

Annual Report 2008–2009



Investing in Sugarcane Industry Innovation



Australian Government

Sugar Research and Development Corporation

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30 September 2009

The Hon. Tony Burke

Minister for Agriculture, Fisheries and Forestry

Parliament House

CANBERRA ACT 2600

Dear Mr Burke,

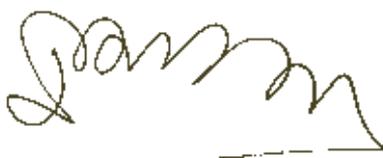
In accordance with the requirements of the *Primary Industries and Energy Research and Development Act 1989* (the PIERD Act), I submit the Annual Report of the Sugar Research and Development Corporation (SRDC) for 2008–09. The activities of the Corporation are reported against the objectives, strategies, outputs and outcomes of the SRDC Research and Development Plan (R&D Plan) 2007–2012 and are consistent with the 2008–09 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 28 August 2009. 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.

SRDC is confident that its performance in 2008–09 contributed to achieving the Corporation's vision for a profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.

I commend this report to you.

Yours sincerely,



I Knop AM
Chairman
Sugar Research and Development Corporation

Sugar Research & Development Corporation

Level 16, 141 Queen Street, Brisbane QLD 4003

PO Box 12050, George Street, Brisbane, Q 4003, Australia

Web: www.srdc.gov.au

Email: srdc@srdc.gov.au

Fax: (07) 3210 0506

Phone: (07) 3210 0495

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1. Highlights

Highlights

Life Cycle Assessment

Rural primary industries use water resources and energy which emit greenhouse gases. Future Australian and international policy directions may require industries to account for their resource use and emissions. Life Cycle Assessment (LCA) is a method to analyse resource issues across the life cycle of a product. It can systematically identify key areas to improve environmental and economic performance, and can be applied to agricultural systems.

SRDC has worked collaboratively with RDCs to develop a standardised LCA methodology to improve the consistency of reporting across rural industries. The standardised LCA methodology was released as a RIRDC publication in mid 2009. (RIR001)

Helping the industry manage smut

Sugarcane smut was first reported in the Bundaberg/Isis, Central and Herbert regions of Queensland in 2006. This serious disease can cause productivity losses from 30–100 per cent in susceptible varieties. SRDC is supporting the BSES Limited/CSIRO Plant Industry breeding program to manage the threat of smut and other diseases by replacing susceptible cane varieties with resistant ones. The smut-resistant varieties identified by this project and two earlier projects have been the basis of the response to the sugarcane smut epidemic, and losses from the epidemic will be substantially reduced by the provision of high-yielding, smut-resistant varieties.

This project has resulted in a significant increase in resistance levels in the breeding program and the release of two new smut-resistant and one intermediate variety in 2008. The benefits of this breeding will flow through to industry in coming years as more high-yielding smut-resistant varieties are released. In addition this project created a new smut-resistant variety, Q240, released in the southern region in 2009, subject to being declared an approved

sugarcane variety under the Queensland's Plant Protection (Approved Sugarcane Varieties) Declaration 2003. (BSS265)

Tools to rate cane varieties against Smut and Fiji leaf gall

A project led by BSES Limited has developed a smut rating predictive model using near infrared technology. Using this tool will help to improve the delivery of resistant varieties in shorter timeframes and reduce the cost of varietal selection. The project, which began in mid-2007, built on existing research that demonstrated that varietal resistance to smut can be correlated with near infrared spectroscopic measurements.

In June 2009 this project completed three blind validation trials to evaluate the model across more than 36 sugarcane clones. In 2009–2010 researchers hope to see the tool implemented within the BSES-CSIRO Plant Industry Joint Venture in Sugarcane Improvement to deliver significant efficiency gains and cost reductions over traditional screening methods. The project will also now direct its attention to developing a predictive model for Fiji leaf gall resistance ratings. (BSS307)

Using the web to select suitable cane varieties to plant on-farm

SRDC invested in a BSES Limited project to develop a decision-support tool for growers and advisory staff to assist them to select a balanced mix of varieties that maximises productivity while managing risks from pest and disease outbreaks. The web-based program, QCANSelect, was official launched in May 2009. (BSS294)

Precision spot spraying using image analysis and plant identification technology

Dr Cheryl McCarthy and Mr Steven Rees of the National Centre for Engineering in Agriculture (NCEA) completed their project 'Development of a prototype precision spot spray system using image analysis and plant identification technology' in 2009.

Precision spray technology that targets specific weeds has the potential to revolutionise weed management by maximising production and reducing herbicide use while reinforcing minimum tillage concepts.

A prototype developed by Dr McCarthy and Mr Rees with SRDC support can successfully discriminate between mature green grassy weeds and sugar cane, will reduce the cost of weed control, and can be combined with GPS technology to map weed infestation across a field. (NCA010)

Adopting systems for water and nutrient management for Burdekin cane

In the face of rising groundwater and reduced water quality in the aquifers and streams a CSIRO-led project developed a range of farm management options to provide Burdekin growers with the right information to improve water, nutrient and crop management techniques to increase profitability, control rising water tables, reduce the risk of irrigation-induced salinity and improve off-farm water quality.

In addition the research team assessed the feasibility of farm management options against future water pricing and water allocation scenarios for various reference sites across the Burdekin. This cost/benefit assessment data enabled a robust economic evaluation of water and nutrient management options for growers. Growers are now equipped with the right information to make decisions on the

most efficient farm management techniques to improve water and nutrient levels. (CSE012)

Promoting on-farm water quality testing by growers

SRDC supports grower led programs as part of an active learning strategy. One such program involved a project group of 12 growers in the Herbert region developing simple tools to monitor farm water quality. The success of this project has inspired other grower groups in Babinda, Innisfail, Burdekin and the Mackay Whitsunday regions to initiate water quality monitoring projects. (GC013)

Building on this investment in people development and environmental monitoring, SRDC supported a CANEGROWERS water quality testing workshop held in the Herbert region in 2008. The workshop provided an opportunity for approximately 50 growers to share knowledge about on-farm water quality testing and exchange ideas.

As part of the workshop, a 20-page field guide titled "Water quality monitoring in the Australian sugar industry" was published to provide information on the findings of the initial Herbert research project.

The workshop and field guide provided just one step towards achieving large numbers of growers conducting their own water quality monitoring using simple techniques and low cost equipment. (CG020)

Improving harvest and transport efficiency in the Mossman central mill area

Transport schedules can be difficult to arrange, as there are many interdependent factors to consider. A change in one part of the system will usually have a follow-on effect to other parts of the supply chain, causing logistical challenges.

To address these issues, SRDC invested in research led by CSIRO to consider factors including optimal sugarcane quantities for mill operation; transport infrastructure and labour; delays and their subsequent effects; and varied geographical distribution and times of operation.

Results found if recommendations are applied to the harvesting and transport sectors, the outcomes have the potential to create industry savings of more than A\$30 million each year.

The first stage of the project established ways to improve the overall efficiency of the harvest and transport sector of the Mossman sugar industry in 2007. In 2008, efficiency improvements were developed through an industry consultation group, which looked at a range of payment and harvest management issues. The project assessed three payment options, with a number of growers and harvest contractors changing to a flat-rate, plus fuel system in 2008. In addition a group of six sugarcane harvesters had data-loggers fitted to monitor in-field progress and performance. Analysis of this data showed that most in the group were operating within harvest best-practice guidelines for a number of performance indicators. (MAS002)

Evaluation of membrane technology for clarification of sugarcane juice

A collaborative project by James Cook University, Mossman Central Mill, Resis Australia, and the Asian Institute of Technology embarked on an evaluation of membrane technology for clarification of sugarcane juice.

In late 2008, lab and pilot-scale membrane units were installed at Mossman Mill to test the efficiency of technology used to remove non-sugar impurities as well as producing high quality juice for manufacture of improved quality raw sugar. The relationship among the operating parameters such as trans-membrane pressure, cross-flow velocity and flux were also tested.

A cost-benefit analysis was conducted for the implementation of a full-scale membrane system for clarification and concentration. Results found the membrane surface areas of lab and pilot-scale membranes were 0.11 and 9.0 m².

Analysis indicates the application of membrane to purify limed and coagulated sugar cane juice in a mill would cost \$4.3 million in capital to process 500 tonnes of sugar cane per hour. The annual saving would be in the order of \$3.56 million which will correspond to a pay back period of two years.

