaining acceptance and growers in all areas are adopting them to some degree. Feedback from the Extension Officers Workshops

advises that the movement to 1.85 m dual rows to implement controlled traffic is a concern to many growers as they have previously experienced some failures from implementing dual rows with "pineapple planting" during the 1980s and then again with High Density Planting. The next 3-year follow-on project from the SYDJV has a significant extension component designed to raise adoption rates.

A suite of complementary activities funded by SRDC, BSES (through its PROSPER Program), and local initiatives in some regions such as the Cane Productivity Initiative in the CSR mill areas has targeted the capability of the industry to cope with adversity through building skills in on-farm evaluation of innovative technology, economic evaluation of alternative cane farming practices, and delivery of best management practice to the industry.

Independent evaluation of the SRDC and BSES investments reported significant benefits in three main areas: the effectiveness of engagement and capacity building in grower groups and advisory staff; documented increases in implementation of improved practices, and significant improvements in profitability of growers who participate in group activities compared to those who do not. In some regions, over 60% of growers are involved in group activities, which is considered very high by national and international standards.

Indicator 2: Environmental returns from a better understanding of environmental management issues, and a reduction of adverse impacts on the industry's production environment and other ecosystems

Measure 2: Case studies demonstrating improved natural resource management and reduced environmental impacts in quantitative and/or qualitative terms

Specific practices to improve natural resource management and reduce environmental impacts in the sugarcane industry include:

- green-cane harvesting and trash blanketing,
- controlled traffic with minimum tillage and strategic herbicide use,
- legume break crops such as soybean and peanuts,
- direct planting into standing residue,
- reduced application of fertiliser nitrogen, and
- tree planting in riparian zones.

The CANEGROWERS Public Environment report, based on previous work by C4ES, has recently been released. This report quotes that 75% of growers have adopted green cane trash blanketing, which significantly reduces soil loss from farms. The report further states as follows:

- 68% of growers undertake minimum tillage
- 82% of growers obtain professional advice on the use of chemicals, with 74% of growers having chemical accreditation.

- 71% of growers use sub-surface placement of fertilisers, which reduces the potential for volatilisation and run-off losses, with a total reduction in fertiliser use of 20% since 1996.

As part of the Farm Management System project, conducted by Agrecon and managed by SRDC, approximately 10% of growers from mills in each major region; Burdekin, Wet tropics (Herbert), central region (Plane Creek), Bundaberg, NSW and the Ord were contacted by phone to undertake a baseline survey.

The main focus of the survey was to develop a picture of the current awareness and understanding of growers of environmental issues and farm planning or Farm Management Systems, as a way of dealing with the balance of farming and protecting the environment.

In general, growers are aware of the significant environmental issues in their region and many have adopted a range of farm management practices that are designed to reduce potential environmental impacts from farming. Growers were generally positive about the role of farm planning or FMS as a means of managing any potential environmental impacts and demonstrating to the community that their practices are environmentally responsible. Most growers have a farm plan but, given the scope of the survey it is difficult to ascertain the level to which they plan.

The main areas of focus for growers were irrigation water recycling in the Burdekin, green-cane trash-blanketing (GCTB) and silt traps in the Herbert, laser levelling and drainage systems in NSW and grassed headlands and drainage systems in Plane Creek.

Leading growers at SRDC's workshop on *Cane Farming to Improve Water Quality*, which was also published as a Technical Report, described improved cane farming practices that have been implemented to improve water quality on their farms and in downstream waterways.

Indicator 3: Societal returns from investment in industry and public health and safety; human resource capacity and capability; and R&D with significant community benefits

Measure 3(a): Case studies demonstrating improved health and safety

Studies funded by the Joint Venture for Farm Health and Safety, of which SRDC is a partner, have resulted in a range of initiatives to improve farm machinery safety in Australia. These involve education, training, positive incentives and, in extreme cases, prosecution. Other reports finalised over the 2004–05 year include:

Reducing All-Terrain Vehicle Injuries – there is a high prevalence of injury recorded in agricultural statistics. The profile indicates that agricultural motorbikes and ATVs are a significant contributor to these statistics. Hospital statistics put this rate as high as 11% of all farm-related injuries. 97% of all agricultural motor bike riders have no formal training. This report makes recommendations to rectify these problems in policy, educational, engineering and further research frameworks.

Safer Fences for Children on Farms – more than 50% of on-farm deaths for children under 4 are drowning related. This equates to more than 15 children per annum. This report outlines fencing options for effective safe play areas on rural properties.

Fall Related Injuries in Australia Agriculture – from 1992–1999, the sugar industry experienced almost 150 fall-related Workers Compensation claims. Another statistic relates 461 fall related deaths on all farms, not just sugar, from 1990–2000. This report makes some recommendations aimed at reducing on-farm falls-related injuries/ fatalities.

Measure 3(b): Completion of at least two tertiary scholarships and two study tours or conference attendances by industry R&D personnel per year

Two SRDC scholarship holders completed their study during 2004–05.

Ms Kerry Nutt completed her PhD thesis on "Characterisation of proteinase inhibitors from canegrubs for possible application to genetically engineer pest-derived resistance into sugarcane" at QUT. The most significant outcome of this research was the cDNA

cloning and partial characterisation of an *Ascaris* family protease inhibitor from greyback canegrub, *Dermolepida albohirtum*. The research outlined in this report is the first investigation of protease inhibitors in the haemolymph of scarab larvae, and is the first report of an *Ascaris* family inhibitor that does not inhibit a serine protease.

Mr Matthew James completed his thesis on "A Data Acquisition and Telemetry System for the Australian Sugar Industry" for his Masters in Computer and Communications Engineering with QUT. Matthew has now completed the requirements of his Masters degree & achieved a GPA of 6.7.

There were also a number of conferences attended, and tours undertaken by industry R&D personnel during 2004–05.

Dr Anne L Rae, from CSIRO Plant Industry, travelled to Montpellier, France to participate in the 13th International Workshop on Plant Membrane Biology. The workshop is held every three years and over 500 scientists from around the world attend, including some of the world leaders in this field. The workshop is recognized as the front-line conference in the field of plant membrane transport and is highly relevant to our research into the control of sucrose accumulation. Dr Rae's participation in the workshop confirmed that Australian-based research is significant in the international scientific community and formed the basis for developing some continuing linkages. The new techniques and approaches will be incorporated into the CSIRO research program and will assist in achieving our research goals to improve the genetic performance of the sugarcane plant for increased yield of sucrose or other higher-value products.

Kimberley Ritter, an SRDC-funded post graduate student, travelled to and participated in the International Consortium for Sugarcane Biotechnology (ICSB) Workshop held as part of the XIII Plant and Animal Genome Conference. She also wanted to learn more about research in the USA and about the science undertaken in the laboratory of Dr Andrew Paterson by visiting his laboratory and the laboratories of his colleagues at the University of Georgia in Athens, USA. Participation in the ICSB workshop provided Kimberley with the tremendous opportunity to present her project to the sugarcane community and learn about other research being conducted within the species. The Plant and Animal Genome Conference and associated workshops permitted Kimberley to hear internationally renowned scientists discuss their work and learn about the latest molecular genetic research. The visit to the University of Georgia was also rewarding as it allowed discussion and information sharing with many respected scientists who are working in the same area of molecular genetics.

Rick Beattie and Robert Quirk, both from the NSW sugar Industry undertook a travel and learning tour that included visits to sugar industries of the United States (Quirk) and Brazil (Beattie). Travel to Brazil, Australia's major competitor allowed a good appreciation of the scale and efficiencies of the Brazil industry. The growth of the Brazil industry is impressive and shows the confidence to expand despite the low world prices. Labour costs and the advantages offered by the Brazilian Real gives this industry significant advantages over world competitors. The visits to the US sugar industry allowed comparisons with production systems in the cool and wet temperate environment of Louisiana and potential application to NSW.

Peter McGuire, BSES, undertook a study tour of the Louisiana sugar industry and attended the ISSCT congress in Guatemala where he co-presented a paper on environmental achievement by the Australian sugar industry. He also extended the study tour to include the Brazilian sugar industry and a visit to Wageningen University in The Netherlands.

Key learnings from the project include:

- The need to encourage farm expansion through better share-farming arrangements;
- The importance of a 'whole-of-industry' approach in minimising harvester losses;
- The synergies available to a sugar industry when ethanol production and power generation are encouraged by government;
- The need to focus on core activities in a commercial environment.

The study tour provided a unique opportunity to interact with farmers, extension workers and researchers and others on three continents. As a result, alternative payment options for share farming have been made available in New South Wales.

SRDC sponsored five young sugar extension officers to attend a DAFF funded forum and workshop, conducted by Australia Pacific Extension Network, on future leadership in extension at Toowoomba in April 2005. There were six attendees from the sugar industry who joined with 30 others from a variety of rural industries at the workshop. The workshop was one of five conducted nationally, which culminated in a national forum in Melbourne during May.

Measure 3(c): The number of producers involved in participative action research increasing each year

SRDC strongly supports *grower led* research designed to improve the profitability & sustainability of the Australian sugar industry

Grower groups were initially promoted in the Mulgrave mill area with support from SRDC's CP2002 Program, and they have been strongly promoted in many other regions since, most notably through CSR Sugar's Cane Productivity Initiative.

Grower participation in groups is up to 60% in some regions, which is high and considerably better than in many other industries. At this level, the critical mass of grower involvement is now sufficient to enhance adoption of best management practices across industry.

An independent review of the SRDC/ BSES "Prosper" program in 2004 recommended expanding grower-group efforts, measuring progress made by participating growers, and promoting the benefits of involvement in groups, which SRDC has promoted and developed.

With the launch of both the Harvesting and Grower Group Innovation projects, SRDC received applications from 45 groups, with 19 being approved during 2004–05. This is an indication of the strength and commitment of grower groups within the sugar industry.

Measure 3(d): The proportion of total SRDC funding that contributes benefits beyond the sugar industry exceeds 30%

SRDC invests in strategic R&D in areas such as genetics and breeding technologies, biotechnology, crop physiology, prevention of

pest incursions, operations research, logistics and optimisation modelling, and modelling of factory operations that have potential benefits for the broad community through applications in other industries. SRDC also invests in projects focussed on providing benefits to the wider community through ensuring the sustainability of natural resources impacted by the industry, or through contributions to training and communication. In 2004–05, more than 50% of all projects, representing approximately 40% of project funding, undertook R&D whose outputs will, if successful, contribute benefits beyond the sugar industry.

Measure 3(e): The proportion of total SRDC funding that contributes significant benefits to rural and regional communities exceeds 20%

In 2004–05, SRDC conducted R&D whose outputs will, if successful, contribute benefits to rural and regional communities through regional planning and development, business development, human capacity building and skill development, health and safety, and rural amenity (in addition to direct environmental benefits which are covered under the previous paragraph).

In addition to these projects, many others are expected to provide direct economic benefits that flow on to rural regional communities through improved cash flow and profitability in the sugar industry.

Indicator 4: Alignment of SRDC's priorities and plans with those of the sugar industry and the Australian Government

Measure 4: Outputs produced in all sugar industry and government priority areas

Outputs addressing all target outcomes of the SRDC R&D Plan 2003–08, and all Australian Government National and Rural R&D Priorities are described earlier in this Report of Portfolio Operations.

Indicator 5: Compliance with statutory obligations

Measure 5: Submission of statutory documents on time and meeting all requirements, as measured by acceptance by the Minister

During 2004–05, SRDC submitted all statutory reports to the Parliamentary Secretary within required deadlines. In October 2004, the Parliamentary Secretary approved the SRDC Annual Report 2003–04 for tabling in the Australian Parliament. In May 2005, the SRDC Annual Operational Plan 2005–06 was approved.

Ecologically Sustainable Development and Public Good R&D

SRDC's initiatives to support ecologically sustainable development are documented earlier in this section, under the National and Rural R&D Priorities.

Public good R&D provides potential economic, environmental and social benefits to the Australian community beyond the sugar industry, through activities such as strategic R&D, improved environmental management and human capacity development. SRDC's initiatives are documented above under Measures 3(d) and 3(e).

The percentages of SRDC R&D funds applied to produce economic, environmental and social outcomes for 2004–05 in each of SRDC's four Programs are presented in Table 4.

Investment for environmental outcomes was greatest in Program B (Farming Systems), reflecting the importance of minimising the impact of farm practices on other ecosystems and the increased level of investment in Farm Management Systems (FMS).

Investment for social outcomes was greatest in Program D (Industry Capacity), reflecting the large investment in development of the human resource base of the industry. The overall rise in investment for social outcomes reflects the need for cultural change within the sugar industry.

Table 4: Percentage of SRDC R&D investments applied to produce Economic, Environmental and Social Outputs and Outcomes in Programs A–D in 2003–04 and 2004–05

Program	Economic		Environmental		Social	
	04–05	03–04	04–05	03–04	04–05	03–04
A	57	58	15	17	28	25
B	59	62	22	23	19	15
C	71	75	13	13	16	12
D	18	18	13	6	69	76
Total	**55**	**58**	**18**	**18**	**27**	**24**

Programs A–D Outputs and Outcomes

Program A: Value Chain Integration

Investments in Program A add value by making the value chain work more efficiently. Significant opportunities exist to optimise the use of whole-of-system resources by exploiting linkages and inter-dependencies across the industry value chain. Optimum solutions need to underpin not only the economic viability of the industry but also its environmental and social sustainability. Particular emphasis is placed on a whole-of-system approach to harvest and transport, leading to enhanced revenue and cost efficiency.

Outcome

Increased efficiency and overall profitability of the industry as an integral part of sustainable regional development.

Output

Whole-of-system solutions based on integrated management of the value chain, particularly at mill area and regional levels.

Inputs	
Continuing Projects	14
New Projects	5
Funding $m	1.457
Milestones approved	40
Final Reports approved	5
Milestones not received	0
Unapproved carryovers	0

Five new projects commenced under Program A during 2004–05. A strategic review of this Program undertaken during 2004–05 has led to the development of a forum and workshop to develop new Value Chain Integration projects, in collaboration with industry in October 2005.

Performance Assessment

Performance indicators specific to Program A in the AOP for 2004–05 are as follows:

- *Unapproved carryovers at end of financial year equivalent to less than 2% of budget*
  There were no unapproved carryovers in Program A.

- *Reviews conducted to assess progress towards delivery of outputs*
  One formal review was undertaken during 2004–05. There was also a review of harvesting related issues undertaken in conjunction with the launch of the "Cane Harvesting for Improved Industry Performance" technical report in February 2005, Assessment of project milestone reports indicated that progress was satisfactory in all projects and no issues required intervention by SRDC. Reference panels provided additional oversight to several projects.

- *Conduct of projects to produce the Program A Outcome and Output*
  Projects funded in 2004–05 addressed the following means of achieving the Program A Outcome and Output:

The **regional partnership approach in Mossman** has seen business plans developed for greater than the target of 10% of growers. Twenty-one farming families representing 25% of farming family enterprises have completed a business plan. The Federal Government Sugar Industry Reform Package has provided additional incentive and funding for business planning, contributing to this result. The harvest fleet has been reduced by 15% since 2002. Overall, sound progress has been made to date, with a review due 19 July 2005.

A model for **climate forecasting and trafficability** has been developed in conjunction with industry. At the steering group meeting on 28 February 2005, Industry and researchers agreed to develop a trafficability matrix for each location or climate zone.

The harvester performance data, for the **improving market signals** project, including field efficiency was analysed by the CHOMP (Centralised Harvest Operations Management Program) software package by Robert Crossley of Agtrix. These were used as the basis for discussion of the costs of alternative harvest payment systems (including $ per hour) with all the collaborating harvester operators in Maryborough, Mackay and Burdekin. Much of the data and its implications for improving harvest payment arrangements were also discussed at Bundaberg on 21–22 February before and after the launch of the booklet "Cane Harvesting to Improve Industry Performance". A genuine desire to improve harvest payment arrangements is apparent from the high level of collaboration provided by numerous harvester owner/operators and growers within this project.

An evaluation of ventures through modelling analyses has been completed for both the Maryborough and Burdekin regions, under the **integrated value chain scenario project**. Net regional financial benefits/costs have been identified and presented to the Maryborough region and to the Industry Reference Group. A workshop with the Maryborough Reference Group was completed 22 April 2005. Regional implications and follow-on or action plans were identified. A workshop is planned with the Burdekin Reference Group to allow regional implications to be identified and follow-on or action plans to be finalised. Surveys of changed attitudes/barriers to adopting new integrated production systems and progress towards improved profitability/ productivity/ sustainability in mill partners are complete for Maryborough, and are expected to be complete for Burdekin in July 2005.

The profitability of cane growers is increased when their cane is harvested and milled over

the few weeks in spring when sugar content reaches its peak. However, mill profitability requires equipment to be utilised over as long a period as possible to get a return on the investment in capital. **Adoption of an optimal season length for increased industry profitability** looks to increase the period for which sugar content is high and therefore maximise sugar production and profitability across a mill area. Major activities that have occurred to date include:

- Harvest schedule optimisation model and transport capacity planning model have been developed and a series of industry workshops have occurred.
- Evaluation and promotion of crop ripeners to improve the opportunities to harvest cane earlier in the season and improve CCS.
- A program was developed whereby growers within nominated harvesting groups undertook early-season CCS sampling to develop CCS curves for the period May to June, allowing growers to identify high-early CCS varieties and high CCS blocks. This allows farmers to reconsider early harvest management techniques within their own farms and in some cases within their own harvesting group.
- Trials have been established to assess the viability of reducing nitrogen rates on early harvested cane, which may increase sugar content.

One year old plant cane trials were harvested in each of the NSW mill areas in September/October 2004 as part of **implementing an integrated sugar system in NSW**. The trial results showed that dual rows grown on 1.8m centres out yielded single rows on 1.5m by an average of 7%. Wide rows on 1.8m centres out yielded the conventional row spacing by an average of 2%, whereas single rows on 1.8m centres yielded lower than 1.5m singles. Two-year old trials will be harvested in Harwood and Broadwater during the 2005 season. Trials were harvested green using GPS guidance to simulate conditions that will be experienced with whole-of-cane harvesting. In 2005, all trials will be harvested with both the harvester and haulout set up with auto-steer. A further four farming systems trials were planted in October 2004 that compare a plough-out/ replant system with one that incorporates a fallow break. Minimum/zero tillage planting is also being examined in these trials using a dual-row double disc-opener planter. Establishment of the zero-till planted treatments has been very promising. Three of these trials will be harvested as plant 1-year old in October 2005.

Achieving world's best practice harvesting and transport costs is a target for the NSW sugar industry. Harvest management units utilising GPS technology and machine sensors have been installed on harvesters in NSW. Software developed by Agtrix to interpret raw data from the harvesters was developed and run for the 2004 season. The software receives and interprets the raw data from harvesters, collates this information into a single database and processes the data to maintain harvest records that show how much of each paddock was cut and productivity data. These interpreted data were integrated with CHOMP software at each mill to monitor harvest progress. Harvesting parameters from previous research results were initially used in the Harvest Haul Model. GIS analysis using block to pad allocations has been utilised to estimate cane haulage distances and harvest efficiency data derived from the GPS harvest

monitoring units and CHOMP have been utilised to improve the input data to the model. Initial Harvest Haul Model analyses have been run for the three NSW mills and outputs checked. The Harvest Haul model will be used to quantify savings associated with harvesting group amalgamations as well as examining options for whole-of-crop harvesting. The rail siding location model has been adapted to a road transport system to optimise location of a limited number of additional cane loading pads. It has been adapted to all three mills in NSW. The objective was to add new pads in the optimal locations to reduce the average haul out distance within the mill region to the desired level.

Program B: Farming Systems

High productivity of sugarcane is essential for the viability of growing, harvest, transport and milling enterprises. Investments in Program B seek improvements based on best practice management of resources (eg. varieties, soil, water, nutrients, pest management inputs, capital and labour) given the variable influences of climate, pest and disease incidence, soils, cost and price structures and social conditions. A systems approach to farming and the development of novel pathways for adoption of more sustainable practices based on participative action research will be vital to achieving profitable, safe and environmentally responsible farming practices.

Outcome

Robust production systems that are both profitable and in harmony with the environment and societal expectations.

Output

Sustainable sugarcane production systems based on integrated management of resources at farm level.