It is anticipated final results in 2010, will prove membrane technology is of benefit to the industry in ensuring efficient clarification of sugarcane juice quality, reducing energy consumption, eliminating chemical usage and improving overall sugar production performance. (JCU029)

Investing in the industry's future

Many of Australia's sugar growing regions are seeing younger generations moving away from the cane industry, but one SRDC-funded project invested in the industry's leaders of tomorrow.

In 2009 over 40 participants joined in a Generation Next workshop held in Lucinda to present outcomes at a forum attended by industry leaders. This project provided participants with opportunity to invest in personal development, team work and professional development. Graduates represented production, milling, research and extension and each completed a project which will contribute to the efficiency, professionalism and sustainability of the industry. (SRD025)

2. Our Business

Snapshot of the Industry

Project investments

Partnering and collaboration

Income and Expenditure

Report from Chairman and
Executive Director

Our Business

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 industry feedback.

SRDC is part of a larger network of Rural R&D Corporations (RDCs) which similarly invest in R&D and the implementation of outcomes for Australian rural industries. The features of the RDC model are outlined below.

Features of the R&D Corporations model

- The 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.
- RDCs strive to deliver high rates of return on R&D investment by influencing the full range of interactions along the innovation chain, rather than focussing mainly on generating new knowledge for its own sake.
- 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’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 capitalise on and embrace advances in science, engineering and technology.

A sustainable sugar industry should combine the 3 Ps: profit (economy), planet (environment), and people (society).

SRDC works in partnership with industry, government, R&D partners and associated rural communities to underpin a vibrant sugar industry with the object of achieving the Corporation’s Corporate Outcome:

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

SRDC strives to create an environment that recognises the value of innovation – change that adds value. SRDC invests in R&D activities to find new and improved ways of doing things rather than funding core or ongoing services. The Corporation is committed to setting the right targets, managing investments so they succeed and ensuring research delivers impacts across the Australian sugar industry.

In short, SRDC is firmly committed to maximising the return on industry and Government investment into research and development.

SRDC obtains income from levies paid by the sugar industry, matching funds from the Australian Government, and interest. In 2008–09 the levy remained at \$0.14 per tonne of sugarcane harvested, divided equally between growers and millers.

Snapshot of the Industry

The Australian sugar industry produces raw and refined sugar from sugarcane. Income is also derived from by-products including ethanol and molasses, and from generation of electricity. While Australia produces only three to four per cent of the world sugar supply, it exports approximately eight per cent of the sugar traded worldwide.

Availability of land under cane sugar production continued to decline in 2008–09 due to industry participants responding to several years of poor prices, high input costs and lucrative offers for cane land for other uses. However, the exceptional improvement in sugar prices and the availability of medium term pricing mechanisms will enable industry participants to better manage price risk. There is clearly an improvement in confidence for medium term revenue and some optimism regarding sugar industry prospects.

Rationalisation of the sugar milling sector has continued with Mackay Sugar Limited announcing the closure of Pleystowe Mill following the 2008 crush, the acquisition of Mulgrave Mill by the Maryborough Sugar Factory Limited, and the commencement of merger discussions between Mackay Sugar Limited and the Proserpine Co-operative in the past year.

In 2008 Queensland Sugar Limited (QSL) was restructured into a genuinely commercially focussed marketing services company.

Both cane crushed and sugar produced declined in 2008.

The key factor of the continuing decline in Queensland was the 4.7 per cent reduction in the area harvested in 2008. This resulted in the crush falling to 30.17 million tonnes of cane producing just less than 4.3 million tonnes of IPS sugar, the lowest since 2001. Queensland contributed 94 per cent of the total cane crushed and 95.6 percent of the total sugar produced in Australia.

The New South Wales crop of 1.9 million tonnes was disappointing in both quantity and quality. This was attributed to severe frosts, flooding resulting in an immature crop, lower production and very low purities.

Delays with the commissioning of new cogeneration plants at Condong and Broadwater mill sites caused production time to be lost at both factories. Both generating plants are now at practical completion and undergoing reliability trials as part of the handover process.

The entire sugarcane milling operation and results from both the field and factory perspective have been clouded because of poor quality cane. This issue will be the focus of the next twelve months.

Figure 2.1: Area Harvested for Milling (Hectares)

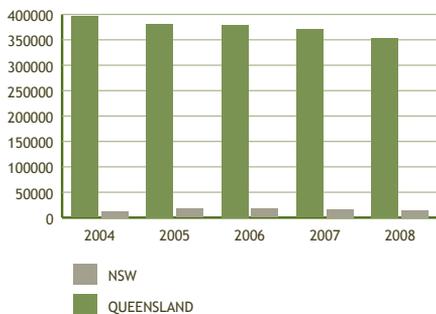


Figure 2.4: Tonnes of Cane per Hectare Harvested

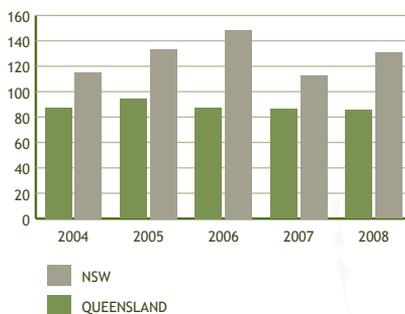


Figure 2.2: Cane Crushed (Tonnes)

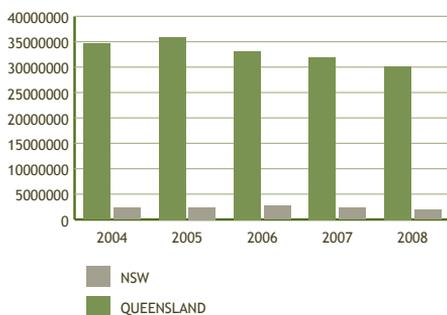


Figure 2.5: Tonnes Cane per Tonne IPS Sugar

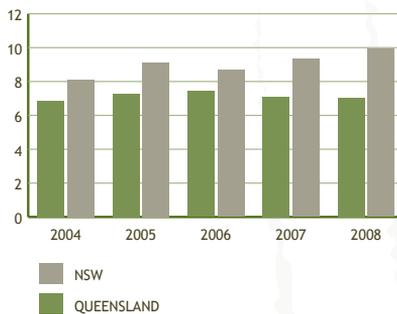


Figure 2.3: Sugar Produced (Tonnes IPS)

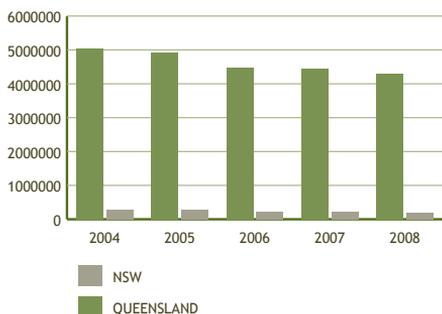
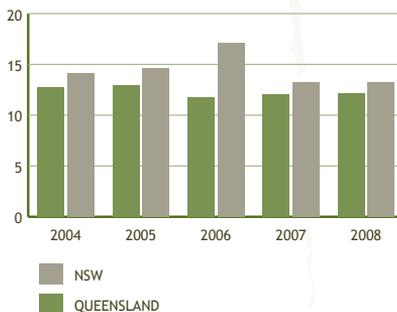


Figure 2.6: Tonnes IPS Sugar per Hectare Harvested



*Source: Australian Sugar Year Book 2009

Project Investments

The *Primary Industries and Energy Research and Development Act 1989* (PIERD Act) requires SRDC to make effective use of Australia's scientific resources, and SRDC strives to create an environment which ensures a high return on investment.

SRDC has adopted a competitive approach to R&D investments and each project proposal is assessed using an attractiveness/feasibility framework. This approach is explained in further detail in Section 4. In 2008–09, SRDC continued to place considerable effort into ensuring that the results of research and development projects deliver benefits to the Australian sugarcane industry. Thus, SRDC places an emphasis on partnerships between industry sectors and within and between regions.

SRDC invested in four types of projects in 2008–09:

- Research Projects (comprise around 90 per cent of project funding)
- Scholarship Projects support postgraduate study
- Capacity Building Projects
- Grower Group Innovation Projects

The proportion of funding allocated to each project type is represented in Figure 2.5.

Tables 2.1 and 2.2 provide a snapshot of project and reporting statistics for 2008–09.

Figure 2.5: Proportion by funding of SRDC project types as at 30 June 2009

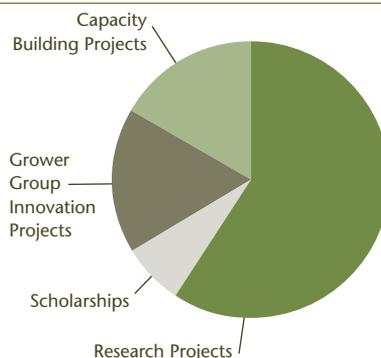


Table 2.1: SRDC Project Statistics

Table 2.1: SRDC Project Statistics	2007–08	2008–09
Research Projects	83	83
Scholarships	13	14
Grower Group Innovation Projects	35	29
Capacity Building Projects	43	28
TOTAL number of projects	174	161

Table 2.2: Project reports received 2008–09

Table 2.2: Project reports received	2007–08 actual	2008–09 actual
Milestone Reports	378	286
Final Reports	63	68
TOTAL number of reports	441	354

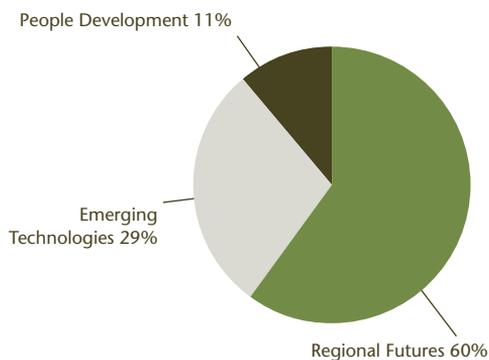
Outcomes, outputs and inputs in the R&D Plan 2007–2012

SRDC works closely with all research partners to ensure research projects are efficiently and effectively completed on time. The target resource allocations for each Investment Arena were identified in the SRDC R&D Plan 2007–2012 and Annual Operational Plan 2008–09 (Table 2.3).

Table 2.3 Outcomes, outputs and inputs in the R&D Plan 2007–2012

CORPORATE OUTCOME	<i>A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.</i>		
INVESTMENT ARENAS	REGIONAL FUTURES	EMERGING TECHNOLOGIES	PEOPLE DEVELOPMENT
Arena outcomes	<i>Implementation of innovative farming, harvesting, transport, milling and marketing systems tailored to the needs and opportunities of each region</i>	<i>Rapid translation of relevant emerging technologies that will enhance the industry's competitive edge in the global marketplace</i>	<i>Development of individuals and networks across the sugarcane industry that enhance the capacity for continuous improvement</i>
Outputs	<ul style="list-style-type: none"> ■ Value chain integration ■ Farming and harvesting systems ■ Transport, milling and marketing systems 	<ul style="list-style-type: none"> ■ Genetics and breeding systems ■ Farming, harvesting, transport, milling, and marketing systems 	<ul style="list-style-type: none"> ■ Individual capacity ■ Social capacity
INPUTS – proportion of resources	60%	29%	11%

Figure 2.6: Distribution of project funding as at 30 June 2009



Distribution of project funding by arena	2007–08 actual	2008–09 actual
* Regional Futures	58%	60%
* Emerging Technologies	26%	29%
* People Development	16%	11%

Partnering and Collaboration

Partnerships are the cornerstone of SRDC's investment portfolio. The Corporation is committed to encouraging collaboration in all parts of the project life cycle. Focus on partnering to succeed ensures sectors of industry are working together to achieve positive outcomes and also results in greater collaboration between regions.

Sharing knowledge and ideas benefits the entire industry through the improved adoption of research findings.

SRDC's continued investment in Grower Group Innovation Projects has a dramatic impact on industry. Groups of growers are working with researchers to experiment, learn and adapt research findings to their local conditions. Researchers also benefit from the direct feedback they receive.

SRDC is a core party of the CRC 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 using biotechnology to develop and deliver new plant varieties, products and processes.

Australian Sugar Industry Alliance

The industry body, the Australian Sugar Industry Alliance (ASA) was formed in late 2007 with the aim of providing a single clear voice on whole-of-industry issues. This is the first industry peak body following deregulation of the Industry.

The Alliance focused its activities on three main issues in 2008–09. Two activities directly related to SRDC funding; a review of industry R&D structures and performance, and a framework for providing industry oversight and guidance in the development and application of biotechnology in the sugar industry.

A research committee within ASA considered many issues relating to the delivery of R&D to the industry. Two main issues were identified and received further attention. These were:

- a) that the industry should adopt a single integrated approach to setting its research priorities; and
- b) that the industry should seek to establish a single industry-owned R&D company which would provide both R&D co-ordination and delivery.

A Sugarcane Gene Technology Group is working to develop the eventual commercialisation of products from Genetically Modified (GM) sugarcane. The sugar industry has invested heavily in biotechnology through the CRC for Sugar Industry Innovation through Biotechnology (CRC SIIB), and a number of other ventures. The group continues to prepare the pathway for safe commercialisation of GM sugar cane products. The first commercial GM sugarcane varieties could be available for planting as early as 2013–2014.

Rural Research and Development Corporations

Australia's productivity growth puts the nation in a pre-eminent position to meet the growing global demand for primary industry products. This growth is driven by investment supporting innovation in Research, Development and Extension.

This growth is generated by the Rural Research and Development Corporations (RDCs). There are 15 RDCs represented by the Council of Rural Research and Development Corporations (CRRDC) and they form a partnership between industry and government. Their role is to prioritise, coordinate and integrate the demands of industry and government with the capabilities of research providers.

The RDCs currently invest around \$540 million per year in R&D (including marketing) to improve the profitability and sustainability of rural industries and communities.

The structure of the RDCs and the extensive collaboration between the organisations involved promotes effective research, development, innovation and extension of research findings in priority areas such as climate change and natural resource management. The ability to tackle projects jointly increases efficiency. It also can result in more effective communication and uptake of the outcomes of R&D. This contributes directly to the growth in productivity in Australian agriculture.

The RDCs embrace the Australian Government's National Research Priorities and Rural Research and Development Priorities in their investment, evaluation and reporting frameworks. Alignment with these priorities is a key consideration when setting strategic directions and making key investment decisions.

Measuring economic, environmental and social returns from Rural RDCs

In December 2008, a report titled '*Measuring economic, environmental and social returns from Rural Research and Development Corporations Investment*' was launched at Old Parliament House in Canberra.

The evaluation was undertaken to provide robust and objective information on the overall economic, social and environmental returns produced by the RDC portfolio. It is the largest evaluation of rural R&D undertaken so far in Australia.

The evaluation report provided results of the first year of an ongoing collective evaluation of the impact, effectiveness and return on investment from the RDCs. The evaluation found an average return of \$11 for every one dollar invested by the country's RDCs.

The evaluation examined 32 randomly selected projects evaluated from a pool of 600 R&D projects provided and showed the Government's rural R&D model is exceeding expectations and delivering benefits not only to the primary industries sector, but is also producing other positive social and environmental benefits beyond the scope of the original investment.

Further work by the RDCs over the next two years will build on these results.

SRDC works collaboratively with RDC business managers on harmonisation projects to ensure joint projects and operations continue to be managed as efficiently and effectively as possible.

Income and Expenditure

SRDC's income and expenditure for 2008–09, compared with that forecast in the Annual Operational Plan 2008–09, is set out in Table 2.4. Full financial statements are included in Section 6.

Income explanation

The higher income from the Commonwealth is the result of Regional and Community Program (RCP) funding and the GVP for the financial year. The industry contribution is significantly lower as a result of the decrease in the total crop crushed in 2008. SRDC's cash reserve at 30 June 2008 was \$8.117 million and 30 June 2009 was \$9.633 million. Table 2.5 summarises the actual income and expenditure over the past five years.