Inputs

Continuing Projects	20
New Projects	15
Funding $m	3.291
Milestones approved	74
Final Reports approved	10
Reviews conducted	2
Milestones not received	0
Unapproved carryovers	0

Fifteen new projects were commenced in Program B during 2004–05, which included three Farm Management Systems projects

resulting from National Heritage Trust funding.

Performance Assessment

Performance indicators specific to Program B in the AOP for 2004–05 are as follows:

- *Unapproved carryovers at end of financial year equivalent to less than 2% of budget*
  There were no unapproved carryovers in Program B.

- *Reviews conducted to assess progress towards delivery of outputs*
  No formal reviews were undertaken during 2004–05. There were three projects terminated during 2004–05 as a result of reviewing the progress made against the original milestones and the likelihood of a successful outcome. Assessment of other project milestone reports indicated that progress was satisfactory in all projects and no issues required intervention by SRDC. Reference panels provided additional oversight to several projects.

- *Conduct of projects to produce the Program B Outcome and Output*
  Projects funded in 2004–05 addressed the following means of achieving the Program B Outcome and Output:

A survey to indicate changes implemented by Herbert River district cane growers was undertaken as part of the **Enhancing PROSPER project**. The Herbert survey was structured along the lines of the COMPASS questions and indicated there is adoption of improved grower practices, albeit slow in most cases. The exception is for cane varieties, where the majority of growers indicated they are changing varieties. Farm management is also improving, with approximately half of the responses indicating positive change. DPI&F's FutureCane economists are working with BSES extension officers to develop case studies of the costs and benefits of 3–4 innovative farming practices in each of the four major Queensland regions. The recommendations arising from the review of the project include the following:

- Packaging of farming system information to suit different types of growers

- Support for grower groups that have a specific focus and common interests (including women and young farmers)

- Provision of funding to enable all BSES extension staff to meet and share experiences and ideas

- BSES support to grower groups within the SRDC-sponsored Travel and Learning Opportunity program

- Case studies of innovative growers (again in conjunction with SRDC)

- Updating of BSES website to make it more useful to growers.

Approximately 280 growers attended workshops in the 26 productivity forum areas linked with the established **CSR Productivity Initiative and Prosper program** to determine support for extended season length, and evaluate other crop management practices on farm and management strategies for early harvest. A high level of industry awareness of the project objectives has been achieved through the participative workshops. Growers were actively involved in the time of harvest trials and the crop ripener trials, and this will continue in 2005. A key learning of reflection on the participatory process was to ensure a high level of communication and grower

participation is achieved throughout the project.

Project team members responsible for **increased profitability and water use efficiency through best use of limited water under supplementary irrigation** originally suspected that there would be measurable depression of yield of subsequent ratoon crops from lack of irrigation, based on observations by cane growers. No yield depression was measured in the Burdekin trials, although initial ratoon growth was slower where irrigation was withheld in the previous crop. In fact, there was a trend towards lower yield in ratoons following full irrigation in the previous crop. It is thought this was due to the fully-irrigated crops lodging and stool being removed during harvesting. Differences, however, were not statistically significant. Yield at high irrigation levels is much less than expected, largely due to lodging. Simulated yield responses to supplementary irrigation have been developed using the APSIM-Sugarcane model. Outputs suggest that the marginal returns (increased sugar yield) are generally better when limited water is applied:

- early rather than late in the growth season,
- on yellow chromosols rather than on red ferrosols; and
- in districts with lower average rainfall rather than in generally wetter districts during dry years.

These results need to be tested by commercial cane growers but they indicate that growers should not try to apply limited water equally to all cane blocks but select blocks that will give the best marginal returns (based on time of harvest, soil type and predicted rainfall). This project is nearing completion and the results are challenging the way we traditionally manage irrigation of sugarcane.

The **participative action research (PAR) trial in the Ord** involved growers testing the robustness of a 50% water deficit before applying irrigation. Growers decided to test a 67% deficit but this treatment clearly returned a lower sugar yield. This learning-by-doing approach is a very effective method for growers to understand new concepts. The knowledge obtained is to be used in simulating crop growth in the Ord, which will help understand the unusual physiological responses of the crop in this extreme environment. Sucrose accumulation is limited in the Ord despite high inputs of water, nutrients and sunlight. Four Ord growers and their advisor travelled to Mackay to attend an information meeting of the Sugar Yield Decline Joint Venture and immediately implemented aspects of this upon their return (including soybean break cropping and green-cane trash-blanketing). The risks of pre-harvest burning were highlighted last season with deterioration of significant areas of burnt cane at times when the mill was shut down due to technical problems.

The **Sugar Yield Decline Joint Venture** research activities are continuing but extension and implementation activities are taking an increasingly high profile. There is strong interest in alternative farming systems and significant implementation has been recorded. The project team conducted three workshops to communicate with advisory staff. The response to these was strong with nearly 50 attendees coming to the Central region workshop. The research trials are building a better understanding of

the impacts of residue management (cane and legume) on organic matter, nematode populations, nitrogen availability, and cane growth. Clear recommendations on soil management to sustain soil health on different soil types will be forthcoming when these studies are analysed. The research leader is a strong advocate of maintaining a good balance between research and implementation initiatives in the new proposal. The project team has identified several key areas of knowledge gaps, and more are likely to be identified during the advisers' workshops. Implementation of new farming systems will be strongly promoted through both the new SRDC project in the Central district and the QDPI&F Future Cane program.

The main activities of the **Improved environmental outcomes and profitability through innovative management of nitrogen** project that have occurred in the project during the time covered by this report have been the establishment of trials at 16 farms across five regions, from Mossman to NSW. Early results from the soil analyses have shown unexpectedly high concentrations of ammonium at some sites in southern regions as well as an accumulation of nitrate at depth at some sites. The former result is noteworthy, as is has been previously observed mainly in the wet tropics, and means that estimation of soil nitrogen based on analysis of nitrate only may be underestimating soil nitrogen (N) stores. A comprehensive assessment of biological N fixation in legumes in sugarcane systems has been initiated. Assessments are being conducted at 17 sites from Mossman to NSW and cover a variety of legumes such as soybeans, cowpea, Caloona pea, lablab and peanuts.

The **adopting systems approaches to water and nutrient management for future cane production in the Burdekin** have evidenced significant loss of nitrogen in runoff water in the first irrigation. This project will identify and promote means of reducing nitrogen losses. The modelling suggests that the best response to reduce loss of N in runoff water is to ensure irrigation to maximise early plant growth. While full irrigation may seem counterintuitive to reduce N losses, it is predicted that total N losses will be greater if early crop growth is restricted by lack of water, due to lower N uptake by the crop.

Canegrub insecticides are currently registered for use in single-row cane grown and planted conventionally at about 1.5 m row spacing. There is little information available to determine **optimum canegrub management within new sustainable cropping systems**, which include wider-row spacing and dual-row crops. Equipment was designed and fitted to a minimum tillage (disc-opener) planter to allow variable rates of different products to be applied during planting. So far, four trials have been established against greyback canegrub using this planter. Additional trials will be planted against this species and against Childers canegrub during 2005.

Cane is grown on sodic soils in parts of the Burdekin district. **Products and mechanisms for amelioration of sodic soils** were tested for their ability to increase water infiltration rates and improve crop production when applied to sodic soils. Gypsum was superior to other products including earth lime and molasses, although the quality of gypsum was shown to be important. Irrigation management, without ameliorants, was shown to influence crop yields on sodic soils. More frequent irrigations resulted in increased cane yield.

Several studies identified that the factor that separates top farmers from the average in terms of productivity and profitability is good management. **Setting productivity and cost savings targets for the NSW sugar industry** is about identifying these good management practices and assisting all farmers to improve their practices, through both increased production and reduced costs. The consultant completed face-to-face interviews with NSW farmers to identify opportunities for increasing productivity and the barriers to adoption. Whole farm productivity data for all NSW mills were collated and analysed. An industry workshop was held in June 2005 with attendees representing all sectors of the NSW sugar industry including farmers drawn from participants in the industry survey, NSW Canegrowers, Productivity Boards, harvesting and transport, milling, extension officers as well as NSW DPI staff. A CSR Cane Productivity Manager and a Burdekin farmer attended and presented a good session on the outcomes of the CSR productivity initiative. The workshop identified where significant gains in productivity and/or reductions in costs could be achieved. Participants discussed how to best implement an improvement program and set initial targets for high achievement. Further research was identified as necessary to assist in implementation. All parties agreed that a close partnership between industry participants and research providers will maintain a sustainable New South Wales Sugar Industry.

Program C: Processing and Distribution Systems

Technological improvements will provide more efficient processing and distribution systems. The industry's processing and distribution systems must operate with best health, safety and environmental practice and be responsive to community interests. Significant opportunities exist to improve the design and implementation of harvest, transport, milling and marketing processes consistent with environmental and societal responsibility. These will lead to better utilisation of capital, greater cost efficiency, enhanced product recovery, expanded product range and enhanced product quality. Investment to diversify the income stream will involve expanding the product range and exploring opportunities for extraction of novel materials from existing cane products and modified sugarcane varieties.

Outcome

More productive and cost-effective processing and distribution systems in harmony with the environment and societal expectations.

Output

Flexible, cost-effective systems for sustainable harvest, transport, milling and marketing based on innovative design.

Inputs

Continuing Projects	14
New Projects	7
Funding $m	1.128
Milestones approved	34
Final Reports approved	9
Milestones not received	0
Unapproved carryovers	0

Seven new projects were commenced in Program C during 2004–05.

Performance Assessment

Performance indicators specific to Program C in the AOP for 2004–05 are as follows:

- *Unapproved carryovers at end of financial year equivalent to less than 2% of budget*
  There were no unapproved carryovers in Program C.

- *Reviews conducted to assess progress towards delivery of outputs*
  There were no formal project reviews conducted during 2004–05. There was a clarification sub-program review undertaken, which incorporated a number of projects. Assessment of project milestone reports indicated that progress was satisfactory in all projects and no issues required intervention by SRDC. Reference panels provided additional oversight to several projects.

- *Conduct of projects to produce the Program C Outcome and Output*
  Projects funded in 2004–05 addressed the following means of achieving the Program C Outcome and Output:

A **crystallisation study in a pilot batch vacuum pan** is a project that is studying the nature of sugar crystal growth with the aim of improving pan operation.

Adding a financial interface and road modelling capability to the TOTools suite of programs – Traffic Officer Tools (TOTools), the animated cane transport scheduling system, (ACTSS) and automatic cane railway scheduling system (ACRSS) have now been modified to allow calculation of the costs of alternative transport schedules.

Improved transfer to mills of technology developed by the Sugar Research Institute – A portal for Sugar Research Institute's members to access SRI project information and to interact with SRI project staff via the world wide web is now fully operational. An IT company called LiquidWit developed this portal in collaboration with SRI. Five SRDC and mill-funded projects are linked by LiquidWit to the SRI web-site for beta-testing of the system by mill representatives.

Use of sugarcane as a biofactory for production of biopolymers is one of the CRC projects. The project is attempting to produce plants that have been modified to produce plastics precursors, and is due to conclude in May 2006. Any follow-on work will need to be conducted in a new project, to either improve the yield if necessary and/or identify the best means of extracting it.

Sugar derivative production in sugarcane – Assays for several enzymes have been developed. The project is well on track. Over the next year the profiles of target compounds will be determined in the range of plants generated in the project.

A pilot Roberts evaporator was installed at Racecourse Mill to determine the **functional relationship between juice properties, operating conditions and heat transfer in Roberts evaporators**. The functional expressions being determined in this work will be used to improve the energy-efficiency of juice evaporation thus allowing diversion of energy for electricity generation.

Mud from filters in sugar factories has high water content, which increases the cost of transport back to farms for disposal. In 2003 and 2004, pilot centrifuges were installed at Invicta Mill to reduce the moisture content of the mud to below that currently being produced with rotary drum filters. A preliminary evaluation of using belt press filters gave moisture levels of mud similar to

that produced in a centrifuge. Final mud moisture was comparable to the decanter centrifuge but with the added advantage of good mud solids retention. An economic assessment of this technology is planned to ascertain if **low moisture mill mud provides a more cost effective return**.

Program D: Industry Capacity

This program aims to add value through developing the potential of people throughout the industry. To realise the opportunities arising from innovative R&D, it is important to enhance human skills to address the challenges of the increasingly complex operating environment of the Australian sugar industry. Investing in people and fostering alliances, partnerships and collaborations will be critical to success in integrating system solutions that contribute to a vibrant sugar industry. Projects funded within Program D in 2004–05 include Travel and Learning Opportunity Projects, postgraduate Scholarship Projects and Research projects.

Outcome

A skilled human resource base and enhanced industry R&D capacity focussed on delivery of economic, environmental and societal benefits.

Output

Enhanced human capacity for change, learning and innovation in the sugar industry.

Inputs

Continuing Projects	35
New Projects	30
Continuing Scholarships	9
New Scholarships	3
Funding $m	1.141
Milestones approved	112
Final Reports approved	23
Reviews conducted	0
Milestones not received	0
Unapproved carryovers	0

Thirty new projects and three scholarships were commenced in Program D during 2004–05.

Performance Assessment

Performance indicators specific to Program D in the AOP for 2004–05 are as follows:

- *Unapproved carryovers at end of financial year equivalent to less than 2% of budget*
  There were no unapproved carryovers in Program D.

- *Reviews conducted to assess progress towards delivery of outputs*
  No formal project reviews were conducted in 2004–05. However, an internal review of investment opportunities in Program D was undertaken. SRDC staff have been directly involved in a significant number of activities initiated through Program D projects, which facilitate a direct hands on review of the project. Assessment of project milestone reports indicated that progress was satisfactory and no issues required intervention by SRDC.

- *Conduct of projects to produce the Program D Outcome and Output*
  Projects funded in 2004–05 addressed the following means of achieving the Program D Outcome and Output.

A large number of **Travel and Learning Opportunity Projects** were conducted in 2004–05, and final reports of completed projects clearly document the nature and benefits delivered from these projects. Over 300 people participated in over 30 SRDC Travel and Learning Opportunity Projects in 2004–05.

SRDC approved three new scholarships in 2004–05. Kylie Anderson at James Cook University will be studying Invasion potential of *Eumetopina flavipes*, vector of Ramu Stunt Disease of Sugarcane. SRI staff member, Su Yin Tan, will be studying bagasse fractionation using ionic liquids through Monash University. Karen Benn will be investigating the motivators and barriers to the adoption of more sustainable farming practices through James Cook University.

Forty growers and 5 staff undertook a **value adding and diversification learning tour from Maryborough mill region** to the Kingaroy, Darling Downs, Rocky Point and Brisbane areas to investigate diversification opportunities in fallow cane land, value adding to sugarcane and fallow crops, environmental sustainability and understanding and tailoring products to meet market needs. Key findings and knowledge gained by the participants through the interaction with other successful agricultural businesses include increased:

- Knowledge of the agronomy and marketing of complementary break crops such as peanuts,

- Understanding of value adding opportunities within the current sugarcane industry by focussing on by-products,

- Understanding of the change management processes required to successfully adapt to a potentially deregulated environment by visiting a dairy that is continuing to operate in a deregulated industry,

- Understanding of the environmental issues challenging other industries and how they are being addressed with particular emphasis on our downstream effects and fertiliser management.

These findings have then been extended to other local cane growers and the broader community through presentations at local

meetings, presentation at a local industry strategic planning meeting, discussions at cell group meetings and an ABC Radio interview.

The Grower Group concept in the sugar industry has been constantly enhanced and provides a great opportunity to spread information to fellow growers. A **Learning and innovation bus tour for Central district grower group leaders** provided the opportunity for 28 grower group leaders from the Central district, 2 BSES staff, and 2 Mackay Sugar staff to travel to Sarina, Dysart, Burdekin and Proserpine to learn from both grain-growers and canegrowers about the implementation of new farming systems, especially of the change process and the long-term benefits. Ms Tracey Gianatti from the Grower Group Alliance Western Australia, Ms Fleur Tonge from the dairy industry, and Mr Andrew McCartney from the beef cattle industry traveled with the group. This gave the grower participants the ability for one-on-one contact, which further enhanced the group outcomes.

A **controlled-traffic study tour of the Birchip Cropping Group by the NSW farming systems steering committee** was undertaken to address the desire for growers and extension officers from northern NSW to improve their understanding of controlled-traffic systems 12 NSW sugar industry representatives travelled during 2004–05 to central Victoria. Key lessons from this SRDC Travel and Learning Opportunity Project to learn from the grains industry included:

- greater knowledge about GPS steering systems, base station requirements, signal limitations and user requirements;
- improved understanding of the soil health benefits of zero till farming systems;
- greater awareness of the risks associated with herbicide resistance.

The flow-on benefits of this capacity building activity include improved confidence in controlled traffic and GPS guidance systems, and increased uptake of these innovations in the northern NSW sugar industry.

To **build young farmers' capacity for change in the Central district sugar industry**, a project led by grower and part-time BSES employee Joe Muscat enabled 13 young growers from the Brightly Young Farmers' Group to travel together to the Burdekin, Herbert and Gordonvale sugar regions to learn about improved farming systems, water quality and grower groups. A mix of male and female growers participated in this SRDC Travel and Learning Opportunity Project, and both technical and social benefits were delivered by this capacity building trip. A brief questionnaire was completed by the 13 growers before the trip, and again after the trip. The survey results indicated the project had built the capacity of the group in a range of areas, and that the trip was considered worthwhile by participants. The majority of participants believed they could improve their current farming system, and improve water quality as a result of improved practices.

A whole of industry field day was held in April 2005, as part of **implementing an integrated sugar system in NSW**. The day that was attended by 150 growers and illustrated the findings of the farming systems project to date. Adoption of elements of a new farming system in NSW has increased to 8% following planting in 2004. This level of adoption of new farming system principles will rise in 2005 with a significant number of growers set to change from their current system.

5 REPORT OF CORPORATE OPERATIONS

Legislative Framework

SRDC was established under the *Primary Industries and Energy Research and Development Act 1989* (the PIERD Act) on 1 October 1990. As an Australian Government Statutory Authority it is also subject to the *Commonwealth Authorities and Companies Act 1997* (the CAC Act).

The objects of the PIERD Act are to make provision for the funding and administration of research and development relating to primary industries with a view to:

(a) increasing the economic, environmental or social benefits to members of primary industries and to the community in general by improving the production, processing, storage, transport or marketing of the products of primary industries;

(b) achieving the sustainable use and sustainable management of natural resources;

(c) making more effective use of the resources and skills available in the community in general, and in the scientific community in particular, and

(d) improving accountability for expenditure upon research and development activities in relation to primary industries.

The PIERD Act establishes the following functions of SRDC:

- to investigate and evaluate the requirements of the sugar industry for R&D, and on the basis of that investigation and evaluation, to prepare an R&D plan, and to review and revise the plan;
- to prepare an annual operational plan for each financial year;
- to coordinate or fund the carrying out of R&D activities that are consistent with the annual operational plan prepared by the Corporation and in force at the time;
- to monitor, evaluate and report to the Parliament, the Minister and its representative organisations on R&D activities that are coordinated or funded, wholly or partly, by the Corporation;
- to facilitate the dissemination, adoption and commercialisation of the results of research and development for the sugar industry, and
- such other functions as are conferred on the Corporation by this Act or any other Act.

Copies of the SRDC R&D Plan, Annual Operational Plan and Annual Report are available from the SRDC website, www.srdc.gov.au or by contacting SRDC.

Objectives of SRDC

The objectives of SRDC are directly related to the objects of the PIERD Act. They are:

- To improve the competitive position and cost efficiency of the Australian sugar industry;
- To achieve sustainable use and sustainable management of the natural resource base of the sugar industry;
- To apply industry, scientific and community resources more effectively to R&D in the sugar industry, and

- To manage SRDC resources efficiently and to improve the accountability for expenditure on R&D for the sugar industry.

Funding of SRDC

Funding of SRDC is by levies from industry, with matching Australian Government contributions up to 0.5% of the gross value of production (GVP). Levies are imposed under Schedule 24 of the *Primary Industries (Excise) Levies Act 1999* and collected under the *Primary Industries Levies and Charges Collection Act 1991*. In 2004–05 the levy was $0.14 per tonne of sugarcane crushed, divided equally between growers and millers.

Industry Representative Organisations

The PIERD Act prescribes the following representative organisations of SRDC:

- Australian Cane Growers' Council Limited;
- Australian Cane Farmers' Association Limited;
- Australian Sugar Milling Council Proprietary Limited.