Table 2.4: Forecast and actual income and expenditure for 2008–09

Income:	Forecast \$m	Actual \$m
Australian Government Contribution (<i>matching levy funding</i>)	4.973	5.110
Australian Government Contribution (<i>Regional and Community Project Funding</i>)	0.700	1.000
Industry Contribution	5.110	4.317
Other	0.510	0,666
Total Income	11.293	11.093

Expenditure:	Forecast \$m	Actual \$m
R&D Projects	9.266	8.292
Operation of SRDC	2.107	1.960
Total Expenditure	11.372	10.252

Table 2.5 Five years budget at a glance (\$m)

	2008–09	2007–08	2006–07	2005–06	2004–05
Revenue	11.093	12.158	11.134	11.125	9.438
Expenditure	10.252	11.093	10.724	10.160	8.637
Operating Surplus/(deficit)	0.841	1.065	0.411	0.966	0.801
Total assets	11.097	11.273	9.236	8.887	7.714
Total equity	10.449	9.608	8.557	8.146	7.181
Industry contributions	4.317	5.028	4.887	5.342	5.131
Commonwealth contributions	6.110	6.283	5.522	5.195	3.756
R&D expenses	8.292	9.139	9.025	8.458	7.018

Report from Chairman and Executive Director

Global sugar market exceeds expectations

After struggling for several years, the fortunes of the sugarcane industry changed remarkably during the past twelve months. Largely ignoring turmoil in financial markets, sugar prices have risen nearly 10 per cent since mid-December 2008 on expectations that the world will face a sugar deficit of more than 11 million tonnes for 2009–10.

Low sugar prices in previous years were attributed to excessive production growth in India and Brazil, which created surplus stocks and kept world prices under pressure. Today this situation has reversed, with India reducing production to the extent that they are once again importing sugar. It is likely that expansion in Brazil will also be constrained for the next few years as a result of the global financial crisis, and this will provide further support for sugar prices.

Demand for sugarcane attracts multinationals

Global demands for raw sugar and biofuels are beginning to rise at a faster pace than current production levels of sugarcane. The sugarcane industry must adopt a strategic objective to increase yields in sugarcane while reducing resources required for cultivation.

Multinational companies are becoming seriously involved in genetic improvement and production of sugarcane. Greater global demand for food, fibre and biofuel resources have prompted international investors and other changes in the industry. The partnership between Syngenta and the Queensland University of Technology (QUT) in 2007 initiated the movement, which really gained momentum when Monsanto decided to invest in sugarcane to diversify its existing core crop portfolio. The acquisition of Aly Participacoes Uda, which operates the sugarcane breeding and technology companies CanaVialis SA and Alelyx SA in Brazil, marks the first entry of a large multinational into the sugarcane breeding environment.

Aligning the industry for the future

The sugarcane industry has undergone significant rationalisation in the production and processing sectors over the past decade. In order to minimise production costs, several mills have been closed and some farming and harvesting operations have been amalgamated. During this period of change in the industry, the R&D sector remained largely unchanged. To strategically realign the industry, SRDC played an active role in investigating alternative R&D structures to increase efficiency and reduce overhead costs, whilst attaining better focus. This activity coincided with SRDC's role to support the development of the National Sugar R&D Framework, which is now in its first draft form.

The relative position of sugarcane producers in the world has changed over the past decade. Brazil is no longer the dominating force as it was in the early and mid nineties. Brazilian production costs previously hovered around 6 to 7 US cents per pound, while all other producers faced costs above 10c per pound. The *Sugar Market Report*, released in May 2009 at the Kingsman Australian Sugar and Ethanol conference, stated that Australian production costs averaged between 10 to 11 US cents per pound, placing Australia for the first time in almost two decades, in the number one position in the world.

Delivery against the SRDC five-year strategic plan

To ensure industry sustainability SRDC remains focussed on innovative R&D, with a commercially viable outcome. Maximum gains for the sugarcane industry can be achieved through collaboration and partnerships with other R&D funders and providers. As well as partnering with research and industry organisations to deliver R&D outcomes, SRDC has continued its partnership with the other Rural Research and Development Corporations on joint venture programs, including the Climate Change Research Strategy for Primary Industries, Natural Resource Management

Collaborative Venture, Managing Climate Variability Program, Life Cycle Assessment in Rural Industries and the Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry.

In line with strategic directions outlined in the five-year R&D plan (2007–2012), SRDC's call for research proposals for 2008–09 focussed on:

- mitigating risks of climate change, facilitating adaptation to climate change and variability,
- delivering opportunities for the sugarcane industry in energy, biomass utilisation and product diversification,
- reducing production costs and/or improving the utilisation of capital and other resources for cane farming, harvesting and milling,
- increasing uptake of improved technologies and improving decision-making by industry enterprises,
- developing improved sugarcane varieties and
- reducing risks of exotic biosecurity threats, and improving management of endemic pests and weeds, including risks enhanced by climate change.

This year, SRDC supported several research projects that addressed issues relating to climate change, such as impacts of changes in temperature, water quality and availability, extreme weather conditions, salinity, carbon sequestration and biodiversity conservation. Stage one of the Managing Climate Variability Program project was completed in 2009, with SRDC supporting the next stage as a joint venture across Rural Research and Development Corporations.

Biosecurity remains a high priority in the SRDC investment portfolio. The positive impact of the funded research on controlling sugarcane smut is one of the highlights presented in this report. There is a significant increase in the level of resistance within the sugarcane breeding populations. Two resistant and

one intermediate resistant variety have been released, with more cane varieties expected to follow.

BSES Limited and CSIRO Sustainable Ecosystems, supported by SRDC, conducted research in to the nitrogen needs of sugarcane crops. This SRDC funded project will help growers save money by determining the ideal rate of nitrogen to apply. Regional workshops and information transfer will mean growers are better equipped to apply the correct amount of nitrogen, thus saving money and the environment, particularly in response to considering impacts on the Great Barrier Reef.

The use of legume break crops is integral to the new sugarcane farming system. SRDC funded research led by CSIRO Plant Industry announced the release of another new soybean variety, 'Fraser', suited to the Fraser coast region of Queensland. Further research found well-grown soybeans largely reduce the need for costly nitrogen fertiliser in the following year on cane crops. In addition, the SRDC are supporting the development of molecular markers, which could become important diagnostic tools to help growers achieve healthier soils, by understanding the desired microbial conditions for improved soil health and nutrient cycling.

Innovation and industry skills are one of the crucial requirements for a prosperous future. One of the prime targets of this activity is focussed on Grower Group Innovation Projects. An external review of this activity indicated that the biggest industry gains from the SRDC investment were in the more rapid adoption of practices and farming systems. Individual growers who participated in this program acknowledge an increase in their confidence and skills in planning, managing and promoting on-farm research. This work also stimulates interaction between growers, researchers and extension staff in on-farm, farmer-driven research.

As part of our people development program, we continue to fund projects which are helping women gain the skills and confidence they need to take on leadership roles within the industry. These projects connect women with mentors, providing training opportunities to give them confidence. Without young people, the industry has no future. For several years SRDC has been supporting the development of young people through its Generation Next project. In 2009, more than 40 future leaders participated in our Generation Next workshop and presented outcomes of the project to current industry leaders. This project provided participants with the opportunity to invest in personal development, team work and professional development.

It is evident the industry will operate in a more hostile environment due to climate change. We will need to increase social responsibility to minimise our environmental footprint, while maintaining an ever increasing production output per unit of land. The current exceptional performance of sugar on the international market places the industry in an ideal position to continue its reform processes including R&D delivery. We remain committed to working closely with the sugarcane industry to improve its position globally. There can be no doubt that this can only be achieved through a continued and focused investment in research and development.



A handwritten signature in dark ink, appearing to read 'I Knop'.

I Knop
Chairman

A handwritten signature in dark ink, appearing to read 'F Botha'.

F Botha
Executive Director

3. Our Outcomes

Outcomes and outputs

Research Priorities

Investment Arena: Regional Futures

Investment Arena: Emerging
Technologies Arena

Investment Arena: People
Development Arena

Our Outcomes

Outcomes and Outputs

SRDC's Corporate Outcome is:

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

The SRDC R&D Plan 2007–2012 outlines three Investment Arenas on which the R&D portfolio

is based to achieve this Corporate Outcome. It nominates Arena Outcomes and Outputs, and provides target ranges for the allocation of resources to the Investment Arenas.

Table 3.1 illustrates the relationships between SRDC's Corporate Outcome, Arena Outcomes, Outputs and Inputs. It also demonstrates the performance of each Arena against project targets in the SRDC Annual Operational Plan 2008–09.

Table 3.1 Outcomes, Arenas and Targets

CORPORATE OUTCOME		<i>A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.</i>		
INVESTMENT ARENAS	REGIONAL FUTURES	EMERGING TECHNOLOGIES	PEOPLE DEVELOPMENT	
Arena outcomes	Implementation of innovative farming, harvesting, transport, milling and marketing systems tailored to the needs and opportunities of each region	Rapid translation of relevant emerging technologies that will enhance the industry's competitive edge in the global marketplace	Development of individuals and networks across the sugarcane industry that enhance the capacity for continuous improvement	
Outputs	<ul style="list-style-type: none"> ■ Value chain integration ■ Farming and harvesting systems ■ Transport, milling and marketing systems 	<ul style="list-style-type: none"> ■ Genetics and breeding systems ■ Farming, harvesting, transport, milling, and marketing systems 	<ul style="list-style-type: none"> ■ Individual capacity ■ Social capacity 	
PROJECT TARGETS		<i>Identified in the SRDC AOP 2008–2009 as proportion of resources</i>		
INVESTMENT ARENAS	REGIONAL FUTURES	EMERGING TECHNOLOGIES	PEOPLE DEVELOPMENT	Total
Target (AOP July 2008)	60–65%	20–25%	15–20%	100%
Actual (AR 2008–2009)	60%	29%	11%	100%
No. Continuing projects				
Target (AOP July 2008)	70	16	23	109
Actual (AR 2008–2009)	67	16	24	107
No. New projects				
Target (AOP July 2008)	10	4	4	18
Actual (AR 2008–2009)	6	4	4	14
No. New scholarships				
Target (AOP July 2008)	0	0	17	17
Actual (AR 2008–2009)	0	0	12	12
Total projects by arena				
Target (AOP July 2008)	80	20	44	144
Actual (AR June 2009)	73	20	40	133

Research Priorities

SRDC investments contribute to the National Research Priorities and the Rural R&D Priorities of the Australian Government, which were announced in December 2002 and March 2003 respectively.

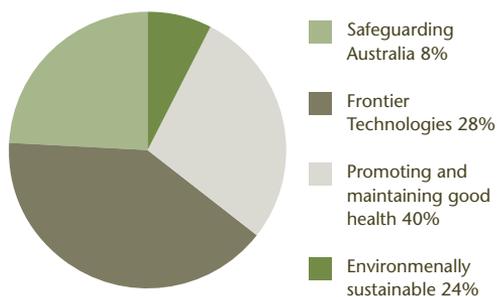
National Research Priorities

The four broad headings of the National Research Priorities (NRP) are:

- An environmentally sustainable Australia
- Promoting and maintaining good health
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia

Figure 3.1 Allocation of SRDC funds by National Research Priority

Composition of National Research Priorities attributed to each Program 2008–09 (\$'000)



Rural Research and Development Priorities

The Rural Research and Development Priorities (RRDP) are framed within the National Research Priorities and focus on issues relevant to rural industries including:

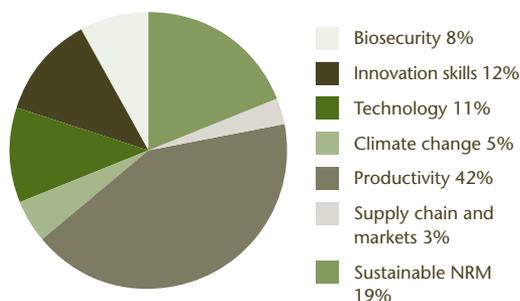
- Productivity and adding value – *Improve the productivity and profitability of existing industries and support the development of viable new industries*
- Supply chain and markets – *Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the supply chain, including to consumers*
- Natural resource management – *Support effective management of Australia's natural resources to ensure primary industries are both economically and environmentally sustainable*
- Climate variability and climate change – *Build resilience to climate variability and adapt to and mitigate the effects of climate change*
- Biosecurity – *Protect Australia's community, primary industries and environment from biosecurity threats.*

Supporting priorities include:

- Innovation skills – *Improve the skills to undertake research and apply its findings*
- Technology – *Promote the development of new and existing technologies*

Figure 3.2 Allocation of SRDC funds by Rural R&D Priority

Composition of Rural Research and Development Priorities attributed to each Program (\$'000 and % values) 2008–09



Industry Priorities

In addition to the National and Rural R&D Priorities, SRDC is also guided by industry priorities. Throughout 2008–09, SRDC consulted with industry through regular meetings with its Representative Bodies, as well as industry-wide workshops.

The main research target issues identified as priority areas were:

- Mitigating risks of climate change, and facilitating adaptation to climate change and variability.
- Delivering opportunities for the sugarcane industry in energy, biomass utilisation and product diversification.
- Reducing production costs, and/or improving the utilisation of capital and other resources for sugarcane farming, harvesting and milling.
- Increasing uptake of improved technologies and improving decision-making by industry enterprises.
- Developing improved sugarcane varieties
- Reducing risks of exotic biosecurity threats, and improving management of endemic pests and weeds, including risks enhanced by climate change.

Investment Arena: Regional Futures

Indicator	Enhanced structure and functioning of regional sugarcane industry value chains Enhanced resource utilisation in the farming and harvesting sectors Enhanced processes and product range in the transport, milling and marketing sectors
Measure	Demonstration of improved integration of the industry value chain within regions delivering increased profitability, and more efficient use of capital based on environmentally responsible and safe business practices Implementation of improved farming and harvesting systems that increase revenue and reduce input costs, and concurrently are environmentally and socially sustainable Implementation of more productive and cost-effective transport, milling and marketing systems in harmony with the environment and societal expectations
NRPs	Promoting and maintaining good health Safeguarding Australia; An environmentally sustainable Australia Promoting and maintaining good health Using frontier technologies for building and transforming Australian industries
RRPs	Supply chain and markets Climate variability and climate change Productivity and adding value Biosecurity Natural resource management

Enhancing industry preparedness for climate change

To ensure the industry is ideally positioned to brace the impacts from climate change, SRDC will continue to invest heavily in research that will provide the industry with the best possible knowledge, tools and resources to prepare for climate change.

In 2008–09 all Rural Research and Development Corporations (RDC) agreed to continue with a second phase of the Climate Change Research Strategy for Primary Industries program, focussed on increasing Australia’s capacity to capture opportunities and manage risks related to climate change. The key activities included addressing seasonal forecasting, water resources, agricultural applications and adaptation to climate change.

This joint venture project included Land and Water Australia, Cotton RDC, Dairy Australia,

Rural Industries RDC, Meat and Livestock Australia, Wool Innovation, Grape and Wine RDC and Grains RDC. The themes from the overarching CCRSPI strategy for national collaborative actions are:

- future climates,
- economic analyses,
- life-cycle analyses,
- adaptation,
- mitigation and
- coordination.

The primary aim of this phase will be to have a clear path forward for a coordinated and collaborative national research effort that will prepare primary industries (agriculture, fisheries and forestry) for the challenges and opportunities of climate change. As a result of the different interactions happening around this initiative, emission trading is an issue that is expected to have some early ‘urgent and important’ investment targets next year. (LWA003)

Understanding and managing climate variability

SRDC has supported several research projects that address discrete areas likely to be impacted by a change in temperature, water quality and availability, extreme weather conditions, salinity, carbon sequestration and biodiversity conservation.

As a result, the sugar industry has a better understanding of the possible impacts and effects of climate change. One of the first primary industries to undertake research of this nature, the sugar industry is using the knowledge gathered in this research to inform other projects. Stage two of the Managing Climate Variability Program project commenced in 2009 with SRDC supporting this stage as a joint venture across RDCs. SRDC will continue research that addresses better ways to model climate change, to measure current and new outputs and to develop new technologies to improve the way the industry uses the soil, water, air, and people resources around them. (CVA003)

Life Cycle Assessment

Rural primary industries use water resources and energy which emit greenhouse gases. Future Australian and international policy directions may require industries to account for their resource use and emissions. Life Cycle Assessment (LCA) is a method to analyse resource issues across the life cycle of a product. It can systematically identify key areas to improve environmental and economic performance, and can be applied to agricultural systems.

SRDC has worked collaboratively with RDCs to develop a standardised LCA methodology to improve the consistency of reporting across rural industries. Following a workshop with RDCs in 2009 the standardised LCA methodology was released as a RIRDC publication in mid 2009.