SRDC is accountable to the Australian Government, the R&D levy payers and these representative organisations. SRDC meets formally with the representative organisations three times each year to discuss SRDC activities, statutory reporting, levy arrangements as requested, R&D priorities and any other matters of mutual interest. More details are provided under the Consultations heading below.

Responsible Minister

SRDC is responsible to the Australian Parliament through the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry. Senator the Hon. Judith Troeth was the Parliamentary Secretary until 22 October 2004. Senator the Hon Richard Colbeck was appointed to the position of the Parliamentary Secretary from that date. The Parliamentary Secretary:

- approves the five-year R&D Plan and the annual operational plan;
- appoints Directors, other than the Chair, Executive Director and Government Director, of SRDC on the recommendation of the Sugar Research and Development Corporation Selection Committee, and
- appoints the chairperson and government Director of SRDC.

SRDC's practice is to communicate with the Minister in writing after every in-person Board meeting. More specifically, in July each year the Board reviews the continuing relevance of the SRDC R&D Plan, and advises the Minister of the outcome of that review. The Chair and Executive Director also endeavour to arrange meetings with the Minister at approximately six-monthly intervals, at times convenient to the Minister.

In 2004–05, no significant events occurred that required notification to the Minister under section 15 of the CAC Act.

Ministerial Directions

"The PIERD Act and the CAC Act provides that a Minister may give a direction to the Corporation with respect to the performance of its functions and the exercise of its powers. No such direction was given in the period under review."

Corporate Governance Framework

The SRDC Board sets the Corporation's strategic direction and delegates responsibility for day to day management to the Executive Director. The Board is committed to governance systems that enhance performance and ensure that SRDC is operating according to accountability provisions of the PIERD Act and the CAC Act.

SRDC's Corporate Governance Framework, which is documented in Table 5.1 on the following pages, was adopted by the Board in its present form in March 2004. As part of the framework, the Board completes a Due Diligence Checklist at the conclusion of each Board meeting. At every meeting in 2004–05, the Board confirmed that all decisions had complied with the requirements of the Due Diligence Checklist. At the first meeting of the newly-appointed Board in June 2005, the Board endorsed the continuing appropriateness of the Corporate Governance Framework and the Due Diligence Checklist.

At the August 2004 meeting, the Board assessed the performance of the Board and Audit Committee, based on a process which involved a questionnaire and formal meeting with the Chair. All Directors were positive about the Board's overall performance with unanimous support for lifting the general strategic focus of the Board. At the June 2005 meeting, the Board reviewed the Directors Code of Conduct and the Board Assessment and Audit Committee Framework, and endorsed their continuing appropriateness. The Board approved the conduct of a Board and Audit Committee Assessment at the July 2005 meeting, using the Board Assessment and Audit Committee Framework. In June 2005, the Board also approved an outline of the conformance and performance functions of SRDC, in responding to the Corporate Governance Framework. The outline is given in Table 5.2.

Table 5.1: SRDC Corporate Governance Framework

Leadership

SRDC operates under the direction of a Board which is responsible for developing the Corporation's policies, governing its operation and monitoring its performance. The Executive Director leads the SRDC management team and is accountable to the Board for day to day operation of the Corporation. The Board has two committees – an Audit Committee to provide advice on accounting, financial reporting, compliance practices and risk management, and a Scholarship Committee which provides advice to the Board on policies relating to scholarships and the awarding of scholarships.

The key Board functions are:

- establishing goals and setting strategic direction.
- developing and approving a five year R&D Plan, an Annual Operational Plan and producing an Annual Report.
- establishing policies and approving procedures for the operation of SRDC.
- ensuring that risk assessment and management frameworks are in place to minimise business and financial risk.
- ensuring that R&D resources are allocated to address priority issues effectively.
- ensuring compliance with applicable laws and provisions of the CAC Act.
- ensuring that Directors and staff maintain the highest ethical standards in accordance with the Code of Conduct.
- appointing, appraising, and setting the level of remuneration for the Executive Director.
- evaluating its own performance and that of its committees and SRDC management against agreed indicators.

Planning and Reporting

The five-year R&D Plan defines SRDC's core business, indicates broad priorities for R&D and defines the corporate strategy to achieve its outputs and outcome.

The Annual Operational Plan (AOP) specifies the broad groupings of R&D activities that SRDC proposes to fund during the financial year together with an estimate of income and expenditure. The AOP must be submitted to the responsible Minister for approval and a copy forwarded to each of SRDC's Representative Bodies.

The SRDC Portfolio Budget Statement summarises SRDC's outcome, outputs, performance information and financial position each year. It is consistent with the five-year R&D Plan and the AOP and is tabled in Parliament.

Table 5.1: SRDC Corporate Governance Framework *(continued)*

The SRDC Annual Report gives particulars of R&D activities funded during the year (inputs), and a review of how SRDC has performed in relation to the objects of the PIERD Act, the SRDC R&D Plan and its corporate outputs and outcome. The Annual Report must be submitted to the responsible Minister for tabling in Parliament and provided to each of SRDC's Representative Bodies.

Accountability

As required by Sections 15 and 16 of the CAC Act, the Chair of SRDC advises the responsible Minister in writing of significant events affecting the operation of the Corporation, and the general operations of the Corporation. It is SRDC policy for the Chair and Executive Director to also consult personally with the Minister twice yearly, and to write to the Minister after each Board meeting outlining key decisions taken.

The Chair and Executive Director meet three times each year, in March, July and November, with the Executive of SRDC's three Representative Bodies to discuss SRDC's Annual Operational Plan and Annual Report, investment needs and priorities.

Management

The SRDC Business Process Management System (BPMS) folds active quality assurance into the daily management of SRDC. It is an essential tool in managing risk and controlling fraud and its annual audit is overseen by the Audit Committee.

Financial Control

SRDC maintains accounts and records of transactions in accordance with accepted accounting principles. Financial statements are prepared in accordance with Schedule 1 of the CAC Act and Australian Accounting Standards.

Risk Management

SRDC's risk management system is detailed in its Risk Management and Fraud Control Plans. These cover all of SRDC's activities from portfolio to project level including transactions with external providers and contractors.

Monitoring

The SRDC R&D Plan 2003–08 outlines strategies and performance measures that provide a framework for monitoring activities and measuring corporate performance. At the operational level, the BPMS details processes for monitoring and assessment of SRDC's R&D activities and management performance.

Table 5.2 Compliance and Performance Functions of SRDC

	Compliance Roles	Performance Roles
External Role	**Accountability** ◆ Communication with Minister ◆ Communication with Stakeholders ◆ Legislative/regulatory Compliance (DAFF, Annual Report) ◆ Audit (ANAO) ◆ Working with R&D Providers to maximise outcome delivery	**Strategy Formulation** ◆ Leadership and Catalyst for Change ◇ assess R&D needs and opportunities ◇ determine R&D investment strategy ◆ Communication with Stakeholders ◆ Corporate Direction ◆ Annual Investment Decisions (AOP)
Internal Role	**Monitoring and Evaluation** ◆ Portfolio Performance towards outcomes ◆ Project Performance ◆ Corporate Performance against Plans ◆ Budget ◆ Management Performance ◆ Internal audit	**Policies and Plans** ◆ Budget ◆ BPMS ◆ Plans ◇ Risk Management ◇ Fraud Control ◇ OH&S ◇ Communication ◇ Information Technology
	Past and Present Orientated	**Future Orientated**

Board Responsibilities

The SRDC Board formally reviews SRDC's progress towards achieving its corporate objectives, and its management systems, at its July/August meeting each year. This includes a review of progress towards achieving the outputs and outcomes in each of the R&D Programs and consideration of whether the R&D Plan requires amendment.

The SRDC R&D Plan 2003–08 was developed during 2002 after extensive consultation with sugar industry organisations, research providers and government. The R&D Plan 2003–08 was approved by the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry on 20 December 2002 and officially launched in February 2003. The Plan was framed within the context of the realities of the current state of the industry,

while continuing to look to the health and sustainability of the industry in the longer term.

In August 2004 and April 2005, SRDC conducted workshops for industry participants (growers, millers, harvesters and researchers) in all regions of the industry. Details are provided in the next section. One goal of the workshops was to obtain feedback on the relevance of the SRDC R&D Plan 2003–08. Participants rated the appropriateness of the six key outcomes of the R&D Plan on a scale of 1 (not appropriate) to 5 (very appropriate). At both series of workshops, the median score of all respondents was 4, and 95% or more of respondents scored between 3 and 5, an extremely strong endorsement.

During 2005, the Board considered a mid-term review of the SRDC R&D Plan 2003–08, and noted progress in documenting performance against the key performance indicators for each of the key outcomes of the Plan.

In August 2004, and again in July 2005, the Board conducted strategic analyses of SRDC's investment in the four Programs of the R&D Plan 2003–08, and affirmed the continued relevance of the Plan. For each Program, the Board considered the current R&D portfolio, expected and delivered outputs and outcomes, opportunities for participative communication and promotion of adoption of outcomes, and gaps and opportunities to be targeted in the call for new proposals for R&D to commence in the following July. The calls were advertised in the national press in August 2004 and July 2005 respectively, and details were posted on the SRDC website.

the Board also reviews its own effectiveness and that of the internal management of SRDC at the July/August meeting each year. In July 2005, the Board recognised that SRDC's management processes had functioned well during 2004–05, and the Board indicated a high level of satisfaction with interactions with Management.

Consultations

The Chair and Executive Director held formal consultations with Senator Troeth in September 2004, and with Senator Colbeck in January and June 2005. These consultations enabled SRDC to provide direct reporting on significant issues and decisions including the industry outlook and SRDC's R&D portfolio. The Chair also wrote to the Parliamentary Secretary after each Board meeting to outline key decisions taken.

The Chair and Executive Director, representing the Corporation, held formal consultations with the Representative Bodies, as required by the PIERD Act, on three occasions in 2004–05. No payments were made to the Representative Bodies for these or any other consultations or purpose in 2004–05.

The major issues discussed at the meetings with the Representative Bodies included the ongoing relevance of the SRDC R&D Plan 2003–08 and SRDC's strategic direction, the SRDC AOP for 2004–05, the SRDC Annual Report for 2003–04, new R&D projects to commence in 2005–06 including Group Innovation Projects, the SRDC budget for 2005–06, and the SRDC regional workshops.

Mr Ian White, CEO of Queensland Sugar Limited, attended the March 2005 Board meeting and discussed the strategic implications of the world sugar market trends and outlook.

Directors interacted with the industry peak bodies on several occasions during industry events. They also conferred with the industry generally throughout the sugar producing regions of Australia during Board meetings at Townsville, Mackay and Brisbane, with associated visits to CSIRO Davies Laboratory, James Cook University, Pioneer and Proserpine mills, the CRC for Sugar Industry Innovation through Biotechnology, and the Tweed valley industry. Directors attended the Conference of the Australian Society of Sugar Cane Technologists in Bundaberg in May 2005. The Chair and Executive Director visited the Ord industry on two occasions.

SRDC revised its timetable for regional workshops during 2004–05, with the result that two series of workshops were conducted, in August 2004 and April 2005. SRDC intends to conduct the workshops in March/April each year, to enable greater industry input into the Board's review of SRDC's strategic direction and R&D portfolio, which is conducted in July each year. Eight workshops were conducted in August 2004 and seven in April 2005. The workshops were aimed at identifying strategic issues and new opportunities to address the key outcomes of the SRDC R&D Plan 2003–08, and facilitating communication between SRDC and industry participants. Over 200 participants attended each series of workshops, but industry participants increased from 49% of attendees in August 2004 to 73% of attendees in April 2005. A feature of the April 2005 workshops was an industry dinner at each location, during which the SRDC Regional Awards for Excellence in Grower Groups were announced.

During the year, the Executive Director made presentations to the Boards or annual meetings of ACFA, ASMC, NSWSMC and QSL on SRDC's role in the R&D partnership between government and industry, and SRDC's R&D portfolio and outcomes.

SRDC Directors

Appointment

SRDC Directors include the Chair and Government Director, who are appointed by the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry; the Executive Director, who is appointed by the Board of the Corporation; and between four and six Nominated Directors, who are appointed by the Parliamentary Secretary on the recommendation of the Sugar Research and Development Corporation Selection Committee. The Executive Director is the only full-time Director. Directors other than the Government Director and Executive Director serve on the Corporation for a term not exceeding three years. The Government Director's term on the Corporation is at the Parliamentary Secretary's pleasure.

The Chair, Mr Robert Granger, was appointed on 1 October 2002 for a period of three years. Six Nominated Directors were appointed on 1 May 2002 for three-year terms, and five were reappointed on 1 May 2005 for further three-year terms. Mr David Williamson was appointed Government Director from 11 March 2003.

Directors have experience in one or more of the following fields of expertise: commodity production, commodity processing, commodity marketing, conservation of natural resources, management of natural resources, science, technology and technology transfer, environmental and ecological matters, economics, administration of research and development, finance, business management or sociology.

Chair

Robert G Granger
BEcon FAICD

Robert Granger was appointed Chair of SRDC from 1 October 2002 for a three-year term concluding on 30 September 2005. He was formerly General Manager of Queensland Fruit and Vegetable Growers Ltd, with extensive experience in R&D and change management in the Horticulture industry. He is currently Chair of Wholesale Ornamental Nurserymen Pty Ltd and also chairs the Australian Mushroom Industry Advisory Committee and the Australian Avocado Industry Advisory Committee. He was chair of the Australian Government's Sugar Industry Guidance Group.

Deputy Chair

Andrew Barfield
BAgrSc MBA GAICD

Andrew Barfield was appointed to SRDC as a non-executive Director on 1 October 1999. He was re-appointed from 1 May 2002 and 1 May 2005 for three-year terms. He is a cane farmer in the Pleystowe district and is Chairman of Mackay Area Productivity Services Ltd. He is a former Director of Mackay Sugar Cooperative Association Ltd and mill representative on the Pleystowe, Racecourse, Marian and Farleigh Cane Production Boards. A 1998 Nuffield Scholar,

he was formerly chairman of Canegrowers, Pleystowe. He was a member of the SRDC Audit Committee from 1 July 2000 to 30 April 2002.

Executive Director

Russell C Muchow
BAgrSc (Hons)
MAgrSc PhD FAIAST
GAICD

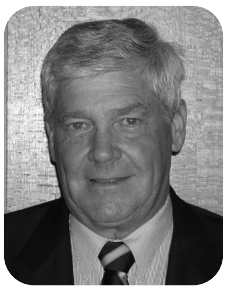
Russell Muchow was appointed Executive Director of SRDC in April 2001. Prior to his appointment, he was Chief Research Scientist in CSIRO where he worked for 25 years on enhancing the cropping industries of northern Australia. He has provided research leadership in using whole-of-systems approaches and change management to identify and implement ways of increasing profitability and sustainability of agricultural industries, particularly the sugar industry. He was awarded the Australian Medal of Agricultural Science in 2001 for his contribution to the advancement of Agriculture in Australia. He was awarded a Graduate Diploma of the AICD in 2003. During 2003–04, Dr Muchow was a member of the Sugar Industry Guidance Group for industry reform.

Government Director

David C Williamson
BA (Hons)

David Williamson was appointed Government Director on 11 March 2003. He is currently General Manager of the Rural Support and Adjustment Branch within the Department of Agriculture, Fisheries and Forestry. His team is responsible for developing and delivering a range of measures as part of the Australian Government's "Agriculture Advancing Australia" initiative. David has also provided policy advice and implemented a number of programs across a range of commodity areas in the Department, including grains and sugar.

Directors



David M Braddock
QDA

David Braddock was appointed to SRDC as a non-executive Director on 1 May 2002, and was reappointed from 1 May 2005 for a further three-year term. He is a member of the South Regional Advisory Group for the Sugar Industry Reform Program. He was a Director of the Maryborough Sugar Factory Limited from 1973 to 2005, and was Assistant General Manager from 1983 and Managing Director from 1999 to 2003. He has been involved in many sugar industry organisations as a grower and miller representative. He was appointed to the SRDC Audit Committee from August 2004.

Patrice A Brown
(Purcell), BSc (applied Chem), Cert Sugar Tech, MEng (Civil), Cert Env Practioner

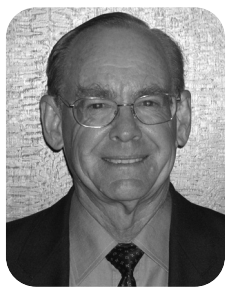
Patrice Brown was appointed to SRDC as a non-executive Director on 1 May 2002, and was reappointed from 1 May 2005 for a further three-year term.

Patrice provides professional environmental advice to industrial clients throughout Queensland in her role as Director of CQ Environmental Pty Ltd, and is a partner in a beef cattle/ grain property in Central Queensland. She was previously the NSW State Environmental Coordinator for CSR Timber Products, Senior Environmental Officer for the EPA, and manager of the Townsville environmental team for SKM and Connell Wagner's Rockhampton office. Patrice's experience in the sugar industry commenced in 1979 at Inkerman Mill as a chemist, before moving to Marian Mill in the early 1980s. She then worked at Plane Creek and Macknade Mills as a Shift Supervisor until 1991. She was formerly a Director of the Emerald Agricultural College and is a member of a number of professional environmental organisations. Patrice was a member of the SRDC Audit Committee from June 2002 to August 2004.

Mary E Corbett BSc (Hons) PhD AFAIM FAICD

Mary Corbett was appointed to SRDC as a non-executive Director on 1 May 2002, and was reappointed from 1 May 2005 for a further three-year term. She is a Director of Food Science Australia and Managing Director of Australian Business Class, a Brisbane based management consulting company. She specialises in Executive facilitation and training, strategic planning, product development and IP commercialisation through licensing. She has held senior executive positions in R&D, Product Commercialisation and Business Development in biotechnology and government sectors. She was formerly Director, International Business for BCE and Director, Business Development for AGEN Biomedical Ltd. She was appointed to the SRDC Audit Committee from August 2004.

D Mac Hogarth BAgrSc MScAgr PhD FAIAST



Mac Hogarth was appointed to SRDC as a non-executive Director on 1 May 2002, and was reappointed from 1 May 2005 for a further three-year term. He retired from BSES in September 2002 where he was Manager for Special Projects. He has worked in the sugar industry for over 40 years, principally as a plant breeder and biometrician with BSES, and led the BSES plant improvement program for 12 years. He is Editor of the Proceedings for both ASSCT and ISSCT, and was President of ASSCT in 2001–02.

Retiring Director

Dr Diana Day BA (Hons) DipEd PhD FAICD completed her term of appointment as a Director on 30 April 2005.

Meetings of the Corporation

During the year ended 30 June 2005, the SRDC Board met eight times, including one meeting by teleconference and three Resolutions Without Meeting effected by email. Two of the in-person meetings were held in Brisbane and the others at Townsville (July 2004) and Mackay (November 2004). Attendance of Directors at Board meetings is listed in Table 5.3.

Under Section 54 of the PIERD Act, a Director must disclose the nature of any pecuniary or conflict of interest in any matter being considered. Two Directors declared an interest on one occasion each. Directorships held by Directors were also recorded in the Register of Declared Interest by Directors.

Table 5.3: Directors' attendance at Board meetings and meetings of the Audit and Scholarships Committees in 2004–05

	R G Granger	A Barfield	D M Braddock	P A Brown	M E Corbett	D G Day	D M Hogarth	R C Muchow	D C Williamson
Board meetings attended	8	8	8	8	8	6	7	8	8
Meetings held during membership	8	8	8	8	8	7	8	8	8
Audit Committee meetings attended			2		2				
Audit Committee meetings held during membership			2		2				
Scholarship Committee meetings attended		2					3		
Scholarship Committee meetings held during membership		3					3		

Board Committees

To increase its effectiveness, the Board has established two committees. Both committees operate under policies and procedures approved by the Board.

Audit Committee

The Audit Committee provides advice to the Board to assist it in fulfilling its responsibilities relating to accounting, reporting and compliance practices of the Corporation. the Committee reviews audits by the Corporation's external auditors, maintains communication among the Board and the Corporation's accountants, reviews the financial information presented by management, and reviews the adequacy of the Corporation's administrative, operating and accounting controls. In addition, it oversees the management of risk including the development of a risk profile for the Corporation, fraud control, corporate governance and environmental issues. It is SRDC practice to exclude the Chair and Executive Director from membership of the Audit Committee.