The methodology focuses on energy and water use, and greenhouse gas emissions. It is intended to be consistent with recently developed the LCA standards ISO14040:2006 and ISO14044:2006. The methods for energy and greenhouse gas emission accounting follows established techniques, such as those of the Australian Greenhouse Office and the International Panel on Climate change. (RIR001)



BSES extension officer explains the features of the QCANESelect website

Using the web to select cane varieties resistant to disease outbreaks

SRDC invested in a BSES Limited project to develop a decision-support tool for growers and advisory staff to assist them to select a balanced mix of varieties that maximises productivity while managing risks from pest and disease outbreaks. The web-based program, QCANESelect™, was officially launched in October 2008.

Growers need information on the performance of smut resistant varieties including their disease resistance, sugar content and adaptation. The smut epidemic is causing a rapid change to varieties in many cane growing regions and therefore growers need access to information on the newest varieties available.

QCANESelect™ currently has over 180 users. Users can generate an electronic guide, including regional reports, recommendations and a whole-farm sugarcane variety plan. QCANESelect™ is available via the BSES Limited webpage (<http://www.bses.org.au>). Feedback has been positive, with people commenting that the system is easy to use, easy to navigate, and the block recommendations and whole-of-farm plan functions are very powerful. The QCANESelect™ project team is now focusing on promoting the new program and running training workshops in all regions to assist growers to use the program. (BSS294)

A new cropping system for the Central District

A system change-over kit has been produced to help cane growers and extension staff with the adoption of new farming systems. Grower surveys conducted as part of this project show that growers believe they have optimised most areas of their farming systems, but still have the ability to improve on controlled-traffic systems, as only 20 per cent of growers have optimised controlled-traffic systems. More than 70 per cent of growers feel that they have the potential to improve on their farming system.

During the 2008 Central district planting season, 3400 ha or 29 per cent of the planted area in the Mackay district was planted using a row spacing of 1.8m or more which is suited to controlled traffic. This follows on from a 2000 ha planting of controlled traffic cane in 2007. Fallow legume plantings have also been very significant with planting details showing growers intended on planting 3220 ha of soybean and 835 ha of Lab during the summer of 2008–09, this 4055 ha of fallow legumes represents 40 per cent of the Mackay district fallow area.

During the life of the project, 43 group extension activities were conducted such as shed meetings, bus tours, field days and information days. Activities were held in all districts of the Central cane-growing region,

including Proserpine, Mackay and Sarina districts. At the completion of the state-wide extension program, the new farming systems team had also met with all of the extension officers and agronomists from BSES, as well as staff from agencies such as QDPI&F, BSES Limited FutureCane, and productivity service companies. (BSS269)

Single drum harvester chopper development

An issue for the industry has been that acceptable cane bin weights cannot always be achieved due to low bulk density of some crops resulting in higher transport costs. This situation is exaggerated in green cane harvesting and particularly whole-of-crop harvesting for co-generation. An important measure of any new chopper design is its effect on sugarcane juice losses. For every cut made to a stick of cane, some level of sugarcane juice is lost and this is measured by the difference in mass between a whole stick of cane and its billet components. It is therefore imperative that the cutting action of the chopper is optimised so that a minimum amount of juice is lost.

SRDC invested in a project led by NSW Sugar Milling Cooperative and James Cook University to design a new harvester chopper that can be retro-fitted to existing cane harvesters and will provide a means of varying billet length (within the range of 100–200mm) in order to control bulk density of harvested sugarcane.

In addition this project created a letter understanding of a) the cutting process by simple two-dimensional laboratory experiments and b) the single drum minimum speed limitations by kinematic modelling. The test unit will enable optimisation of the single drum concept. A key advantage of the proposed single drum chopper design is the ability to keep blades sharp at all times by incorporation of self-sharpening technology developed for forage harvesters.

In October 2008, final research results on the construction and testing of a chopper test unit utilising the single drum chopper design were released. (NSC012)



Measuring harvesting performance

Benchmarking is a tool used in many agricultural sectors to evaluate business practices and operations to improve performance. However until now there has been no such system in use in the sugarcane harvesting sector. Harvester operators worked with researchers in the Burdekin to understand how operating information improves their performance.

After analysis software was developed to collect data about headland spacing, paddock conditions, haul conditions, breakdowns and stoppages. In addition, social research was undertaken to determine the factors contributing to current harvesting practices and the likely impacts change may have on people involved.

The data gathered has stimulated growers and contractors to look at their harvesting operations more closely to determine what practices may be restricting their harvesting performance and profitability.

While there is still some way to go in development of a commercial-ready product, this project has shown that it is possible to enable harvest groups to measure their performance using a benchmarking system and has been instrumental in altering harvester operator's attitudes to change.

By collecting information, including basic operating data, block data and inter-farm comparisons, it is anticipated that a benchmarking system could be created which would enable harvest groups to measure their performance. This project has been instrumental in altering harvester operators' attitude to change. (CSR033)

Improving health and safety

Under Workplace Health & Safety (WH&S) legislation, employers are obliged to provide safe premises, safe machinery and substances, safe systems of work, information, instruction, training and supervision, and a suitable working environment and facilities. Failure to comply can result in prosecution and fines. It is also the role of the sugar transport sector to ensure high safety standards are enforced to protect the community at train crossings.

The safe operation of the sugarcane railway, in the same way as for mainline railways, is gaining greater attention. One important aspect of safe operation is the ability to stop a train in an acceptable distance and time. Previous studies have measured variable braking distances with different locomotives on different tracks.

A recent project completed by Queensland University of Technology compared braking performance using an anti-lock braking system (ABS) to manual braking by a train driver. The first series of tests concluded that ABS braking performed as well as an experienced driver in a slide situation and appeared to give better than average braking in a no-slide situation. The results suggested that the use of an anti-lock braking system allows maximum average brake pressure to be applied without the feel of an experienced driver.

Further tests, using a train made up of a locomotive and a rake of bins, were carried out under a range of conditions at two mills, Invicta (with Willison couplings) and Proserpine (with link and pin couplings). The results found no conclusive evidence that ABS braking is better than manual braking by the experienced drivers involved in the tests. However, an anti-lock braking system is expected to be of benefit in situations where the train is being driven by an inexperienced driver or in an emergency situation where the driver might be distracted. (QUT019)

Assessing risk and decisions to control greyback canegrubs

Predicting when and where a greyback canegrub outbreak will occur is difficult with control techniques costing in excess of \$400/ha. However by not introducing some control methods could result in devastating cane crop losses. These factors make it important that growers and their advisors have access to the tools and skills to predict the potential risk of greyback canegrub damage in their area.

SRDC invested in "GrubPlan 2" is a whole-of-industry initiative driven by BSES Limited and supported by CANEGROWERS, Australian Canefarmers Association and productivity service organisations. This project provided industry with greyback canegrub management systems complete with risk assessment and decision-support models to allow growers and their advisors to proactively manage the pest.

Better prediction and management of outbreaks will reduce the severity of canegrub damage and reduce the quantity of insecticides used during periods when control is not needed. This project also provided a framework for collecting information required to objectively assess the risk of canegrub attack in individual fields and make rational management decisions.

This framework is being put to the test by the Mulgrave CaneGrub Management Group (Cairns) and Mount Kinchant Growers Group (Mackay) as part of two Grower Group Innovation Projects. These grower led projects will see the expansion of integrated pest management concepts among cane growers as well as the on-farm assessment of the prediction system and the validation of the regional GrubPlan approach. (BSS257)

Helping the industry manage smut

Sugarcane smut was first reported in the Bundaberg/Isis, Central and Herbert regions of Queensland in 2006. This serious disease can cause productivity losses from 30–100 per cent in susceptible varieties.

SRDC is supporting the BSES Limited/CSIRO Plant Industry breeding program to manage the threat of smut and other diseases by replacing susceptible cane varieties with resistant ones. The smut-resistant varieties identified by this project and two earlier projects have been the basis of the response to the sugarcane smut epidemic, and losses from the epidemic will be substantially reduced by the provision of high-yielding, smut-resistant varieties.

This project has resulted in a significant increase in resistance levels in the breeding program and the release of two new smut-resistant and one intermediate variety in 2008. The benefits of this breeding will flow through to industry in coming years as more high-yielding smut-resistant varieties are released. (BSS302)

Supporting biosecurity planning

SRDC invested in a project to update the industry's Biosecurity Plan, to account for recent changes in legislation and in PLANTPLAN (national guidelines covering management and response procedures for emergency plant pest incursions affecting the Australian plant industries).