Members of the Committee in 2004–05 were:

Dr M E Corbett, a non-executive Director of SRDC and member and convenor of the Audit Committee from 2 August 2004.

Mr D M Braddock, a non-executive Director of SRDC and member of the Audit Committee from 2 August 2004.

The Committee met on two occasions during 2004–05. Attendance by members is listed in Table 5. The meetings were also attended by the Executive Director and the Corporation's Accountant and/or Business Manager as observers to provide assistance. The Corporation's external accountant and a representative of the external auditor attended the August 2004 meeting to comment and respond to queries on the annual accounts as required.

Scholarships Committee

The Scholarships Committee was established to oversee the SRDC scholarship scheme and at least half the membership must comprise Directors of SRDC.

Members of the Committee in 2004–05 were:

Dr D M Hogarth, a non-executive Director of SRDC and chair of the Scholarships Committee from 4 June 2002.

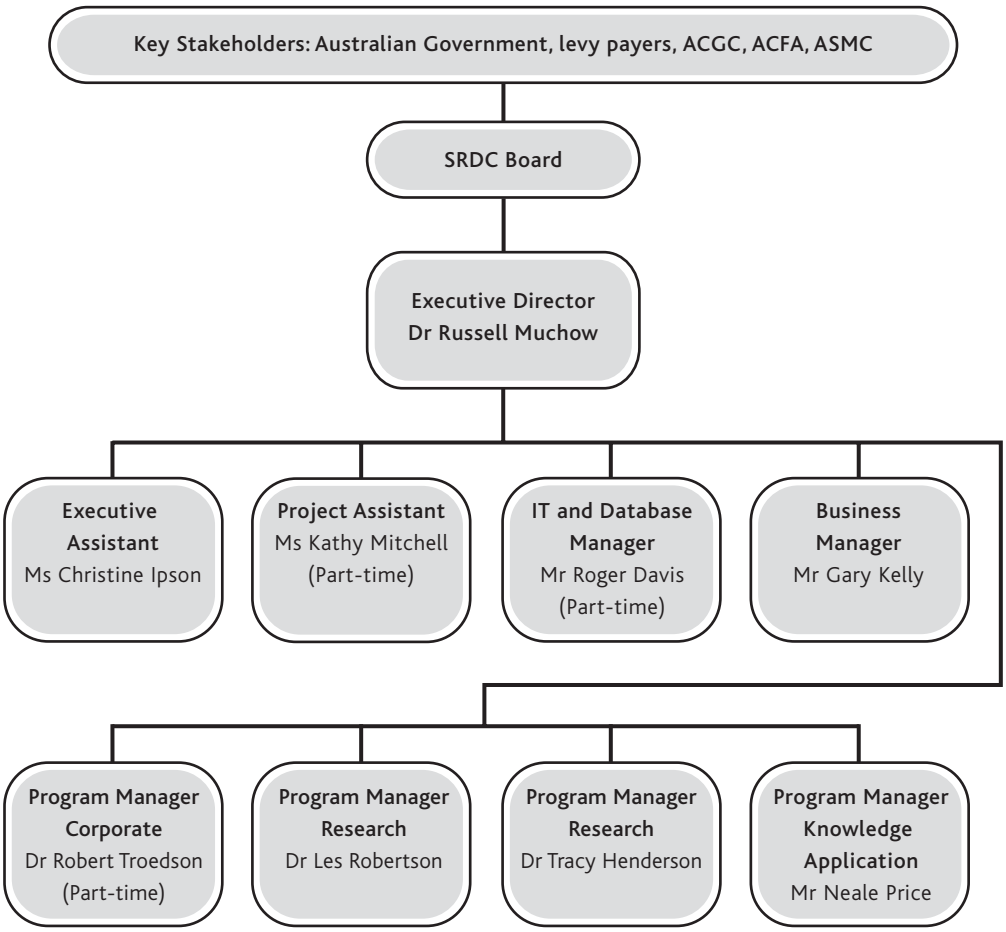
Mr A Barfield, a non-executive Director of SRDC and member of the Scholarships Committee from 2 August 2004.

Dr T M Henderson, a Program Manager of SRDC and member of the Scholarships Committee from 28 July 2003.

The Committee met on three occasions in 2004–05 to assess scholarship applications, and to interview and select successful candidates.

Corporate Functions

Corporate Structure



Staff

SRDC staff are employed under Section 87 of the PIERD Act. At 30 June 2005, the Corporation employed five full time and three part time staff in addition to the Executive Director. Responsibilities for each staff member are indicated above in the Corporate Structure. Mr Neale Price was appointed to the newly created position of Program Manager Knowledge Application in November 2004. Former Accountant Ms Melissa Higgs resigned in January 2005, and Mr Gary Kelly was appointed as Business Manager (incorporating the Finance Manager's role) in February 2005.

Location

All SRDC staff are located at the SRDC office at Level 16, 141 Queen Street, Brisbane 4000.

Financial Management and Auditing

Financial statements and cash flow forecasts are prepared monthly and provided to the Board. Following the external audit of the Corporation's financial accounts each year, the Executive Director presents a Management Representation Memorandum to the Board for final adoption of the annual financial statements. For the 2004–05 financial year, the memorandum was approved by the Board on 31 August 2005.

R&D Portfolio Management

In August 2004, SRDC advertised in the national press and on the SRDC website for new R&D proposals to commence from July 2005. This Call targeted all Programs of the SRDC R&D Plan 2003–08. Preliminary Project Proposals were required to be submitted by 30 September 2004. SRDC appointed Working Parties with industry, government, research and extension representation to provide advice to the Board on the proposals received. The Working Parties met in October 2004 to provide advice on preliminary proposals and in March 2005 to provide advice on full proposals.

The Working Parties and the Board assess proposals using an Attractiveness/ Feasibility framework. Attractiveness includes expected economic, environmental and social benefits through adoption of outputs, potential return on investment and other inputs, communication plans and industry and/or community participation. Feasibility is based on research risk (the likelihood, with high quality research, of reaching the project objectives and delivering the outputs and outcomes) and research quality (the objectives, research plan, and the skills and knowledge of the investigators). Proposals are scored on each scale and the mean scores are determined. Generally, a proposal must obtain a high mean score on both scales to be successful, although SRDC does fund some high risk but potentially high payoff projects.

SRDC continued to offer Travel and Learning Opportunity Projects (TLOPs) in 2004–05. In November 2004, the Board agreed to amend the date of the second call, from February to May each year, to facilitate applications by industry participants. As a transitional arrangement, three Calls were issued in 2004–05, with submission dates of 30 September 2004, 14 February 2005 and 31 May 2005. Opportunities for industry participants to conduct workshops, invite speakers and travel to other regions or industries were particularly encouraged. In all, 53 TLOPs were received and 42 were approved. The TLOPs approved during 2004–05 indicated an increasing interest from industry participants in travel and learning activities.

Sixty-two preliminary proposals were received by the due date of 30 September 2004. Seven of these were invited to proceed directly to projects commencing in early 2005, and a further 23 were invited to proceed to full proposals. In March 2005, the Board approved 15 new research project proposals for submission to the Parliamentary Secretary in the SRDC AOP 2005–06, along with the TLOPs discussed above. The Parliamentary Secretary approved the AOP in June 2005.

SRDC again conducted Project Design and Evaluation workshops for representatives of the 23 invited proposals, with the aim of building explicit evaluation processes into all projects. Project participants are required to evaluate their progress and ensure that projects are always focussed on delivering

the intended outcomes. The workshops were conducted in December 2004 in two locations, Brisbane and Townsville, and were facilitated by staff of the Victorian Department of Primary Industries.

As an initiative for 2005–06, SRDC invited applications for Harvesting Group Innovation Projects (HGIPs) and Grower Group Innovation Projects (GGIPs) for submission in May 2005. Applications were assessed in May/June 2005, with 10 HGIPs and nine GGIPs approved to commence in July 2005. These projects will be managed directly by both harvesting and grower groups. SRDC provided maximum funding of $40,000 per year for two years to each of these groups.

In March 2005, the Board approved significant changes to SRDC's project application and assessment procedures, to be applied during 2005–06 for new projects commencing from July 2006. From September 2005, the first round of applications for research projects will be by a one-page Expression of Interest. The Board will consider the Expressions of Interest in October each year, and invite selected applicants to then submit a Preliminary Research Project Proposal by 30 November. SRDC Program Managers will work closely with proponents to develop Full Research Project Proposals for submission by 21 February. SRDC expects the simpler initial application to attract broader interest in research projects, including from sugar industry participants. The greater interaction with SRDC in the development of Full Project Proposals is expected to result in higher quality and better-targeted applications, involving partnerships of industry, research and community participants.

All SRDC R&D projects are conducted under signed contracts between SRDC and the investigating organisations. The project agreements used by SRDC specify milestone-based reporting and funding. Acceptance of a milestone report and payment of the associated funding requires a recommendation from the Program Manager and approval by the Executive Director. If the milestone report is not accepted, the research organisation is contacted to discuss the reason(s) for non-acceptance of the report. In 2004–05, 260 milestone reports were processed.

SRDC personnel travelled overseas on two occasions in 2004–05. In December 2004, Mr Barfield and Dr Muchow attended the World Sugar 2004 Conference in Khon Kaen, Thailand, and visited the Thai sugar industry and R&D organisations. The visit reinforced the importance of several issues for the Australian industry, including soil health, farm management, harvest and transport logistics, human capacity, and the size of growing sector enterprises. In April 2005, Mr Granger and Dr Muchow visited the Brazil sugar industry in conjunction with personnel from Queensland Sugar Limited. Key lessons were that greater cost efficiencies are still required in the Australian industry, through such means as increased productivity, value-adding opportunities, economies of scale, and a shift in focus from a sugar industry to a sugarcane industry.

Partnerships

SRDC aims to facilitate collaboration between industry organisations, industry participants and regional committees, industry research bodies, scientific and academic institutions and private organisations. SRDC ensures that the quality of projects and the continued focus on

priority industry and community issues is maintained via collaborative planning of proposals, transparent project selection and monitoring systems, and effective feedback to all project proponents. SRDC seeks approximately 50% collaborative funding of R&D projects from research and/or industry organisations. This reflects SRDC's preferred funding model, of a partnership in R&D which requires substantial agreement on R&D priorities between SRDC and the research and/or industry organisations.

SRDC is a core party of the Cooperative Research Centre for Sugar Industry Innovation through Biotechnology (CRC SIIB) along with BSES Limited, CSIRO Plant Industry, Southern Cross University, and The University of Queensland. The CRC commenced in August 2003 with a mission to increase the value of Australian sugarcane by developing and delivering new plant varieties, products and processes through the application of biotechnology. Dr Robert Troedson represents SRDC on the Board of the CRC.

SRDC participated in three RDC cooperative ventures in 2004–05: the Farm Occupational Health and Safety Program, the Cooperative Venture for Capacity Building for Innovation in Rural Industries, and the Managing Climate Variability Program. SRDC also contributes to the on-line database *Australian Agriculture and Natural Resources On-Line*.

SRDC provides the secretariat for, and is a member of, the sugar R&D Alliance, which is a voluntary association of key industry and R&D organisations serving the sugar industry. It monitors resource allocation on a whole-of-industry basis and fosters cooperation among sugar R&D providers to deliver improved industry profitability and sustainability.

In April 2004, Senator Troeth announced a grant of up to $960,000 over three years from 2004–05 to implement a Farm Management System Framework for the Sugarcane Industry under the Pathways to EMS Program. The program is managed by SRDC and overseen by a steering committee which includes representatives of Queensland and NSW Canegrowers, ASMC, BSES, QEPA, QDNRM and SRDC. Tenders were called in September 2004 for five core FMS projects, and were assessed by an industry Working Party appointed by the steering committee. All projects are now underway.

Intellectual Property Management

SRDC's intellectual property management is based on the Intellectual property management plan. The Plan was developed in consultation with SRDC's major R&D providers, and the elements of the Plan have been incorporated into the SRDC application and project management systems. The Plan ensures that intellectual property issues are first raised with SRDC at the preliminary project proposal stage, and considered fully during the development of full proposals.

Although formal ownership of intellectual property developed in most SRDC-funded R&D projects is vested in the research organisations, SRDC retains an interest in the exploitation of that intellectual property. It is a party to several patents and provisional patent applications. No income was derived from SRDC's intellectual property in 2004–05.

Communications

After an independent review of the SRDC Communication Plan in 2003–04, the Board created a new SRDC position of Program Manager – Knowledge Application. Mr Neale Price was appointed to the position in

November 2004. The Program Manager – Knowledge Application will focus on better delivery of SRDC messages using a range of communication vehicles targeted to different stakeholders, synthesis and integration of knowledge from SRDC projects, and packaging knowledge and facilitating uptake through participative action learning processes.

In July 2005, the Board approved the SRDC Knowledge Application Plan. The Plan sets out the strategic intent, desired outcomes, and key strategies of SRDC's activities to facilitate the application of knowledge from SRDC's R&D investments and other sources.

Strategies for non-statutory communication to external stakeholders include SRDC Update, the e-newsletter, SRDC website, and special events. The bimonthly SRDC Update is provided to, and published by, SRDC's Representative Bodies. It provides brief reports of project outputs and outcomes, and some announcements of SRDC activities and investment opportunities. Electronic versions of current and former editions are available from the SRDC website. The e-newsletter is produced as needed, rather than on a regular schedule, but with a goal of at least 12 editions per year. It is distributed by email to project contacts and other stakeholders who have requested it, to provide news of SRDC announcements and events, and broadly relevant news items including from other rural industry organisations. An electronic form to request copies of the e-newsletter and other SRDC communications is available on the SRDC website. The website also provides access to all SRDC statutory documents, other publications, and information and forms for funding applications.

Articles reporting results from SRDC funded R&D and published in scientific journals as well as papers included in the proceedings of major conferences are presented in the Appendices. These include conference papers presented at the annual conference of the Australian Society of Sugar Cane Technologists held in Bundaberg in May 2005, other conference papers and articles published in recognised Australian and international scientific journals.

Risk Management

In August 2004, the Audit Committee, Chairman, Executive Director and SRDC staff participated in a Risk Management Review workshop facilitated by Adrian Savage and John Fitzgerald of Queensland Risk Management Consultants (QRMC). QRMC are Queensland-based Risk Management Consultants who are listed on Comcover's panel of specialist service providers. The professional fees for the review were met by Comcover, as part of its value-added-services to assist Comcover members promote enterprise-wide (risk) cultural change.

The review challenged the existing notions of what were hazards and risks to SRDC, highlighted additional areas for consideration, and suggested improvements to the current format of the Risk Register. The workshop identified possible refinements, rather than major change, in the SRDC Risk Management Plan.

The results of the review were discussed at the SRDC Business Improvement Workshop in November 2004, which was attended by all SRDC staff. A revised Risk Management Plan was endorsed by the Audit Committee in February 2005 and approved by the Board in March 2005. The revised Risk Register identifies four strategic risks and three classes of operational risk. It includes only

those previously identified risks which were rated above Low after treatment, and any new risks identified in the most recent review.

The Business Improvement Workshop also reviewed SRDC business systems, and explored ways to more effectively and efficiently conduct SRDC's internal business. A compliance audit was conducted of selected sections of SRDC's Business Process Management System (BPMS), and several refinements were identified and implemented. The web-based BPMS is available internally on the SRDC Intranet and to Directors on CDROM. A workshop also developed a draft of SRDC's first Business Continuity Plan. The SRDC Business Continuity Plan was endorsed by the Audit Committee in February 2005 and approved by the Board in March 2005. It outlines responsibilities and procedures in the event of several scenarios that would threaten SRDC's ability to continue to conduct its operations.

Indemnities for Officers

SRDC has taken steps to ensure that adequate cover for Directors and Officers is in place. No other issues arose under the relevant legislation that require reporting.

Other Legislative and Reporting Requirements

Environment Protection and Biodiversity Conservation Act

SRDC's obligations under section 516A of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) require consideration of the environmental impacts of proposals and projects. Research project proponents are required to outline potential risks relating to the project, and appropriate management strategies. These are considered during assessment of proposals by Working Parties and the Board. Potential and/or actual impacts of existing projects are considered during the assessment of milestone reports and project reviews. No proposals or projects with adverse environmental consequences were identified in 2004–05. SRDC is also required under the EPBC Act to report on how SRDC's actions accord with the principles of ecologically sustainable development. This report was provided in the Report of Portfolio Operations.

Privacy Commission

SRDC complied with all obligations to the Privacy Commission in 2004–05.

Freedom of Information

SRDC received no enquiries under the Freedom of Information (FOI) Act in 2004–05. A full FOI Statement is attached in the Appendices.

Occupational Health and Safety

SRDC's policy is to conduct its activities in such a way as to provide an environment which protects the health, safety and welfare of staff and visitors and actively encourages safe working practices. SRDC's OH&S Management System sets out SRDC's OH&S policies and establishes procedures for planning, implementation, monitoring and review of OH&S matters.

Upon his appointment as Business Manager in February 2005, Mr Gary Kelly took over the roles of Occupational Health and Safety Officer, and fire warden. Drs Tracy Henderson and Robert Troedson maintained their first aid qualifications. No health and safety issues required external reporting during 2004–05.

Australian Government Disability Strategy

The principles of the Australian Government Disability Strategy provide that people with disabilities should have *equity* of participation, the right to *inclusion* in all Australian programs, the right to *participation* in decision-making processes, and have *access* to information in appropriate formats. In addition, all Australian organisations are *accountable* for the provision of access for people with disabilities.

In May 2003, the Board approved the SRDC Disability Action Plan to implement the Australian Government Disability Strategy. The Action Plan noted that the SRDC office in Brisbane is fully accessible to people with physical disabilities. The SRDC website notes that people with a disability who require alternative means of access to information on the SRDC website should contact SRDC so that their needs can be addressed on an individual basis. No such requests were received in 2004–05.

SRDC is both an employer and a purchaser as defined in the guide to performance

reporting. SRDC's employment policies do not discriminate against disabled persons. SRDC currently has nine staff members including the Executive Director, none of whom has a disability as defined in the *Disability Discrimination Act 1992*.

The major role of SRDC as a purchaser is to fund R&D projects. Information and application forms are available of the SRDC website and, as stated above, this information will be made available to disabled persons on an as-needs basis.

SUGAR RESEARCH AND DEVELOPMENT CORPORATION INDEPENDENT AUDIT REPORT

INDEPENDENT AUDIT REPORT

To the Minister for Agriculture, Fisheries and Forestry

Matters relating to the Electronic Presentation of the Audited Financial Statements

This audit report relates to the financial statements published in both the annual report and on the website of the Sugar Research and Development Corporation for the year ended 30 June 2005. The directors of the Corporation are responsible for the integrity of both the annual report and the web site.

The audit report refers only to the financial statements, schedules and notes named below. It does not provide an opinion on any other information which may have been hyperlinked to/from the audited financial statements.

If the users of this report are concerned with the inherent risks arising from electronic data communications they are advised to refer to the hard copy of the audited financial statements in the Corporation's annual report.

Scope

The financial statements and directors' responsibility

The financial statements comprise:

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

of the Sugar Research and Development Corporation for the year ended 30 June 2005.

The directors of the Corporation are responsible for preparing the financial statements that give a true and fair view of the financial position and performance of the Corporation and that comply with accounting standards, other mandatory financial reporting requirements in

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

Australia, and the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*. The directors of the Corporation are also responsible for the maintenance of adequate accounting records and internal controls that are designed to prevent and detect fraud and error, and for the accounting policies and accounting estimates inherent in the financial statements.

Audit approach

I have conducted an independent audit of the financial statements in order to express an opinion on them to you. My audit has been conducted in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing and Assurance Standards, in order to provide reasonable assurance as to whether the financial statements are free of material misstatement. The nature of an audit is influenced by factors such as the use of professional judgement, selective testing, the inherent limitations of internal control, and the availability of persuasive, rather than conclusive, evidence. Therefore, an audit cannot guarantee that all material misstatements have been detected.

While the effectiveness of management's internal controls over financial reporting was considered when determining the nature and extent of audit procedures, the audit was not designed to provide assurance on internal controls.

I have performed procedures to assess whether, in all material respects, the financial statements present fairly, in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, including accounting standards and other mandatory financial reporting requirements in Australia, a view which is consistent with my understanding of the Corporation's financial position, and of its performance as represented by the statements of financial performance and cash flows.