This project led by BSES Limited aims to enhance Australia's sugarcane biosecurity measure by updating or developing incursion management plans for downy mildew, ramu stunt, sugarcane longhorn borer, eumetopina plant-hopper, sugarcane thrips and moth borers. By improving and preparing the industry's emergency response capacity against existing and emerging exotic threats can reduce the impact of disease outbreaks and implement control methods immediately following detection. (BSS303)



Bundaberg Sugar Services Michael Turner and BSES Limited variety officer Alison Findlay said the Q240 trial crop has shown good yields and excellent commercial cane sugar potential from mid-season onwards in trials conducted over the last six years.

Fighting back with new sugarcane varieties

SRDC continues to invest in research to develop smut-resistant sugarcane varieties. A new variety Q240 is to be released in the southern region in 2009, subject to being declared an approved sugarcane variety under the Queensland's Plant Protection (Approved Sugarcane Varieties) Declaration 2003.

The aim of this Bundaberg project, led by BSES program leader Dr Mike Cox, was to distribute the Q240 cane variety throughout Bundaberg, Maryborough and Rocky Point mill areas in late 2009, and bulk distribution to the Isis mill area in 2010. Q240 was formerly known as QS96-434 and comes from the cross QN81-289 * SP78-3137. The male parent is a Brazilian variety and Q240 is the first commercial variety with a Brazilian parent.

To date, Q240 has shown good yields to produce excellent commercial cane sugar from mid-season onwards in trials conducted over the last six years.

As industry continues to rise to meet the challenges of fluctuating sugar prices, climate variability, disease, and demand for alternative land uses, the need to enhance the sugarcane supply, while maximising returns per unit of costs, is essential to achieving profitability and sustainability.

Many elements, including varieties, water and nutrient inputs, pest management and timely operations must be integrated into a workable and robust system which fits industry's needs. A focus on implementation of improved practice is therefore critical to success. (BSS265)

Keeping nutgrass under control

Nutgrass is a significant weed problem for many sugarcane growers and is particularly prevalent in parts of Northern NSW. Nutgrass competes with newly planted sugarcane, causing poor germination and reduced growth of young plants and ratoon crops. Previous attempts to control nutgrass outbreaks have been impromptu, with no structured package available to growers for satisfactory control. Dry soil conditions exacerbated the effects.

Recognising this problem, the SRDC invested in a research project led by BSES Limited Senior Extension Officer, Dr Bob Aitken and NSW grower Alan Munro. The aim of the project was to develop guidelines for nutgrass control, resulting in a grower decision support package. The project also involved increasing the knowledge of options available for nutgrass control and the cost-benefit of different control options.

This project provided a strategic approach for improved nutgrass control methods. Trial sites, established using a number of control options, produced good results and recommendations for growers in the region. Adoption of control method techniques identified by this project could achieve significant productivity and economic gains for the industry. (NFS002)



Previous attempts to control nutgrass outbreaks has been difficult, however a research project led by BSES Senior Extension Officer, Dr Bob Aitken and NSW grower Alan Munro developed guidelines for nutgrass control and a grower decision support package.

Grower group investments reaping rewards

Grower Group Innovation Projects – GGIPs are giving groups of like-minded growers the opportunity to partner with researchers and other participants across the value chain to conduct their own research and development activities in their own district. By pooling their ideas, experience and enthusiasm, project participants have the ability to make significant changes to the industry and their region.

SRDC funded numerous Grower Group Innovation Projects during 2008–09. GGIPs are seen to complement rather than compete with other industry research and development activities. The work rigorously undertaken on-farm by growers has a high level of credibility amongst growers. Growers and their groups have been active in spreading project findings, with traditional methods of sharing agricultural information being at the forefront, e.g. field days, open days, bus trips, farm walks and the GIVE farmer expo.

A booklet summarising results from GGIP trials conducted in 2008–2009 will be released later in 2009. Some examples of GGIP projects include:

- **GGP012 - Researching soil health and economics in the Herbert River.**
Improved farming system including soybean green manure crop, increased gross margin of \$105/ha over conventional farming system.
- **GGP020 - Beach sand to black clay.**
Improvements to farming systems on the Bugeja farm have been shown to reduce the cost of cane production by \$2 per tonne, and the investment in the improved cane farming system is likely to be paid off within three from the improved returns.
- **GGP024 - Validation of fibre cropping in rotation with sugarcane.**
Although this is a common break crop in sugarcane rotations in southern Africa, it has not previously been trialled in Australia. A Mackay group imported sunn hemp seed and has shown the value of this as a break crop for sugarcane.

During trials this group harvested and hauled almost 30 hectares of kenaf using three different options traditional cane harvesting, round baling and forage harvesting without any major issues.

- **GGP026 - Implementation of a 2 metre Farming System.**
Modification costs to allow harvester to cut dual-row cane at 2m bed spacing as well as conventional 1.5 single rows, recouped in first year due to reduction of harvesting costs of about \$1/ tonne cane (\$100,000 costs of converting to 2m system; 110,000 tonne harvesting contract).

- **GGP034 - Profits through recycling to improve on-farm sustainability.**
Compost has been proven by a central region grower group to be a key factor for future industry sustainability and soil health. The group initiated a project aimed at reducing the negative impacts of conventional agriculture on soil health and looked at ways of enhancing other sugar industry programs. Grower trials found using humified compost derived from locally produced by-products improves the condition of the soil.

In addition to increasing grower group capacity to undertake trial work and research, the group aims to create 1200 tons of compost that could be applied to 160 ha of cane, fact sheets to produce and apply sugar industry specific compost, an alternative renewable nutrient source that recycles waste products from farm, mill and community sources that addresses farm sustainability and environmental issues.

- **GGP040 – Planting peanuts into cultivated cane trash blanket.**
A group of Bundaberg growers has been investigating how to best grow peanuts in an uncultivated cane trash blanket in the cane-off season.

Trials found using peanuts as a rotation crop provided growers with another source of farm income as well as reducing land preparation costs, fertiliser use, and irrigation and improves erosion and soil health.

Investment Arena: Emerging Technologies

Indicator	Enhanced approaches for sugarcane genetic improvement Enhanced technological innovation across the sugarcane industry
Measure	Technologies developed that accelerate the delivery of improved varieties for sugar production and value-added products Technologies developed that improve business performance across different sectors of the sugarcane industry
NRPs	Using frontier technologies for building and transforming Australian industries
RRPs	Technology

Tools to rate cane varieties against Smut and Fiji leaf gall

A project led by BSES Limited has developed a smut rating predictive model using near infrared technology. Using this tool will help to improve the delivery of resistant varieties in shorter timeframes and reduce the cost of varietal selection. The project, which began in mid-2007, built on existing research that demonstrated that varietal resistance to smut can be correlated with near infrared spectroscopic measurements.

In June 2009 this project completed three blind validation trials to evaluate the model across more than 36 sugarcane clones. In 2009–2010 researchers hope to see the tool implemented within the BSES-CSIRO Plant Industry Joint Venture in Sugarcane Improvement to deliver significant efficiency gains and cost reductions over traditional screening methods.

The project will now direct its attention to developing a predictive model for Fiji leaf gall resistance ratings. The aim is to have it installed within the BSES Limited and CSIRO plant improvement program through the Smut-Buster project. (BSS307)

Precision agriculture is a precise science

Precision agriculture offers the potential to increase on-farm productivity and profitability by utilising new and emerging technologies that will assist in overcoming on-farm constraints through targeting inputs and operations.

However, it is recognised that although various PA technologies exist and are available to growers in various forms, limited adoption has occurred. Further adoption of PA is not appropriate without technically-based skills to interpret information about in-field variability.

SRDC is working with CSIRO, BSES Limited and the National Centre for Engineering in Agriculture, to provide a coordinated approach to research into precision agriculture options for the sugar industry. The specific objectives of this project include:

- Coordinate and integrate an evaluation of PA technologies (i.e. yield monitoring and mapping) in collaboration with leading farmers, with emphasis on economics, case studies, communication and extension led by the key farmers.
- Provide the appropriate specialist integrative and interpretive skills to complement existing research and developing PA technologies.
- Provide input into investigations aimed at ‘ground-truthing’ apparent variability within specific blocks of sugarcane.
- Develop standardised data collection, management and analysis protocols, and
- Improve capabilities of EOs and to provide technical support via links to appropriate specialists.