The audit opinion is formed on the basis of these procedures, which included:

- examining, on a test basis, information to provide evidence supporting the amounts and disclosures in the financial statements; and

- assessing the appropriateness of the accounting policies and disclosures used, and the reasonableness of significant accounting estimates made by the directors of the Corporation.

Independence

In conducting the audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the ethical requirements of the Australian accounting profession.

Audit Opinion

In my opinion, the financial statements of the Sugar Research and Development Corporation:

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

(b) give a true and fair view of the Sugar Research and Development Corporation's financial position as at 30 June 2005 and of its performance and cash flows for the year then ended, in accordance with:

(i) the matters required by the Finance Minister's Orders; and

(ii) applicable accounting standards and other mandatory financial reporting requirements in Australia.

Australian National Audit Office

Puspa Dash
Senior Director

Delegate of the Auditor-General

Canberra
1 September 2005

STATEMENT BY DIRECTORS AND CHIEF EXECUTIVE

In our opinion, the attached financial statements for the year ended 30 June 2005 are prepared based on properly maintained financial records and 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*.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Corporation will be able to pay its debts as and when they become due and payable.

This statement is made in accordance with a resolution of the directors.

Executive Director

Date: 31 August 2005

Chair

Date: 31 August 2005

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
STATEMENT OF FINANCIAL PERFORMANCE

for the year ended 30 June 2005

	Notes	2005 $	2004 $
REVENUE			
Revenues from ordinary activities			
Revenue from Government	5A	**4,790,831**	5,190,856
Correction of fundamental error	6	**(1,035,203)**	0
Interest	5B	**551,553**	366,059
Revenue from sale of assets	5C	**22,727**	69,091
Industry contributions (sugar levies)	5D	**5,131,099**	5,311,988
Other revenue	5E	**0**	2,393
Revenues from ordinary activities		**9,461,007**	10,940,387
EXPENSE			
Expenses from ordinary activities			
Employees	7A	**622,937**	505,500
Suppliers	7B	**945,643**	796,494
Grants	7C	**7,018,350**	7,464,136
Depreciation	7D	**30,118**	28,501
Write down and impairment of assets	7E	**15,528**	22,688
Value of assets sold	5C	**27,315**	96,399
Expenses from ordinary activities		**8,659,891**	8,913,718
Operating surplus from ordinary activities		**801,116**	2,026,669
Net (debit)/credit to asset revaluation reserve	12	**(6,264)**	(13,415)
Total revenues, expenses and valuation adjustments recognised directly in equity		**794,852**	2,013,254
Total changes in equity other than those resulting from transactions with the Australian Government as owner		**794,852**	2,013,254

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
STATEMENT OF FINANCIAL POSITION

as at 30 June 2005

	Notes	2005 $	2004 $
ASSETS			
Financial Assets			
Cash	13B	**308,562**	1,380,948
Receivables	8A	**517,734**	1,903,894
Investments	13B	**6,794,613**	4,589,195
Total financial assets		**7,620,909**	7,874,037
Non-financial assets			
Land and buildings	9A,C	**10,754**	0
Infrastructure, plant and equipment	9B,C	**81,933**	136,320
Total non-financial assets		**92,687**	136,320
TOTAL ASSETS		**7,713,596**	8,010,357
LIABILITIES			
Provisions			
Employees	10A	**150,621**	100,670
Total provisions		**150,621**	100,670
Payables			
Suppliers	11A	**45,505**	78,666
Grants	11B	**206,357**	1,345,175
Other payables	11C	**130,414**	100,000
Total payables		**382,276**	1,523,841
TOTAL LIABILITIES		**532,897**	1,624,511
NET ASSETS		**7,180,699**	6,385,846
EQUITY			
Parent entity interest			
Reserves	12	**2,188**	8,452
Accumulated profits	12	**7,178,511**	6,377,394
Total parent entity interest		**7,180,699**	6,385,846
TOTAL EQUITY	12	**7,180,699**	6,385,846
Current assets		**7,620,909**	7,874,037
Non-current assets		**92,687**	136,320
Current liabilities		**478,801**	1,599,121
Non-current liabilities		**54,096**	25,390

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
STATEMENT OF CASH FLOWS

for the year ended 30 June 2005

	Notes	2005 $	2004 $
OPERATING ACTIVITIES			
Cash Received			
Goods and Services		29,122	2,393
Industry contributions (sugar levies)		5,233,231	5,182,157
Revenue from Government		4,847,145	4,678,332
Interest		536,779	352,043
GST Received from the Australian Taxation Office		555,737	757,178
Total Cash Received		11,202,014	10,972,103
Cash Used			
Employees		572,986	477,084
Suppliers		596,960	591,199
Grants		8,886,172	7,987,257
GST Paid to the Australian Taxation Office		0	0
Total Cash Used		10,056,118	9,055,540
Net Cash From/(Used by) Operating Activities	13A	1,145,896	1,916,563
INVESTING ACTIVITIES			
Cash Received			
Proceeds from sale of property, plant and equipment		22,727	0
Total Cash Received		22,727	0
Cash Used			
Purchase of property, plant and equipment		35,591	57,513
Total Cash Used		35,591	57,513
Net Cash From/(Used by) Investing Activities		(12,864)	(57,513)
Net Increase/(Decrease) in Cash Held		1,133,032	1,859,050
Cash at the beginning of the reporting period		5,970,143	4,111,093
Cash at the End of the Reporting Period	13B	7,103,175	5,970,143

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
SCHEDULE OF COMMITMENTS

as at 30 June 2005

	2005	2004
	$	$
BY TYPE		
Capital Commitments		
Infrastructure, plant and equipment	57,212	0
Total Capital Commitments	57,212	0
Other Commitments		
Operating leases	162,563	192,533
Research & Development Grants — PIERD	21,640,451	16,987,703
Total Other Commitments	21,803,014	17,180,236
Commitments receivable	1,987,293	1,561,840
Net Commitments by Type	19,872,933	15,618,396
BY MATURITY		
Capital Commitments		
One year or less	57,212	0
From one to five years	0	0
Over five years	0	0
Total Capital Commitments	57,212	0
Operating Lease Commitments		
One year or less	73,052	52,128
From one to five years	89,511	122,902
Over five years	0	0
Total Operating Lease Commitments	162,563	175,030
Research and Development Grant Commitments		
One year or less	10,137,490	7,180,620
From one to five years	11,502,961	8,137,023
Over five years	0	125,723
Total Operating Lease Commitments	21,640,451	15,443,366
Commitments Receivable	1,987,293	1,561,840
Net Commitments by Maturity	19,872,933	14,056,556

NB: Commitments are GST inclusive where relevant.

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
SCHEDULE OF CONTINGENCIES

as at 30 June 2005

		Bank Guarantees	
		2005	2004
	Notes	**$**	**$**
Contingent liabilities	14		
Balance from previous period		17,675	17,675
Liabilities crystalised		0	0
Total contingent liabilities		17,675	17,675

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

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2005

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 Orders (Financial Statements for reporting periods ending on or after 30 June 2005));
- Australian Accounting Standards and Accounting Interpretations issued by the Australian Accounting Standards Board; and
- Urgent Issues Group Abstracts.

The Corporation's Statement 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 that are unrecognised are reported in the Schedule of Commitments and the Schedule of Contingencies (other than unquantifiable or remote contingencies, which are reported at Note 14).

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 Revenue

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

Revenue is predominantly derived from levies collected from the sugar industry with matching Commonwealth Contributions in accordance with the *Primary Industries and Energy Research and Development Act 1989 (PIERD)*.

PIERD Commonwealth Contribution revenue is recognised based on a percentage of monthly expenditure incurred by the Corporation, subject to a cap of 0.5% of the Gross Value of Production.

Interest revenue is recognised on a time proportionate basis that takes into account the effective yield on the relevant asset.

Note 1: Summary of Significant Accounting Policies (cont'd)

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

Receivables for goods and services are recognised at the nominal amounts due less any provision for bad and doubtful debts. Collectability of debts is reviewed at balance date. Provisions are made when collectability of the debt is judged to be less rather than more likely.

Revenues from Government — Output Appropriations

The full amount of the appropriation for departmental 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 as revenue at their fair value when the asset qualifies for recognition.

1.3 Transactions by the Government as Owner

Equity Injections

Amounts appropriated by the Parliament as equity injections are recognised as 'contributed equity' in accordance with the Finance Minister's Orders.

1.4 Employee Benefits

Benefits

Liabilities for services rendered by employees are recognised at the reporting date to the extent that they have not been settled.

Liabilities for wages and salaries (including non-monetary benefits), annual leave and sick leave are measured at their nominal amounts. Other employee benefits expected to be settled within 12 months of the reporting date are also measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

All other employee benefit liabilities are measured as the present value of the estimated future cash outflows to be made in respect of services provided by employees up to the reporting date.

Note 1: Summary of Significant Accounting Policies (cont'd)

Leave

The liability for employee benefits 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 leave liabilities are calculated on the basis of employees' remuneration, including the Corporation's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

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 2005. In determining the present value of the liability, the Corporation has taken into account attrition rates and pay increases through promotion and inflation.

Superannuation

The Corporation's employees are members of the Commonwealth Superannuation Scheme and the Public Sector Superannuation Scheme. The liability for their superannuation benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course.

The Corporation makes employer contributions to the Australian Government at rates determined by an actuary to be sufficient to meet the cost to the Government of the superannuation entitlements of the Corporation's employees.

The liability for superannuation recognised as at 30 June represents outstanding contributions for the final fortnight of the year.

1.5 Leases

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

Where a non-current asset is acquired by means of a finance lease, the asset is capitalised at the present value of minimum lease payments at the beginning of the lease term and a liability recognised at the same time and for the same amount. The discount rate used is the interest rate implicit in the lease. Leased assets are amortised over the period of the lease. Lease payments are allocated between the principal component and the interest expense.

Operating lease payments are expensed on a basis that is representative of the pattern of benefits derived from the leased assets. The net present value of future net outlays in respect of surplus space under non-cancelable lease agreements is expensed in the period in which the space becomes surplus.

Note 1: Summary of Significant Accounting Policies (cont'd)

1.6 Grants

Most grant agreements require the grantee to perform services, provide facilities or meet eligibility criteria. In these cases, the Corporation recognises grant liabilities only to the extent that the services required have been performed or the eligibility criteria have been satisfied by the grantee.

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

The Corporation's policy on recognition of grant expenses has changed. Grant expenses are now recognised when a milestone is approved. Previously, grant expenses were recognised when a milestone was received by the Corporation. This policy change was introduced to avoid recognising grant expenses that are subsequently not approved.

Had the new policy been in place at 30 June 2004, Grant Expenses (Note 7C) for 2003/04 would have totalled $7,374,413 and Grants Payable (Note 11B) would total $928,970.

1.7 Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution. Monies on short term deposit with a bank are shown as Investments. Cash is recognised at its nominal amount. Interest is credited to revenue as it accrues.

For purposes of the Statement of Cash Flows, Cash includes monies on short term deposit with a bank as the deposits are of short term duration and are used in the day to day management of the business.

1.8 Appropriations Receivable

These receivables are recognised at the nominal amounts due.

1.9 Other Financial Assets

Term deposits are recognised at cost.

1.10 Other Financial Liabilities

Trade 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). Interest payable is accrued over time.

Note 1: Summary of Significant Accounting Policies (cont'd)

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, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor entity's accounts immediately prior to the restructuring.

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 $2,000, 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

Basis

Infrastructure, plant and equipment are carried at valuation, being revalued annually with sufficient frequency such that the carrying amount of each asset class is not materially different, as at reporting date, from its fair value. Valuations undertaken in any year are as at 30 June.

Fair values for each class of asset are determined as shown below.

Asset class:	Fair value measured at:
Leasehold improvements	Depreciated replacement cost
Plant & equipment	Market Selling Price

Assets that are surplus to requirements are measured at their net realisable value. At 30 June 2005 the Corporation held no surplus assets (30 June 2004: $0).

Plant and equipment assets are subject to a formal valuation every four years. Formal valuations are carried out by an independent qualified valuer. Between formal valuations, PP&E asset values are reviewed annually by management and adjusted to fair value following Board approval.

Leasehold improvements subject to formal valuations are each revalued progressively on a geographical basis. In between formal valuations, these assets are revalued using an appropriate index reflecting movements in the value of similar assets.

Note 1: Summary of Significant Accounting Policies (cont'd)

Depreciation

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 depreciated on a straight-line basis over the lesser of the estimated useful life of the improvements or the unexpired period of the lease.

Depreciation rates (useful lives) and methods are reviewed at each reporting 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 rates applying to each class of depreciable asset are based on the following useful lives:

	2005	2004
Computer equipment	3 years	3 years
Furniture and fittings	$13^1/_3$ years	$13^1/_3$ years
Leasehold improvements	Lease term	Lease term
Motor vehicles	$6^2/_3$ years	$6^2/_3$ years

The aggregate amount of depreciation allocated for each class of asset during the reporting period is disclosed in Note 7D.

1.13 Impairment of Non-Current Assets

Non-current assets carried at up-to-date fair value at the reporting date are not subject to impairment testing.

The non-current assets carried at cost, which are not held to generate net cash inflows, have been assessed for indications of impairment. Where indications of impairment exist, the asset is written down to the higher of its net selling price and, if the entity would replace the asset's service potential, its depreciated replacement cost.

1.14 Taxation

The Corporation is exempt from all forms of taxation except Fringe Benefits Tax and the Goods and Services Tax (GST).

Revenues, expenses and assets are recognised net of GST:

- except where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- except for receivables and payables.

Note 1: Summary of Significant Accounting Policies (cont'd)

1.15 Foreign Currency

Transactions denominated in a foreign currency are converted at the exchange rate at the date of the transaction. Foreign currency receivables and payables are translated at the exchange rates current as at balance date. Associated currency gains and losses are not material.

1.16 Insurance

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

1.17 Changes in Accounting Policy

Accounting policies used in the preparation of these financial statements are consistent with those used in 2003/04 except where changes in policy have been identified in these notes under their relevant headings.

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005–06

The Australian Accounting Standards Board has issued replacement Australian Accounting Standards to apply from 2005–06. The new standards are the Australian Equivalents to International Financial Reporting Standards (AEIFRS). The International Financial Reporting Standards are issued by the International Accounting Standards Board. The new standards cannot be adopted early. The standards being replaced are to be withdrawn with effect from 2005–06, but continue to apply in the meantime, including reporting periods ending on 30 June 2005.

The purpose of issuing AEIFRS is to enable Australian reporting entities reporting under the Corporations Act 2001 to be able to more readily access overseas capital markets by preparing their financial reports according to accounting standards more widely used overseas.

AEIFRS contains certain additional provisions that will apply to not-for-profit entities, including not-for-profit Australian Government Authorities. Some of these provisions are in conflict with IFRSs, therefore, the Corporation will only be able to assert that the financial report has been prepared in accordance with Australian Accounting Standards.

Accounting Standard AASB 1047 *Disclosing the Impacts of Adopting Australian Equivalents to International Financial Reporting Standards* requires that the financial report for 2004–05 disclose:

- an explanation of how the transition to AEIFRS is being managed;
- narrative explanations of the key policy differences arising from the adoption of AEIFRS;
- any known or reliably estimable information about the impacts on the financial report had it been prepared using the Australian equivalents to IFRS; and
- if the impacts of the above are not known or reliably estimable, a statement to that effect.

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005–06 (cont'd)

Where an entity is not able to make a reliable estimate, or where quantitative information is not known, the entity should update the narrative disclosures of the key differences in accounting policies that are expected to arise from the adoption of AEIFRS.

The purpose of this Note is to make these disclosures.

Management of the transition to AEIFRS

The Corporation has taken the following steps for the preparation towards the implementation of AEIFRS:

- The Corporation's Audit Committee is tasked with oversight of the transition to and implementation of AEIFRS. The Chief Finance Officer is formally responsible for the project and reports regularly to the Audit Committee on progress against the formal plan approved by the Committee.
- The plan requires the following key steps to be undertaken and sets deadlines for their achievement:
  - All major accounting policy differences between current AASB standards and AEIFRS were identified by 30 June 2004;
  - System changes necessary to be able to report under the AEIFRS, including those necessary to capture data under both sets of rules for 2004–05 were completed on 16 August 2004. This included the testing and implementation of those changes;
  - A transitional balance sheet as at 1 July 2004 under AEIFRS was completed and presented to the Board on 8 November 2004. No adjustments are necessary at this stage to comply with AEIFRS;
  - An AEIFRS compliant balance sheet was also prepared during the preparation of the 2004–05 statutory financial reports; and
  - The 2004–05 Balance Sheet under AEIFRS will be reported to the Department of Finance and Administration in line with their reporting deadlines.
- The plan also addresses the risks to successful achievement of the above objectives and includes strategies to keep implementation on track to meet deadlines.
- Consultants were engaged where necessary to assist with each of the above steps.

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005–06 (cont'd)

Major changes in accounting policy

The Corporation believes that the first financial report prepared under AEIFRS i.e. at 30 June 2006, will be prepared on the basis that it will be a first time adopter under AASB 1 *First-time Adoption of Australian Equivalents to International Financial Reporting Standards*. Changes in accounting policies under AEIFRS are applied retrospectively i.e. as if the new policy had always been applied except in relation to the exemptions available and prohibitions under AASB 1. This means that an AEIFRS compliant balance sheet has to be prepared as at 1 July 2004. This will enable the 2005–06 financial statements to report comparatives under AEIFRS.

A first time adopter of AEIFRS may elect to use exemptions under paragraphs 13 to 25E. When developing the accounting policies applicable to the preparation of the 1 July opening balance sheet, no exemptions were applied by the Corporation.

Changes to major accounting policies are discussed in the following paragraphs.

Management's review of the quantitative impacts of AEIFRS represents the best estimate of the impacts of the changes as at reporting date. The actual effects of the impacts of AEIFRS may differ from these estimates due to:

- continuing review of the impacts of AEIFRS on SRDC operations;
- potential amendments to the AEIFRS and AEIFRS Interpretations; and
- emerging interpretation as to the accepted practice in the application of AEIFRS and the AEIFRS Interpretations.

Property, plant and equipment

It is expected that the 2005–06 Finance Minister's Orders will continue to require property plant and equipment assets to be valued at fair value in 2005–06.

Impairment of Intangibles and Property, Plant and Equipment

SRDC's policy on impairment of non-current assets is at Note 1.13.

Under AEIFRS these assets will be subject to assessment for impairment and, if there are indications of impairment, measurement of any impairment. The impairment test is that the carrying amount of an asset must not exceed the greater of (a) its fair value less costs to sell and (b) its value in use. Value in use is the net present value of net cash inflows for cash generating units assets of the Corporation and depreciated replacement cost for other assets that would be replaced if SRDC were deprived of them.

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005–06 (cont'd)

Employee Benefits

The provision for long service leave is measured at the present value of estimated future cash outflows using market yields as at the reporting date on national government bonds.

The 2003–04 Financial Report noted that AEIFRS may require the market yield on corporate bonds to be used. The AASB has decided that a deep market in high quality corporate bonds does not exist and therefore national government bonds will be referenced.

AEIFRS also require that annual leave that is not expected to be taken within 12 months of balance date is to be discounted. After assessing the staff leave profile, SRDC does not expect that any material amounts of the annual leave balance will not be taken in the next 12 months. Consequently, there are no adjustments for non-current annual leave.

Financial Instruments

AEIFRS include an option for entities not to restate comparative information in respect of financial instruments in the first AEIFRS report. It is expected that Finance Minister's Orders will require entities to use this option. Therefore, the amounts for financial instruments presented in the Corporation's 2004–05 primary financial statements are not expected to change as a result of the adoption of AEIFRS.

SRDC will be required by AEIFRS to restate the carrying amount of financial instruments at 1 July 2005 to align with the accounting policies required by AEIFRS. It is expected that the carrying amounts of most financial instruments held by the Corporation will be unaffected by this requirement.

Note 3: Economic Dependency

The normal operating activities of the Sugar Research and Development Corporation are dependent on the receipt of sugar levies from cane growers and millers which are collected by the Australian Government and then remitted to the Corporation.

SRDC is also economically dependent on funding from the Australian Government for its continued existence and ability to carry out its normal activities. The Government provides funding to SRDC on the basis of a multiple of the sugar levies collected from cane growers and millers.

Note 4: Events Occurring After Reporting Date

No events have occurred after balance date that affect the Corporation's 2004–05 financial statements.

for the year ended 30 June 2005

	2005	2004
	$	$
Note 5: Operating Revenues		
Note 5A Revenues from Government		
Commonwealth Contribution — PIERD Act	4,562,245	5,120,856
Commonwealth Contribution — FMS	228,586	0
Budget Estimates and Framework Review Funding	0	70,000
Total revenues from government	4,790,831	5,190,856
Note 5B Interest Revenue		
Cash at bank	104,251	271,161
Short term deposits	447,302	94,898
Total interest revenue	551,553	366,059
Note 5C Revenue from Sale of Assets		
Infrastructure, plant and equipment		
Proceeds from disposal	22,727	69,091
Net book value of assets disposed	27,315	96,399
Net loss from disposal of assets	(4,588)	(27,308)
Note 5D Industry Contributions (sugar levies)		
Industry contributions	5,131,099	5,311,988
Total industry contributions	5,131,099	5,311,988
Note 5E Other Revenue		
Other revenue	0	2,393
Total other revenue	0	2,393

Note 6: Fundamental Error in Revenue from Government

The Corporation over-accrued $1,035,203 in Commonwealth Contribution — PIERD Act Revenue during 2003–04. This error had the effect of overstating Revenue from Government and corresponding Receivables for the year ended 30 June 2004 by $1,035,203. Restated financial information for 2004–05 and 2003–04 is presented below as if the error had not been made.

for the year ended 30 June 2005

	2005	2004
	$	$
Note 6: Fundamental Error in Revenue from Government (cont'd)	Restated	Restated
STATEMENT OF FINANCIAL PERFORMANCE		
REVENUE		
Revenues from ordinary activities		
Revenue from Government	4,790,831	4,155,653
Interest	551,553	366,059
Revenue from sale of assets	22,727	69,091
Industry contributions (sugar levies)	5,131,099	5,311,988
Other revenue	0	2,393
Revenues from ordinary activities	10,496,210	9,905,184
EXPENSE		
Expenses from ordinary activities		
Employees	622,937	505,500
Suppliers	945,643	796,494
Grants	7,018,350	7,464,136
Depreciation	30,118	28,501
Write down and impairment of assets	15,528	22,688
Value of assets sold	27,315	96,399
Expenses from ordinary activities	8,659,891	8,913,718
Operating surplus from ordinary activities	1,836,319	991,466
Net (debit)/credit to asset revaluation reserve	0	33,273
Total revenues, expenses and valuation adjustments recognised directly in equity	1,836,319	1,024,739
Total changes in equity other than those resulting from transactions with the Australian Government as owner	1,836,319	1,024,739
RESTATEMENT OF ACCUMULATED PROFITS		
Previously reported Accumulated profits at the end of the previous reporting period	6,377,394	4,317,452
Correction of fundamental error	(1,035,203)	0
Restated Accumulated profits at the beginning of the reporting period	5,342,191	4,317,452
Operating surplus from ordinary activities	1,836,320	991,466
Net (debit)/credit to asset revaluation reserve	0	33,273
Restated Accumulated profits at the reporting date	7,178,511	5,342,191

for the year ended 30 June 2005

	2005	2004
	$	$
Note 7: Operating Expenses		
Note 7A Employee Expenses		
Wages and Salaries	475,022	380,435
Superannuation	65,074	50,533
Leave and other entitlements	81,286	70,559
Other employee benefits	0	2,555
Total employee benefits expenses	621,382	504,082
Workers compensation premiums	1,555	1,418
Total employee benefits expenses	622,937	505,500
Note 7B Supplier Expenses		
Goods from external entities	51,162	35,012
Services from external parties	827,923	691,280
Operating lease rentals	66,558	70,202
Total supplier expenses	945,643	796,494
Note 7C Grant Expenses		
The Corporation makes grants to support research and development for the sugar industry in Australia		
Research and development grants — PIERD	7,018,350	7,464,136
Total grant expenses	7,018,350	7,464,136
Note 7D Depreciation and Amortisation		
Computer equipment	8,758	8,631
Furniture and fittings	849	2,501
Office equipment	0	2,244
Motor vehicles	17,217	15,125
Leasehold improvements	3,294	0
Total depreciation and amortisation	30,118	28,501
Note 7E Write-down of Assets		
Plant & equipment — revaluation decrement	15,528	22,688
Total write-down of assets	15,528	22,688

for the year ended 30 June 2005

	2005	2004
	$	$
Note 8: Financial Assets		
Note 8A Receivables		
Goods and services	0	299,317
Interest receivable	29,855	15,081
Commonwealth contributions receivable	0	1,035,203
Industry contribution receivable	288,238	390,370
GST receivable	193,561	163,923
Other receivables	6,080	0
Total receivables	517,734	1,903,894
All receivables are current assets		
Receivables (gross) are aged as follows:		
Not overdue	517,734	429,439
Overdue by:		
30 to 60 days	0	1,474,455
Total receivables (gross)	517,734	1,903,894
Note 8B Investments (Section 18 CAC Act)		
Term Deposits	6,794,613	4,589,195
Total investments	6,794,613	4,589,195
Note 9: Non-Financial Assets		
9A Land and Buildings		
Leasehold Improvements		
at 2005 valuation (fair value)	13,500	0
— accumulated amortisation	2,746	0
Total Land and Buildings (non current)	10,754	0
9B Infrastructure, Plant and Equipment		
Plant and Equipment		
at 2005 valuation (fair value)	92,368	142,602
— accumulated amortisation	10,435	6,281
Total Plant and Equipment (non current)	81,933	136,321

Note 9: Non-Financial Assets (cont'd)

9C Reconciliation of the opening and closing balances of property, plant and equipment

TABLE A1 — Reconciliation of the opening and closing balances of property, plant and equipment

Item	Buildings — Leasehold Improvements	Infrastructure, Plant & Equipment
	$	$
As at 1 July 2004		
Gross book value	0	142,602
Accumulated Depreciation	0	(6,282)
Opening Net Book Value	0	136,320
Additions:		
By purchase	13,630	21,961
Net revaluation increment/(decrement)	418	(22,210)
Depreciation/amortisation expense	(3,294)	(26,824)
Disposals:		
Other disposals	0	(27,314)
As at 30 June 2005		
Gross book value	13,500	92,368
Accumulated depreciation	(2,746)	(10,435)
Closing Net Book Value	**10,754**	**81,933**

	2005	2004
	$	$
Note 10: Provisions		
10 Employee Provisions		
Salaries and wages	**18,375**	4,943
Leave	**132,246**	90,681
Superannuation	**0**	5,046
Aggregate employee benefit liability and related on costs	**150,621**	100,670
Current	**96,525**	75,280
Non-current	**54,096**	25,390

for the year ended 30 June 2005

	2005	2004
	$	$
Note 11: Payables		
11A Supplier Payables		
Creditors	**45,505**	49,901
Operating lease rentals	**0**	28,765
Total supplier payables	**45,505**	78,666
All suppliers payables are current		
11B Grants Payable		
Grants payable	**206,357**	1,293,845
Research & development contributions received in advance	**0**	51,330
Total grants payable	**206,357**	1,345,175
All grants payable are current		
11C Other Payables		
Unearned revenue	**130,414**	100,000
Total other payables	**130,414**	100,000
All other payables are current		

Note 12: Equity

Item	Accumulated Results		Asset Revaluation Reserve		Total Equity	
	2005 $	2004 $	**2005 $**	2004 $	**2005 $**	2004 $
Opening balance as at 1 July	**6,377,395**	4,317,453	**8,452**	55,140	**6,385,847**	4,372,593
Net surplus	**801,116**	2,026,669			**801,116**	2,026,669
Net revaluation increment/(decrement)	**0**	0	**(6,264)**	(13,415)	**(6,264)**	(13,415)
Transfers to/from reserves	**0**	33,273	**0**	(33,273)	**0**	0
Closing balance as at 30 June	**7,178,511**	6,377,395	**2,188**	8,452	**7,180,699**	6,385,847
Total equity attributable to the Australian Government	**7,178,511**	6,377,395	**2,188**	8,452	**7,180,699**	6,385,847

for the year ended 30 June 2005

	2005	2004
	$	$
Note 13: Cash Flow Reconciliation		
Note 13A: Reconciliation of Operating Surplus to Net Cash from Operating Activities		
Reconciliation of operating surplus to net cash from operating activities:		
Operating surplus before extraordinary items	801,116	2,026,669
Non-Cash Items		
Depreciation	30,118	28,501
Loss on disposal of assets	4,588	27,308
Net write-down of non-current assets	15,528	22,688
Assets expensed	0	11,161
Changes in Assets and Liabilities		
(Increase)/decrease in receivables	1,386,160	(994,973)
Increase/(decrease) in employee provisions	49,951	28,417
Increase/(decrease) in supplier payments	(33,161)	37,620
Increase/(decrease) in grants payable	(1,138,818)	629,172
Increase/(decrease) in other payables	30,414	100,000
	1,145,896	1,916,563
Note 13B: Reconciliation of Cash		
Cash balance comprises:		
Cash on hand	500	500
Cash at bank	308,062	1,380,448
Short term deposits	6,794,613	4,589,195
Total cash	7,103,175	5,970,143
Balance of cash as at 30 June shown in the Statement of Cash Flows	7,103,175	5,970,143

for the year ended 30 June 2005

	2005	2004
	$	$
Note 14: Contingent Liabilities and Assets		
Contingent Liabilities		
Bank guarantee	17,675	17,675
Total Contingent Liabilities	17,675	17,675
At 30 June 2005 the Corporation has no Unquantifiable Contingencies or Remote Contingencies.		
Note 15: Director Remuneration		
The number of directors of the Sugar Research and Development Corporation included in these figures is shown below in the relevant remuneration bands		
Nil–$9,999	1	1
$10,000–$19,999	6	6
$30,000–$39,999	1	1
$190,000–$199,999	0	1
$200,000–$209,999	1	0
Total number of directors of the Corporation	9	9
Aggregate amount of superannuation payments in connection with the retirement of directors	46,014	44,938
Other remuneration received or due and receivable by directors of the Corporation	292,239	283,409
Total remuneration received or due and receivable by directors of the Corporation	338,253	328,347

Part-time directors and the Chairman of the Corporation received fees and allowances as determined by the Remuneration Tribunal. The Executive Director is the only full-time director of the Corporation and receives a salary and allowances as approved by the Board. Remuneration includes salary, allowances and superannuation.

Note 16: Related Party Disclosures

Directors of the Corporation

The Directors of the Corporation during the year were:

RG Granger — Chairman
RC Muchow — Executive Director
A Barfield — Deputy Chairman
DM Braddock — Audit Committee
PA Brown
ME Corbett — Audit Committee Convenor
DG Day [to 30 April 2005]
DM Hogarth
DC Williamson — Government Director

The aggregate remuneration of Directors is disclosed in Note 15.

Two directors held directorships of organisations which received grants from the Sugar Research and Development Corporation during the year. All transactions with these organisations are under normal terms and conditions.

	2005	2004
	$	$
Note 17: Remuneration of Officers		
The number of officers who received or were due to receive total remuneration of $100,000 or more:		
$110,000–$119,999	1	0
	1	0
The aggregate amount of total remuneration of officers shown above.	116,610	0
Note 18: Remuneration of Auditors		
Remuneration to the Auditor-General for auditing the financial statements for the reporting period.	11,800	11,700
No other services were provided by the Auditor-General during the reporting period.		
Note 19: Average Staffing Levels		
The average staffing levels for the Corporation during the year was:	7	6

Note 20: Financial Instruments

Note 20A: Interest Rate Risk

Financial Instrument	Note	Floating Interest Rate		Non-Interest Bearing		Total		Weighted Average Effective Interest Rate	
		2005 $	2004 $	**2005 $**	2004 $	**2005 $**	2004 $	**2005 %**	2004 %
Financial Assets									
Cash	13B	**308,062**	1,380,448	**500**	500	**308,562**	1,380,948	**5.00**	4.56
Receivables for goods and services	8A	**0**	0	**0**	299,317	**0**	299,317		
Accrued interest	8A	**0**	0	**29,855**	15,081	**29,855**	15,081		
Other receivables	8A	**0**	0	**294,318**	1,425,573	**294,318**	1,425,573		
Term deposits	8B	**6,794,613**	4,589,195			**6,794,613**	4,589,195	5.58	5.09
Total		**7,102,675**	5,969,643	**324,673**	1,740,471	**7,427,348**	7,710,114		
Financial Liabilities									
Trade creditors	11A	**0**	0	**45,505**	78,666	**45,505**	78,666		
Grants payable	11B	**0**	0	**206,357**	1,345,175	**206,357**	1,345,175		
Other payables	11C	**0**	0	**130,414**	100,000	**130,414**	100,000		
Total		**0**	0	**382,276**	1,523,841	**382,276**	1,523,841		

Note 20: Financial Instruments (cont'd)

Note 20B: Net Fair Values of Financial Assets and Liabilities

		2005		2004	
	Notes	Total Carrying Amount $	Aggregate Net Fair Value $	Total Carrying Amount $	Aggregate Net Fair Value $
Financial Assets					
Cash	13B	**308,562**	**308,562**	1,380,948	1,380,948
Receivables for goods and services	8A	**0**	**0**	299,317	299,317
Accrued interest	8A	**29,855**	**29,855**	15,081	15,081
Other receivables	8A	**294,318**	**294,318**	1,425,573	1,425,573
Term deposits	8B	**6,794,613**	**6,794,613**	4,589,195	4,589,195
		7,427,348	**7,427,348**	7,710,114	7,710,114
Financial Liabilities					
Trade creditors	11A	**45,505**	**45,505**	78,666	78,666
Grants payable	11B	**206,357**	**206,357**	1,345,175	1,345,175
Other payables	11C	**130,414**	**130,414**	100,000	100,000
		382,276	**382,276**	1,523,841	1,523,841

Note 20C: Credit Risk Exposures

SRDC's maximum exposures to credit risk at the 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 21 Reporting of Outcomes

Note 21A: Outcomes of the Corporation

SRDC's core business is 'to foster an innovative and sustainable Australian sugar industry through targeted investment in research and development'.

SRDC is structured to meet one outcome ; 'A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities'.

Four Output groups have been identified as contributing to the one corporate outcome:

1.1. Whole of system solutions based on integrated management of the value chain, particularly at mill area and regional areas (Program A).

1.2. Sustainable sugarcane production systems based on integrated management of resources at farm level (Program B).

1.3. Flexible, cost effective systems for sustainable harvest, transport, milling and marketing based on innovative design (Program C).

1.4. Enhanced human capacity for change , learning and innovation in the sugar industry (Program D).

The total cost of the Outcomes is applied to the four output groups based on actual grant expenses. All other revenues and expenses are allocated on a proportional basis.

Note 21 Reporting of Outcomes (cont'd)

Note 21B: Net Cost of Outcome Delivery

	Outcome 1		Total	
	2005 $	2004 $	**2005 $**	2004 $
Departmental expenses	**8,659,891**	8,913,718	**8,659,891**	8,913,718
Total expenses	**8,659,891**	8,913,718	**8,659,891**	8,913,718
Cost recovered from provision of goods and services to the non-government sector	**0**	0	**0**	0
Total costs recovered	**0**	0	**0**	0
Other external revenues				
Departmental				
Revenue from sale of infrastructure, plant & equipment	**22,727**	69,091	**22,727**	69,091
Interest	**551,553**	366,059	**551,553**	366,059
Industry contributions (Sugar levies)	**5,131,099**	5,311,988	**5,131,099**	5,311,988
Other revenue	**0**	2,393	**0**	2,393
Total Departmental	**5,705,379**	5,749,531	**5,705,379**	5,749,531
Total other external revenues	**5,705,379**	5,749,531	**5,705,379**	5,749,531
Net cost/(contribution) of outcome	**2,954,512**	3,164,187	**2,954,512**	3,164,187

Note 21 Reporting of Outcomes (cont'd)

Note 21C: Departmental Revenues and Expenses by Output Groups and Outputs

Outcome 1	Output Group 1.1		Output Group 1.2		Output Group 1.3	
	2005 $	2004 $	**2005** $	2004 $	**2005** $	2004 $
Operating expenses						
Employees	**129,384**	108,475	**292,157**	280,353	**100,106**	63,798
Suppliers	**196,410**	134,939	**443,507**	348,747	**151,965**	79,361
Grants	**1,457,711**	1,669,897	**3,291,606**	4,165,828	**1,127,849**	982,117
Depreciation and amortisation	**6,256**	6,116	**14,125**	15,807	**4,840**	3,597
Write-down of assets	**3,225**	4,869	**7,283**	12,583	**2,495**	12,166
Value of assets disposed	**5,673**	20,686	**12,811**	53,463	**4,390**	2,863
Total operating expenses	**1,798,659**	1,944,982	**4,061,489**	4,876,781	**1,391,644**	1,143,902
Funded by:						
Revenues from Government	**780,044**	1,136,290	**1,761,390**	2,832,411	**603,529**	668,287
Interest	**114,558**	78,553	**258,678**	203,018	**88,635**	46,199
Industry contributions (Sugar Levies)	**1,065,729**	1,139,898	**2,406,485**	2,946,053	**824,568**	670,409
Revenue from sale of assets	**4,720**	14,826	**10,659**	38,318	**3,652**	8,720
Other revenues	**0**	524	**0**	1,306	**0**	308
Total operating revenues	**1,965,051**	2,370,091	**4,437,212**	6,021,106	**1,520,384**	1,393,923

Note 21 Reporting of Outcomes (cont'd)

Outcome 1 (continued)	Output Group 1.4		Outcome Group Total	
	2005 $	2004 $	**2005** $	2004 $
Operating expenses				
Employees	**101,290**	52,874	**622,937**	505,500
Suppliers	**153,762**	65,774	**945,643**	628,821
Grants	**1,141,184**	813,967	**7,018,350**	7,631,809
Depreciation and amortisation	**4,897**	2,981	**30,118**	28,501
Write-down of assets	**2,525**	2,373	**15,528**	31,991
Value of assets disposed	**4,441**	10,084	**27,315**	87,096
Total operating expenses	**1,408,098**	948,053	**8,659,891**	8,913,718
Funded by:				
Revenues from Government	**610,665**	553,868	**3,755,628**	5,190,856
Interest	**89,683**	38,289	**551,553**	366,059
Industry contributions (Sugar Levies)	**834,317**	555,628	**5,131,099**	5,311,988
Revenue from sale of assets	**3,695**	7,227	**22,727**	69,091
Other revenues	**0**	255	**0**	2,393
Total operating revenues	**1,538,360**	1,155,267	**9,461,007**	10,940,387

APPENDIX A

CURRENT RESEARCH PROJECT LISTING

Progress Reports and Final Reports or Summaries, except for projects whose reports are confidential, can be found on the supplementary Annual Report CDROM available from SRDC

Project	Title	Lead Organisation	Research Contact
Program A	**Value Chain Integration**		
Strategy	***Optimising use of whole-of-system resources***		
BSS264	Adoption of an optimal season length for increased industry profitability	BSES Limited	Mr Lawrence DiBella
CSE004	Improving yield forecasting capability to enhance market strategies for the Australian sugar industry	CSIRO Sustainable Ecosystems	Dr Yvette Everingham
CVA002	Managing Climate Variability Program	Land and Water Australia	Dr Barry White
MAS001	A regional partnership approach to developing a sustainable sugar cane system	Mossman Agricultural Services	Mr Allan Rudd
MSA003	A cooperative systems model for the Mackay regional sugar industry	Mackay Sugar Cooperative Association Ltd	Mr Geoffrey Fleming
NSC005	Implementing an integrated sugar system in NSW	New South Wales Sugar Milling Co-operative Ltd	Mr Rick Beattie
Strategy	***Facilitating sustainable whole-of-system change***		
BSS261	Measurement and feedback systems for improving market signals for harvesting	BSES Limited	Mr Trevor Willcox
CSE003	Adoption pathways for alternative cane supply options across the sugar industry	CSIRO Sustainable Ecosystems	Dr Andrew Higgins
CSE005	Integrating and optimising farm-to-mill decisions to maximise industry	CSIRO Sustainable Ecosystems	Dr Andrew Higgins
CSE009	Moving from case studies to whole of industry: Implementing methods for wider industry adoption	CSIRO Sustainable Ecosystems	Dr Yvette Everingham

Project	Title	Lead Organisation	Research Contact
CSE010	Integrated value chain scenarios for enhanced mill region profitability	CSIRO Sustainable Ecosystems	Dr Peter Thorburn
CSE013	Increasing the capacity to identify and action value chain integration	CSIRO Sustainable Ecosystems	Dr Andrew Higgins
MAS002	Improving harvest efficiency in the Mossman Central Mill area	Mossman Agricultural Services	Mr Daryl Parker
NSC006	Achieving world's best practice harvesting and transport costs for the NSW sugar industry	New South Wales Sugar Milling Co-operative Ltd	Mr Rick Beattie
SRD001	Cane harvesting to improve industry performance	Sugar Research and Development Corporation	Dr Les Robertson
WS006	Review and workshop on sugarcane harvesting practices	Macarthur Agribusiness	Mr Ewan Colquhoun
Program B	**Farming Systems**		
Strategy	***Underpinning sustainable farming systems***		
BSS155	Factors affecting the residual value of lime II	BSES Limited	Dr Graham Kingston
BSS181	Increasing sugarcane productivity through development of integrated surface drainage systems for low lying canelands	BSES Limited	Mr John Reghenzani
BSS217	Coordinated farm business management for the Australian sugar industry	BSES Limited	Mr John Agnew
BSS260	Enhanced delivery of PROSPER to achieve adoption of Best Management Practices in the Queensland sugar	BSES Limited	Mr Eoin Wallis
CPI005	Adapting soybean for profitable rotations in sugarcane farming systems	CSIRO Plant Industry	Dr Andrew James
CSE001	Increased profitability and water use efficiency through best use of limited water under supplementary irrigation	CSIRO Sustainable Ecosystems	Dr Geoff Inman-Bamber
CSE007	Implementation of irrigation practices for profitable resource efficient sugarcane production in the Ord	CSIRO Sustainable Ecosystems	Dr Geoff Inman-Bamber
CTA022	Short and long term impacts of green cane trash blanketing on soil fertility	CSIRO Sustainable Ecosystems	Dr Peter Thorburn

Project	Title	Lead Organisation	Research Contact
FMS001	Farm Management Systems for the Sugar Cane Industry, Sub-program 1: Interactive web-based material to support	AGRECON	Mr Don Chambers
FMS002	Farm Management Systems for the Sugarcane Industry, Sub-program 2: Environmental and economic performance indicators	AGRECON	Mr Don Chambers
FMS004	Farm Management Systems for the Sugarcane Industry, Subprogram 4 Options for auditing and certification of	AGRECON	Mr Don Chambers
NISN01	National Irrigation Science Network	National Irrigation Science Network	Dr Robert Troedson
NSC008	Setting productivity and cost savings targets for the NSW sugar industry	New South Wales Sugar Milling Co-operative Ltd	Mr Rick Beattie
SRD002	Case studies of improved economic performance from implementing innovations on farms	Sugar Research and Development Corporation	Dr Les Robertson
UNW003	Development of a constructed wetland for improving water quality in sugarcane drainage, and ensuring its community acceptance and industry adoption	The University of New South Wales	Assoc Prof Mike Melville
Strategy	***Improving the genetic performance of the sugarcane plant***		
BSS151	Resistance mechanisms and selection for resistance in sugarcane to sugarcane weevil borer	BSES Limited	Dr Nils Berding
BSS179	Development of a strategy for selection of high-CCS cultivars for high fertility environments in northern Queensland	BSES Limited	Dr Nils Berding
BSS250	Improving selection systems and data analysis in sugarcane breeding programs	BSES Limited	Dr Xianming Wei
BSS255	Improving the plant breeding selection system for Fiji disease resistance	BSES Limited	Mr Barry Croft

Project	Title	Lead Organisation	Research Contact
BSS256	Reducing the Australian sugar industry's genetic vulnerability to sugarcane smut	BSES Limited	Mr Barry Croft
BSS258	Assessing the impact that pathogen variation has on the sugarcane breeding program	BSES Limited	Mr Kathy Braithwaite
BSS265	Smut-proofing the Australian industry – ensuring a reliable cane supply through reduced genetic vulnerability to sugarcane smut	BSES Limited	Mr Barry Croft
BSS267	Maximising whole-of-industry benefits from the Australian sugarcane improvement program through an optimal genetic evaluation system	BSES Limited	Dr Xianming Wei
CRC002	Application of molecular markers to sugarcane breeding	CRC Sugar Industry Innovation through Biotechnology	Dr Phillip Jackson
CTA028	Evaluation and re-structuring of regional selection programs to maximise efficiency and speed of cultivar release	CSIRO Plant Industry	Dr Scott Chapman
CTA047	Introgression of new genes from Saccharum officinarum	CSIRO Plant Industry	Dr Phillip Jackson
ICB010	Validation of single nucleotide polymorphisms (SNPs) in sugarcane ESTs as useful genetic markers	Southern Cross University	Professor Robert Henry
UQ039	Gene control sequences for metabolic engineering in sugarcane	The University of Queensland	Dr Robert Birch
Strategy	***Integrated solutions for sustainable sugarcane production***		
BSS257	GrubPlan 2: Developing improved risk assessment and decision-support systems for managing greyback	BSES Limited	Dr Peter Samson
BSS266	Optimum canegrub management within new sustainable cropping systems	BSES Limited	Dr Peter Samson
BSS268	Accelerated adoption of best-practice nutrient management	BSES Limited	Dr Bernard Schroeder
BSS269	A new cropping system for the Central District	BSES Limited	

Project	Title	Lead Organisation	Research Contact
CG009	Investigating opportunities for a grain and legume industry in a coastal sugarcane cropping regime	CANEGROWERS	Ms Judy Skilton
CSE011	Improved environmental outcomes and profitability through innovative management of nitrogen	CSIRO Sustainable Ecosystems	Dr Peter Thorburn
CSE012	Adopting systems approaches to water and nutrient management for future cane production in the Burdekin	CSIRO Sustainable Ecosystems	Dr Peter Thorburn
YDV002	Sugar Yield Decline Joint Venture (Phase 2)	BSES Limited	Dr Alan Garside
Program C	**Processing and Distribution Systems**		
Strategy	***Enhancing capability in processing and distribution systems***		
SRI122	The functional relationship between juice properties, operating conditions and heat transfer in Roberts evaporators	Sugar Research Institute	Dr Ross Broadfoot
SRI123	Crystallisation studies in a pilot batch vacuum pan	Sugar Research Institute	Dr Ross Broadfoot
SRI129	Evaluation of circulation and heat transfer in calandria tubes of crystallisation and vacuum pans	Sugar Research Institute	Mr Darryn Rackemann
SRI132	The application of microwave sensors to cane quality assessment and bagasse moisture measurement	Sugar Research Institute	Dr Les Edye
SRI133	Reduced cane analysis costs via on-line analysis of first-expressed juice	Sugar Research Institute	Mr Ivars Klisans
SRI135	Adding a financial interface and road modelling capability to the TOTools suite of programs	Sugar Research Institute	Mr Peter Everitt
Strategy	***Innovative technology and best management practices***		
BSS123	Influence of harvester basecutters on ratooning of sugarcane	BSES Limited	Mr Alan Hurney
BSS270	Regional adoption of alternative harvester configurations for sustainable harvesting efficiency	BSES Limited	Mr Cam Whiteing

Project	Title	Lead Organisation	Research Contact
SRI039	Measurement of trackside noise from cane train operations	Sugar Research Institute	Mr Robert James
SRI077	Microbiology of sugar mill cooling towers and spray ponds; potential for Legionella control	Sugar Research Institute	Mrs Christine Galea
SRI112	Modified long life roll shell surface for eliminating roll arcing and extending roll shell life	Sugar Research Institute	Dr Gaye Davy
SRI136	Low cost and energy efficient ambient drying of large-scale bagasse and trash stockpiles for increased industry income from power generation	Sugar Research Institute	Dr Phil Hobson
SRI137	Factory trial of modified long life roll shell surface	Sugar Research Institute	Dr Geoff Kent
SRI138	Increase the energy efficiency and revenue of sugar factories	Sugar Research Institute	Dr Ross Broadfoot
SRI141	A preliminary assessment of methods to measure in-field sugar loss	Sugar Research Institute	Dr William Doherty
SRI142	Evaluation of an alternative process for sugar manufacture	Sugar Research Institute	Mr Kameron Dunn
Strategy	***Diversifying the income stream***		
CRC003	Use of sugarcane as a biofactory for production of biopolymers	CRC Sugar Industry Innovation through Biotechnology	Dr Michael O'Shea
CRC004	Sucrose derivative production in sugarcane	CRC Sugar Industry Innovation through Biotechnology	Dr Barrie Fong Chong
Program D	**Industry Capacity**		
Strategy	***Enhancing capacity to learn and change***		
AFF001	Corporate governance for rural women	Australian Government Department of Agriculture, Fisheries and Forestry	Dr Tracy Henderson
ARP010	Australian Rural Leadership Program – Course 10	Australian Rural Leadership Foundation Limited	Mr John Quantrill

Project	Title	Lead Organisation	Research Contact
BSS271	Building young farmers' capacity for change in the Central district	BSES Limited	Mr Joe Muscat
BSS272	Controlled-traffic study tour of the Birchip Cropping Group by the NSW farming systems steering committee	BSES Limited	Mr Peter McGuire
BSS273	Frost management, controlled traffic with wet harvests and co-generation management in Louisiana and Guatemala and attend ISSCT	BSES Limited	Mr Peter McGuire
BSS275	Enhancing capacity of the Bundaberg women in sugar group – Contrasting sugar and cotton	BSES Limited	Ms Palmina Bonaventura
BSS276	Learning and innovation bus tour for Central district grower group leaders	BSES Limited	Mr Joe Muscat
BSS278	Sugar industry training on community engagement	BSES Limited	Mr Peter McGuire
BSS281	To enhance the capacity for whole of system change in the Herbert Sugar Industry by taking selected leaders on a study tour of Southern Africa.	BSES Limited	Mr Lawrence DiBella
BSS282	Farming systems tour for the Herbert Sugar Industry	BSES Limited	Mr Mark Poggio
BSS283	Presentation of BMP variety workshops	BSES Limited	Mr Tony Linedale
BSS284	Building capacity for grower group coordinators in the Mackay region	BSES Limited	Mr Joe Muscat
BSS285	Building capacity of group members of the Mackay Fibre Producers in a fibre-production value chain	BSES Limited	Mr Joe Muscat
CG005	Value adding and diversification learning tour for Maryborough sugarcane growers	CANEGROWERS	Mr Frank Sestak
CG006	Study tour of the Brazilian sugar industry by young leaders of the Babinda sugar industry	CANEGROWERS	Ms Sarah Standen
CG008	Targeted Planning for Profit: A grass roots program to build grower skills to manage change and implement integrated future planning	CANEGROWERS	Ms Judy Skilton

Project	Title	Lead Organisation	Research Contact
CG010	Field trip to the Emerald cotton farming region to inform cane growers & professionals with regard to Farm Management Systems (FMS)	CANEGROWERS	Mr Bill Boylson
CG011	A Changing Future: Enhancing grower skills and confidence to respond to industry restructure in the Isis and Maryborough Districts	CANEGROWERS	Ms Judy Skilton
CG012	A review of voluntary, market based & statutory based instruments used in conjunction with the farming community in Chesapeake Bay catchment, USA	CANEGROWERS	Dr Tim Wrigley
CSR029	Building capacity to lead and implement regional transformation in the sugar	CSR Sugar	Mr Greg Livingstone
CSR030	Herbert cultural imprint analysis – A pathway to greater understanding and co-operation in decision making	CSR Sugar	Mr Gavin Hughes
CSR031	Opportunities for Burdekin growers to learn about sustainable farming systems, grower directed research and cooperative farming models	CSR Sugar	Dr Lisa McDonald
DEF001	Herbert River women participating in the Queensland Rural Women's Network 2004 State Conference	DEFOS	Ms Josie Vecchio
DHC001	Innovating and Developing Human Capacity in Rural Industries (joint RDC program)	Rural Industries Research & Development Corporation	Dr Tracy Henderson
FMS003	Farm Management Systems for the Sugarcane Industry, Sub-program 3: FMS training course	AGRECON	Mr Don Chambers
FMS006	Travel to WWF Sugar Dialogue meeting and South African sugar industry for learning about other experiences of FMS	Canefarmer/ Canefarm	Mr Robert Quirk
IBS001	How are Herbert and Burdekin growers dealing with low sugar prices – A study tour for Innisfail Babinda growers	Innisfail Babinda Cane Productivity Services Ltd	Mr George Bugeja

Project	Title	Lead Organisation	Research Contact
NSC007	Travel to the International Society of Sugar Cane Technologists Conference (ISSCT) in Guatemala in January 2005 and study tour of Brazil	New South Wales Sugar Milling Co-operative Ltd	Mr Rick Beattie
NSC010	Bringing together innovative farmers from NSW and the Central Region	New South Wales Sugar Milling Co-operative Ltd	Mr Rick Beattie
PCS001	Harvesting rationalisation learning expedition	Plane Creek Productivity Services Ltd	Mrs Sarah Miotto
RDA002	Grower Group Awards	Sugar Research and Development Corporation	Mr Neale Price
SRI130	Technology transfer – more skilled factory staff via troubleshooting/help manuals and access to SRI modelling software	Sugar Research Institute	Mr Rod Steindl
SRI131	Air cooled crystallisers as alternatives to current crystalliser technology	Sugar Research Institute	Dr Ross Broadfoot
WS011	Building capacity for continuous improvement and innovation in the Isis and Maryborough Sugar Regions	Queensland Department of Primary Industries & Fisheries	Ms Janice Timms
Strategy	***Targeted continuing education***		
AFF002	Science and Innovation Awards for Young People	Australian Government Department of Agriculture, Fisheries and Forestry	Dr Tracy Henderson
BSS274	Sugarcane-oriented quarantine training program	BSES Limited	Dr Mohamed Sallam
CPI007	Participation in the International Workshop on Plant Membrane Biology	CSIRO Plant Industry	Dr Anne Rae
CPI008	Travel to attend the Plant and Animal Genome Conference	CSIRO Plant Industry	Miss Kimberley Ritter

Project	Title	Lead Organisation	Research Contact
RDA001	Innovator and R&D Awards	Sugar Research and Development Corporation	Mr Neale Price
RDA003	APEN Leadership in Extension: Nurturing young leaders workshop	Sugar Research and Development Corporation	Dr Tracy Henderson
STU031	H Fengdou – Improved selection systems and data analysis for sugarcane breeding	The University of Queensland	Prof Kaye Basford
STU033	D Ward – Strategic baiting protocols for rodents in sugarcane	Queensland University of Technology	Dr John Wilson
STU037	C Brosnan – Expression modulating sequences for preventing transgene silencing in genetically-engineered sugarcane	The University of Queensland	Dr Bernie Carroll
STU038	N Flint – Sublethal and long term effects of poor water quality on freshwater and estuarine fishes	James Cook University	Prof Richard Pearson
STU041	C Ngo – Molecular analysis of suckering and tillering in sugarcane	The University of Queensland	Dr Christine Beveridge
STU042	K Ritter – An investigation of the genetic, biochemical and molecular basis of sugar accumulation in sugarcane	The University of Queensland	Dr Ian Godwin
STU048	M James – Application of engineering principles and computer modelling skills to harvester design	Queensland University of Technology	Dr Duncan Campbell
STU049	P Wulf – Self-regulatory codes of practice & their effectiveness in achieving best environmental management practices within NQ primary industries	The University of Queensland	Prof Geoff McDonald
STU050	Mira Durr – Microbiology of acid sulfate soils in agricultural environments	Sugar Research and Development Corporation	Prof Ian White
STU052	Kylie Anderson – Invasion potential of Eumetopina flavipes, vector of Ramu Stunt Disease of Sugarcane	Sugar Research and Development Corporation	Dr Bradley Congdon
STU053	Su Yin Tan – Studies on bagass fractionation using ionic liquids	Sugar Research Institute	Prof Doug MacFarlane

Project	Title	Lead Organisation	Research Contact
WS008	Continuous improvement and innovation workshop	Queensland Department of Primary Industries & Fisheries	Ms Janice Timms
WS013	Project design and evaluation workshops	Sugar Research and Development Corporation	Dr Tracy Henderson
Strategy	***Promoting safe healthy workplaces***		
OHS002	Farm Health and Safety R&D Program 2002–2006	Sugar Research and Development Corporation	Mr Neale Price
Strategy	***More effective coordination of R&D activities***		
FMS005	FMS program 5. Evaluation of FMS	CSR Sugar	Dr Lisa McDonald
SRI140	Documenting changes in the performance of the Australian sugar industry milling sector 2003–2008	Sugar Research Institute	Dr Geoff Kent
WS009	Assessment of regional R&D needs and opportunities	Sugar Research and Development Corporation	Mr Neale Price
Strategy	***Developing of systems analysis skills***		
SRI139	Developing needs analysis skills to determine the research, development and extension needs of the four North Queensland sugar milling companies	Sugar Research Institute	Dr Geoff Kent

APPENDIX B

FINAL REPORTS RECEIVED

Further details on these project final reports, except for those projects where reports are confidential,can be found on the supplementary Annual Report CDROM available from SRDC

Prog.	Project No	Title	Company	Research Contact
A	CG002	Developing the vision of the Tully Sugar Industry	CANEGROWERS	Mr Rino Cargnello
A	CQU002	Intelligent adaptive control in an on-line cane transport scheduler	Central Queensland University	Mr Arthur Pinkney
A	CSE003	Adoption pathways for alternative cane supply options across the sugar industry	CSIRO Sustainable Ecosystems	Dr Andrew Higgins
A	WS006	Review and workshop on sugarcane harvesting practices	Macarthur Agribusiness	Mr Ewan Colquhoun
B	BSS076	The environmental basis for clone x environment interaction	BSES Limited	Dr Mike Cox
B	BSS155	Factors affecting the residual value of lime II	BSES Limited	Dr Graham Kingston
B	BSS179	Development of a strategy for selection of high-CCS cultivars for high fertility environments in northern Queensland	BSES Limited	Dr Nils Berding
B	BSS217	Coordinated farm business management for the Australian sugar industry	BSES Limited	Mr John Agnew
B	CTA022	Short and long term impacts of green cane trash blanketing on soil fertility	CSIRO Sustainable Ecosystems	Dr Peter Thorburn
B	CTA028	Evaluation and re-structuring of regional selection programs to maximise efficiency and speed of cultivar release	CSIRO Plant Industry	Dr Scott Chapman

Prog.	Project No	Title	Company	Research Contact
B	CTA047	Introgression of new genes from Saccharum officinarum	CSIRO Plant Industry	Dr Phillip Jackson
B	NA003	Hydrologic effects of flood gate management on coastal floodplain agriculture – the sugarcane component	New South Wales Agriculture	Dr Peter Slavich
B	NISN01	National Irrigation Science Network	National Irrigation Science Network	Dr Robert Troedson
B	UQ017	Stable expression of introduced genes in sugarcane	The University of Queensland	Dr Robert Birch
C	BSS123	Influence of harvester basecutters on ratooning of sugarcane	BSES Limited	Mr Alan Hurney
C	SRI039	Measurement of trackside noise from cane train operations	Sugar Research Institute	Mr Robert James
C	SRI077	Microbiology of sugar mill cooling towers and spray ponds; potential for Legionella control	Sugar Research Institute	Mrs Christine Galea
C	SRI112	Modified long life roll shell surface for eliminating roll arcing and extending roll shell life	Sugar Research Institute	Dr Gaye Davy
C	SRI129	Evaluation of circulation and heat transfer in calandria tubes of crystallisation and vacuum pans	Sugar Research Institute	Mr Darryn Rackemann
C	SRI131	Air cooled crystallisers as alternatives to current crystalliser technology	Sugar Research Institute	Dr Ross Broadfoot
C	SRI132	The application of microwave sensors to cane quality assessment and bagasse moisture measurement	Sugar Research Institute	Dr Les Edye
C	SRI133	Reduced cane analysis costs via on-line analysis of first-expressed juice	Sugar Research Institute	Mr Ivars Klisans

Prog.	Project No	Title	Company	Research Contact
C	SRI135	Adding a financial interface and road modelling capability to the TOTools suite of programs	Sugar Research Institute	Mr Peter Everitt
D	ARP010	Australian Rural Leadership Program – Course 10	Australian Rural Leadership Foundation Limited	Mr John Quantrill
D	BSS271	Building young farmers' capacity for change in the Central district	BSES Limited	Mr Joe Muscat
D	BSS272	Controlled-traffic study tour of the Birchip Cropping Group by the NSW farming systems steering committee	BSES Limited	Mr Peter McGuire
D	BSS273	Frost management, controlled traffic with wet harvests and co-generation management in Louisiana and Guatemala and attend ISSCT	BSES Limited	Mr Peter McGuire
D	BSS275	Enhancing capacity of the Bundaberg women in sugar group – Contrasting sugar and cotton	BSES Limited	Ms Palmina Bonaventura
D	BSS276	Learning and innovation bus tour for Central district grower group leaders	BSES Limited	Mr Joe Muscat
D	CG005	Value adding and diversification learning tour for Maryborough sugarcane growers	CANEGROWERS	Mr Frank Sestak
D	CG006	Study tour of the Brazilian sugar industry by young leaders of the Babinda sugar industry	CANEGROWERS	Ms Sarah Standen
D	CPI007	Participation in the International Workshop on Plant Membrane Biology	CSIRO Plant Industry	Dr Anne Rae
D	CPI008	Travel to attend the Plant and Animal Genome Conference	CSIRO Plant Industry	Miss Kimberley Ritter

Prog.	Project No	Title	Company	Research Contact
D	CSR031	Opportunities for Burdekin growers to learn about sustainable farming systems, grower directed research and cooperative farming models	CSR Sugar	Dr Lisa McDonald
D	DEF001	Herbert River women participating in the Queensland Rural Women's Network 2004 State Conference	DEFOS	Ms Josie Vecchio
D	NSC007	Travel to the International Society of Sugar Cane Technologists Conference (ISSCT) in Guatemala in January 2005 and study tour of Brazil	New South Wales Sugar Milling Co-operative Ltd	Mr Rick Beattie
D	PCS001	Harvesting rationalisation learning expedition	Plane Creek Productivity Services Ltd	Mrs Sarah Miotto
D	RDA003	APEN Leadership in Extension: Nurturing young leaders workshop	Sugar Research and Development Corporation	Dr Tracy Henderson
D	SRI139	Developing needs analysis skills to determine the research, development and extension needs of the four North Queensland sugar milling companies	Sugar Research Institute	Dr Geoff Kent
D	STU017	F Martin – The application of constraint logic programming to cane railway scheduling	Central Queensland University	Ms Fae Martin
D	STU020	D Harrison – Transgenes as tools for understanding the inheritance and expression of genes in sugarcane	The University of Queensland	Dr Robert Birch
D	STU025	R McQualter – Production and evaluation of Fiji disease virus resistant transgenic sugarcane plants	Queensland University of Technology	Dr Robert Harding

Prog.	Project No	Title	Company	Research Contact
D	STU028	S McCarthy – Automatic control of topper height	The University of Southern Queensland	Professor John Billingsley
D	STU032	K Nutt – Proteinase inhibitors from canegrubs	BSES Limited	Dr Peter Allsopp
D	STU033	D Ward – Strategic baiting protocols for rodents in sugarcane	Queensland University of Technology	Dr John Wilson
D	WS008	Continuous improvement and innovation workshop	Queensland Department of Primary Industries & Fisheries	Ms Janice Timms

APPENDIX C

PUBLISHED PAPERS

ASSCT Papers

Bonnett, G.D., Hewitt, M.L., Salter, B., Glassop, D., Jackson, P.A., Foreman, J.W., Vickers, J.E. and Grof, C.L.P. (2005). Townsville tall plant facility–examples of its application for sugarcane research. Proc. Aust. Soc. Sugar Cane Technol., 27: 189–198.

Dürr, M., White, I., Rogers, S., Macdonald, B. and Welch, S. (2005). New directions in analytical techniques for the assessment of microbial populations in caneland soils. Proc. Aust. Soc. Sugar Cane Technol., 27: 237–242.

Everingham, Y., Inman-Bamber, G., Ticehurst, C., Barrett, D., Lowe, K. and McNeill, T. (2005). Yield forecasting for marketers Proc. Aust. Soc. Sugar Cane Technol., 27: 51–60.

Fleming, G.F. (2005). Cooperative systems: an information systems model for industry value chain management. Proc. Aust. Soc. Sugar Cane Technol., 27: 40–50.

Garside, A.L., Robotham, B.G., Chappell, W. and Berthelsen, J.E. (2005). Row spacing and tillage effects on the growth and yield of sugarcane. Proc. Aust. Soc. Sugar Cane Technol., 27: 133–143.

Higgins, A.J. and Downs, P. (2005). Optimal scheduling of road vehicles in the Maryborough sugarcane transport system. Proc. Aust. Soc. Sugar Cane Technol., 27: 32–39.

Inman-Bamber, N.G., Attard, S.A., Baillie, C., Lawson, D. and Simpson, L. (2005). A web-based system for planning use of limited irrigation water in sugarcane. Proc. Aust. Soc. Sugar Cane Technol., 27: 170–181.

Jaffrés, J. and Everingham, Y. (2005). An exploratory investigation of the relationship between decadal rainfall and climate indices. Proc. Aust. Soc. Sugar Cane Technol., 27: 96–108.

Jiao, Z., Prestwidge, D.B., Power, A. and Antony, G. (2005). To shift or not to shift: optimum harvest window for Plane Creek. Proc. Aust. Soc. Sugar Cane Technol., 27: 109–114.

Leslie, J.K. and Leslie, B.A. (2005). Yield response surfaces for spacing of sugarcane plants. Proc. Aust. Soc. Sugar Cane Technol., 27: 144–157.

Sallam, M.N. and Allsopp, P.G. (2005). Our home is girt by sea – but how well are we prepared in Australia for exotic cane borers? Proc. Aust. Soc. Sugar Cane Technol., 27: 358–366.

Schroeder, B.L., Wood, A.W., Moody, P.W., Bell, M.J. and Garside, A.L. (2005). Nitrogen fertiliser guidelines in perspective. Proc. Aust. Soc. Sugar Cane Technol., 27: 291–304.

Thorburn, P.J. and Goodson, M. (2005). Overcoming on-farm constraints to productivity and profitability in a wet tropical area. Proc. Aust. Soc. Sugar Cane Technol., 27: 158–169.

Troedson, R.J. and Garside, A.L. (2005). Lessons in collaboration: The experience of collaborative R&D in the sugar yield decline joint venture. Proc. Aust. Soc. Sugar Cane Technol., 27: 23–31.

Journal papers

Garside, A.L., Watters, T.S., Berthelsen, J.E., Sing, N.J. and Bell, M.J. (2004). Comparisons between conventional and alternative sugarcane farming systems which incorporate permanent beds, minimum tillage, controlled traffic and legume fallows. Proc. Aust. Soc. Sug. Tech., (in press)

Garside, A.L. and Berthelsen, J.E. (2004). Management of legume biomass to maximize benefits to the following sugarcane crop. Proc. Aust. Soc. Sug. Tech., (in press)

Higgins, A.J. and Davies, I. (2005). "A simulation model for capacity planning in sugarcane transport", Computers and Electronics in Agriculture, Vol 47, 85–102.

Higgins, A.J. and Laredo, L. (2005). "Improving harvesting and transport planning within a sugar value chain", Journal of the Operational Reserach Society, in press.

Higgins, A.J., Antony, G., Sandell, G., Davies, I., Prestwidge D.B. and Andrew, B. (2004). "A Framework for Integrating and Optimising a Complex Harvesting and Transport System for Sugar Production", Agricultural Systems, Vol 82, 99–115.

Inman-Bamber, N.G. (2004). Sugarcane water stress criteria for irrigation and drying off. Field Crops Res 89: 107–122.

Inman-Bamber, N.G. and Smith, D.M. (2005). Water relations in sugarcane and response to water deficits. Field Crops Res 92: 185–202.

Inman-Bamber, N.G. (2004). Sugarcane water stress criteria for irrigation and drying off. Field Crops Research, 89, 107–122.

Inman-Bamber, N.G., Bonnett, G.D., Smith, M.D. and Thorburn, P.J. (2005). Sugarcane physiology: Integrating from cell to crop to advance sugarcane production. Field Crops Res. 92: 115–117.

Jakku, E., Thorburn, P., Gambley, C. (2004). "Decision support systems for farm planning: A theoretical framework from the sociology of science and technology", *4th International Crop Science Congress*, Brisbane, October 2004.

Jakku, E., Thorburn, P. and Gambley, C. (2004). "Sociological Concepts for Understanding Agricultural Decision Support Systems", in *Proceedings of TASA Conference 2004*, La Trobe University Campus, Beechworth, 8–11 December.

Jakku, E. Thorburn, P. and Gambley, C. (2004). "Developing decision support systems for farm management: A conceptual framework from the sociology of science and technology", *ExtensionNet*, 12(1): 1–3.

Jiao, Z., Higgins, A.J. and Prestwidge, D. B. (2005). "An Integrated Statistical and Optimisation Approach to Increasing Sugar Production within a Mill Region", Computers and Electronics in Agriculture, in press.

Lisson, S.N., Inman-Bamber, N.G., Robertson, M.J. and Keating, B.A. (2005). The historical and future contribution of crop physiology and modelling research to sugarcane production systems. Field Crops Res. 92: 321–335.

Park, S.E., Robertson, M.J. and Inman-Bamber, N.G. (2005). Decline in the growth of a sugarcane crop with age under high input conditions. Field Crops Res 92: 305–320.

Rasiah, V., Armour, J.D. and Menzies, N.W. (2005). Choloride as a signature indicator of soil textural and hydrologic stratigraphies in variable charge deep profiles. Hydrol. Process. 19, 2007–2022.

Robertson, L.N., Watters, T.S. and Garside, A.L. (2003). Commercial implementation of 3 row planting on 2.3 m wide beds in north Queensland. Proc. ISSCT Mech. Workshop, Louisiana, USA, Oct. 2003.

Smith, D.M., Inman-Bamber, N.G. and Thorburn, P.J. (2005). Growth and function of the sugarcane root system. Field Crops Res 92: 169–184.

SRDC Publications

Cane Harvesting to Improve Industry Performance, *SRDC Technical Report 2/2004*

SRDC News Releases

2005 June 29	New Travel & Learning Projects (TLOP)
2005 June 06	Harvest Innovation Projects Announced
2005 May 03	Sugar Industry Awards Top Innovators
2005 Apr 02	Call for Travel & Learning Opportunity submissions
2005 Apr 01	Call for Grower Group Innovation Projects (GGIP)
2005 Mar 30	New Grower Group Innovation Projects
2005 Mar 29	$1,000 bursary for APEN Workshop
2005 Mar 15	SRDC Regional Workshops 2005
2005 Mar 01	Special call for scholarship applications – field of social science
2005 Feb 24	Date claimer for 2005 Regional Workshops
2005 Feb 22	Call for Innovative Cane Harvesting submissions
2005 Feb 22	Innovative Cane Harvesting Projects launched
2005 Jan 25	Apply for a Regional Grower Group Award
2005 Jan 24	New SRDC Grower Group Awards Announced
2004 Nov 02	Cooperative Venture for Capacity Building – Call for proposals
2004 Oct 30	Farm Management Systems (subprogram 3) Training – Tenders called
2004 Sept 24	Manager – Communication & Knowledge Application
2004 Sept 01	Farm Management Systems – Tenders called
2004 Aug 16	Funding Innovative Grower Groups
2004 Aug 04	2005 Call for Proposals
2004 Aug 04	T&L Proposals now Accepted twice each year
2004 Aug 04	Regional Workshop Presentation released
2004 July 16	SRDC 2004 Regional Workshops – Full details

SRDC Updates

June 2005 **Contents**
- SRDC Regional Workshops
- Grower Group Excellence Awards
- New Project Investments
- Sugar Industry Innovator Awards.

April 2005 **Contents**
- New Opportunities for industry to participate in R&D
- R&D success stories: "Outcomes"
- On Farm Health and Safety Joint Venture outcomes
- SRDC investment in rural women
- SRDC Regional workshops.

February 2005 **Contents**
- Investment and Management of your R&D levies
- SRDC's Government Stakeholder
- New Travel and Learning opportunities
- Grower Group Excellence Awards
- Report on Townsville Forum [December 2004] QDPI&F-SRDC: Improved sugar research, development and extension

December 2004 **Contents**
- Lessons from the important role of grower groups in R&D in the grains industry
- SRDC's Travel and Learning Opportunity funding
- Innovations in billet planting
- SRDC Annual Report 2003-04 released.

October 2004 **Contents**

- Consultations with industry people, researchers and the community during SRDC's recent Regional Workshops
- Feedback from workshop participants identified many ways for improving industry performance.

August 2004 **Contents**

- Assisting growers to adopt new technology and improved cane farming practices
- Cane farming to improve water quality
- Climate-based decision making
- SRDC's 2005 Call for Proposals

APPENDIX D

FREEDOM OF INFORMATION ACT STATEMENT

Organisation

The role, structure and functions of SRDC, including details of the Directors and staff, are outlined in Section 5 of this Annual Report (Report of Corporate Operations), commencing on page 54.

The Corporation is accountable to the Australian Government through the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, and to the three Representative Bodies prescribed through SRDC's governing legislation, the PIERD Act:

- Australian Cane Growers' Council
- Australian Cane Farmers Association
- Australian Sugar Milling Council Proprietary Limited.

Categories of documents

The following documents are available on request from SRDC's Brisbane office and/or may be downloaded from the SRDC website www.srdc.gov.au:

Annual Operational Plan, Annual Report, Research and Development Plan, Technical Reports, Newsletters (SRDC Update).

The following documents and files may be downloaded from the SRDC website:

Proposal Forms and Application Kits for Research Projects, Scholarships, and Travel and Learning Opportunity Projects.

Other files and documents are not customarily made available and are subject to assessment of access for reasons including commercial confidentiality or personal privacy.

FOI statistics 2004-05

FOI requests received	Nil
Internal review received	Nil
Fees/charges levied	Nil
Fees/charges collected	Nil
AAT appeals	Nil
AAT decisions	Nil

FOI procedures

Enquiries about access to documents or other matters relating to FOI should be directed to the FOI Contact Officer between 9.00am and 5.00pm, Monday to Friday.

The FOI contact officer is:

The Executive Director
Sugar Research and Development Corporation
Level 16
141 Queen Street
Brisbane Qld 4000.
Telephone: (07) 3210 0495
Facsimile: (07) 3210 0506
Email: srdc@srdc.gov.au

APPENDIX E

ABBREVIATIONS

ACFA	Australian Cane Farmers' Association
ACGC	Australian Cane Growers' Council
DAFF	Australian Government Department of Agriculture Fisheries and Forestry
AOP	Annual Operational Plan
ASMC	Australian Sugar Milling Council Proprietary Limited
ASSCT	Australian Society of Sugar Cane Technologists
BPMS	Business Process Management System
BSES	BSES Limited
CAC Act	Commonwealth Authorities and Companies Act 1997
CCS	Commercial Cane Sugar
CFD	Computational Fluid Dynamics
CPPB	Cane Protection and Productivity Board
CP2002	Cross Program Activity CP2002
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEFOS	Developing Education with a Focus on Sugar
EM	Extraneous Matter
FMS	Farm Management Systems
GIS	Geographical Information System
GVP	Gross Value of Production (of sugarcane)
IGG	Industry Guidance Group
IHP	International High Pol
IP	Intellectual Property
IPM	Integrated Pest Management
ISSCT	International Society of Sugar Cane Technologists
JCU	James Cook University
LWA	Land and Water Australia (formerly LWRRDC)
NSW	New South Wales
NSWSMC	New South Wales Sugar Milling Cooperative
OH&S	Occupational Health and Safety
PBS	Portfolio Budget Statement
PIERD Act	Primary Industries and Energy Research and Development Act 1989
QDPI	Queensland Department of Primary Industries
QDNRM	Queensland Department of Natural Resources and Mines
QHP	Queensland High Pol
QSL	Queensland Sugar Limited
QUT	Queensland University of Technology
R&D	Research and Development
RDC	Research and Development Corporations
RIRDC	Rural Industries Research and Development Corporation
SRDC	Sugar Research and Development Corporation
SRI	Sugar Research Institute
SYDJV	Sugar Yield Decline Joint Venture
UQ	University of Queensland

APPENDIX F

TABLE OF COMPLIANCE WITH PUBLISHING GUIDELINES AND LEGISLATION

	Page
Annual Operational Plan	44
Audit Committee	76
Auditor-General's Certificate	85
Board Committees	76
Board Meetings	75
Australian Government Disability Strategy	83
Chair and Executive Director's Report	12
Corporate Governance	66
Directors	72
Enabling Legislation	64
Ecologically Sustainable Development and Environmental Performance	83
Financial Statements	Section 6
Fraud Control	81
Freedom of Information	83, Appendix D
Government R&D Priorities	15
Index/Contents	Appendix G
Industry Representative Bodies	65
Insurance	81, 82
Judicial Decisions and Reviews by Outside Bodies	Nil
Ministerial Directions	65
Objectives and Functions of SRDC	64
Occupational Health & Safety	83
Operational Problems	Nil
Organisational Structure	77
Patents	80
Principal Programs: Outputs and Outcomes	52–63
Principal Programs: Performance	44–51
Progress in Achieving Objectives	15–43
Publications	Appendix C
Report of Portfolio Operations	Section 4
Report of Corporate Operations	Section 5
Resolution of Directors	Letter of Transmission
Responsible Minister	65
R&D Activities	Section 4
R&D Plan	6
Selection Committee Annual Report	151
Significant Acquisitions/Disposals of Real Property	Nil
Significant Changes in State of Affairs	Nil
Significant Events (Section 15(1) of CAC Act)	Nil
Subsidiaries/Associated Companies	Nil

APPENDIX G

GENERAL INDEX

SUGAR RESEARCH AND DEVELOPMENT CORPORATION SELECTION COMMITTEE

Mr George Rance
191 Richmond Road
CAMBRIDGE TAS 7170

29th August 2005

Senator the Hon Richard Colbeck
Parliamentary Secretary,
Minister for Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Senator Colbeck

This report summarises the activities of the Sugar Research and Development Corporation (SRDC) Selection Committee in relation to the nomination of six Directors for appointment to the Board of the SRDC submitted to you on 15 April 2005.

Establishment of the Selection Committee

The SRDC 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 SRDC Board.

The Parliamentary Secretary appointed Mr George Rance as the Presiding Member of the SRDC Selection Committee for a three year period, commencing 1 July 2004.

In accordance with section 124 of the PIERD Act, on 24th January 2005 nominations were sought from the SRDC's three representative organisations, the Australian Canegrowers Council, the Australian Sugar Milling Council and the Australian Cane Farmers' Association.

The following people were appointed to the Selection Committee on 14 January 2005:

Mr Ross Walker	Representing the Australian Cane Farmers Association
Mr Geoffrey Mitchell	Representing the Australian Sugar Milling Council
Mr Alf Cristaudo	Representing the Australian Cane Growers Council Ltd.

The Selection Process

An advertisement seeking applications for the 6 Board positions on the SRDC was placed in the national press on the weekend of 5th February 2005 and in the Brisbane Courier Mail on 7th February 2005. The advertisement called for written applications against the core criteria contained in the PIERD Act including: sugar 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 42 applications were received, including applications from all of the current Board members.

The Selection Committee met on several occasions to determine the process, to receive appropriate briefings and to review the applications. The Presiding Member also conferred with the SRDC Chairperson on the future strategic direction of the Corporation. Interviews were held on 7 and 8 April 2005.

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 15 April 2005. The Parliamentary Secretary made the following appointments for a term commencing from 1 May 2005 and ending on 30 April 2008:

Mr Andrew Barfield (reappointment)
Mr David Braddock (reappointment)
Ms Patrice Brown (reappointment)
Dr Mary Corbett (reappointment)
Dr Douglas Hogarth (reappointment).

The Selection Committee's nomination for the sixth position is still under consideration and the Selection Committee has not yet been abolished as required by section 129 of the PIERD Act on completion of the process.

Costs

Administrative support for this process was provided by National Strategic Services Pty Ltd and expenses incurred are set out below.

Item	$ (GST Inclusive)
Selection Committee travel and expenses	3,884
Applicants travel and expenses	1,364
Advertising – Newspapers	5,398
Presiding Members consultation fees	15,373
Administration Costs	139
TOTAL	**26,158**

Yours sincerely

George Rance
Presiding Member
Sugar Research and Development Corporation Selection Committee