By adopting and encouraging a collaborative approach, SRDC hopes to provide the next step for the industry to capitalise on the advances offered by new farming systems. (CSE022)

Case study – Precision spot spraying using image analysis and plant identification technology

Competition from weeds in sugarcane can cause significant loss in yield and potentially reduces the length of the crop cycle. As the sugar industry moves towards minimum tillage farming systems to reduce the cost of farming, it is becoming increasingly dependent on herbicides.

For many years the industry has been adopting GPS technology and trialling various versions of precision technology for weed control. A joint project of investigators from the National Centre for Engineering in Agriculture and Bundaberg Sugar Ltd developed a successful prototype, “precision spot spray system” that uses image analysis and plant identification technology to improve weed detection and herbicide application.

Current control methods for weeds such as wild sorghum and guinea grass (green panic) could be improved at the pre-emergence stage using precision spot spraying as part of a minimum tillage farming system. Research indicated precision spray technology allows direct targeting of weeds, saving herbicide usage, increasing production and reinforces minimum tillage concepts. By adopting and encouraging a collaborative approach SRDC hopes to provide the next step for the industry to capitalise on the advances offered by new farming systems.

Dr Cheryl McCarthy and Mr Steven Rees of the National Centre for Engineering in Agriculture (NCEA) completed their project ‘Development of a prototype precision spot spray system using image analysis and plant identification technology’ in 2009.

Precision spray technology that targets specific weeds has the potential to revolutionise weed management by maximising production and reducing herbicide use while reinforcing minimum tillage concepts. A prototype developed by Dr McCarthy and Mr Rees, with SRDC support, can successfully discriminate between mature green grassy weeds and sugarcane, will reduce the cost of weed control, and can be combined with GPS technology to map weed infestation across a field. (NCA010)



Steven Rees demonstrates features of a prototype developed by the National Centre for Engineering in Agriculture

Understanding of the interactions between genetics and management

A CSIRO-led project is focused on increasing sugar yield through increased commercial cane sugar and sugarcane yield by capitalising on better understanding of the interactions between genetics and management. This research is developing a better understanding of factors that influence how sugarcane produces, transports and stores sucrose and fibre.

While pathways of sucrose accumulation have been investigated at the molecular and cellular levels, there has been little work done at the crop level. As a result, it has been difficult to determine whether genetic improvements will be modified by management and the environment and the extent to which management and the environment will influence the selection of varieties.

This project was part of a worldwide study to find new methods to develop sugarcane cultivars with improved sugar content and to get a better understanding of factors that influence the way sugarcane produces, transports and stores sucrose and fibres.

The project raised important questions about where research and cellular and sub-cellular levels should be directed and the relative importance of this type of research compared to research at the whole plant level.

Research shows that reduced vegetative growth without a matching reduction in photosynthesis would increase sucrose yield and sucrose content. Differences in sucrose accumulation between high and low sucrose clones were not found to be attributable to differences in the rate of photosynthesis.

The research found that the maximum amount of sucrose that can accumulate in stalk tissue is not the limited step for sucrose accumulation but that this could be explained by the partitioning of carbohydrates between storage and growth. In addition it was shown that high sucrose types had more leaves per stalk but they allocated proportionally less biomass to leaves and leaf sheaths as well as to dead leaves so that additional biomass could be allocated to the stalk component. A mathematical model was developed as part of this project to explain observations of sucrose accumulation in internodes of clones and proved that

sucrose accumulates after other priorities for carbohydrates have been met.

This project will provide a first step in generating knowledge to support the design of crops to match variable economic and environmental requirements by understanding the role of genes or markers in relation to individual traits. (CSE014)

CRC SIIB supports future positioning of Australian sugarcane

The Cooperative Research Centre for Sugar Industry Innovation through Biotechnology (CRC SIIB) has continued to progress. The CRC SIIB's new portfolio of projects are organised under four programs:

- Enhanced sugarcane farming systems
- New product development from sugarcane
- Education
- Technology transfer.

These are designed to further the CRC's ultimate goal, which is to create opportunities that add significant commercial value to the Australian sugarcane industry. Some of the research projects led by CRC this year are:

- CRC006 - Complete genome map of sugarcane
- CRC007 - Bioactive natural products from sugarcane
- CRC008 - Creating sustainable sugarcane production systems to reduce plant nitrogen
- CRC009 - High early sugar varieties: improved selection and marker-assisted breeding
- CRC010 - Testing the sucrose accumulation model
- CRC011 - Production of PHB/PHAs in sugarcane plants.

Bioactive natural products from sugarcane

SRDC has been supporting investigations conducted through the CRC SIIB on the means of extraction and fermentation technologies, which can lead to improved processes for production of foodstuffs, nutraceuticals and feed stock such as ethanol. (CRC007)

Adopting systems for water and nutrient management for Burdekin cane

To meet the environmental objectives and social expectations of a cleaner greener cane industry with reduced nutrient and sediment losses is going to require some detailed planning. The consensus is optimisation of nutrient and irrigation management is essential in maintaining the viability of the cane production system in the Burdekin region.

The Burdekin region has confronted many industry issues including a decline in mill and farm profitability, COAG water reforms, water resource planning, the National Action Plan for Salinity and Water Quality, and the Reef Protection Plan.

In the face of rising groundwater and reduced water quality in the aquifers and streams a SRDC funded project developed a range of farm management options to provide Burdekin growers with the right information to improve water, nutrient and crop management techniques to increase profitability, control rising water tables, reduce the risk of irrigation-induced salinity and improved off-farm water quality.

In addition the research team assessed the feasibility of farm management options against future water pricing and water allocation scenarios for various reference sites across the Burdekin. This cost/benefit assessment data enabled a robust economic evaluation of water and nutrient management options for growers. Growers are now equipped with the right information to decisions on the most efficient farm management techniques to improve water and nutrient levels. Other achievements included:

- Innovations in water and nutrient management;
- Integrity of Lower Burdekin aquifers safeguarded for future irrigation use;
- Health of wetlands and waterways in the Lower Burdekin floodplain enhanced;
- Economic viability of cane production in the Burdekin enhanced;
- Enhanced ability of the sugar industry to negotiate realistic water use and water quality targets with government and regional NRM bodies;
- Industry-led innovation and change processes to promote best management practice in irrigation broadened and strengthened;
- Improved basis for the development and strategies for EMPs for the lower catchment and delta regions and the receiving aquatic ecosystems (CSE012).

New technologies for improved factory operation and sugar quality

This project was first funded by SRDC started in mid 2007 and aimed at quantifying the benefits of improved clarification processes in raw sugar and evaluated the benefits of syrup clarification to factory operation and raw sugar quality in the presence of novel adsorbents.

Pilot trials during the 2007–08 season, were conducted with a dissolved air flotation clarifier.

Evaluations were made on fugal cycle and wash times of massecuite obtained from syrup clarified with and without the novel adsorbents. Sugar quality comparisons of key parameters pol, ash, colour, filtrability and endogenous polysaccharides were made on sugar made from production runs of treated and untreated syrup. Laboratory trials highlighted the potential of selected adsorbents to improve the syrup clarification process by reducing endogenous polysaccharides (and to a far lesser extent colour) contents of raw sugar by up to 30 per cent. The use of an additive for the removal of polysaccharides during sugar processing may be a better alternative to conventional processes.

It is recommended that further trials be conducted in order to confirm the results as well as investigate an alternative process that does not require syrup clarification. Such alternative processes will substantially lower the capital cost required (i.e. no syrup clarifier) and lead to a more commercially viable process of wide applicability throughout the Australian sugar industry and overseas sugar factories. (MUL002)

Investment Arena: People Development

Indicator	Enhanced effectiveness of individuals contributing to the sugarcane industry Enhanced effectiveness of partnerships and networks contributing to the sugarcane industry
Measure	Demonstration of improved capability and capacity of sugarcane industry participants to learn, change, collaborate, lead and innovate to advance the sugarcane industry Demonstration of improved capability or regional groups, networks, and industry sectors and researchers to collaborate and innovate to beneficially change the operation of the industry
NRPs	Using frontier technologies for building and transforming Australian industries
RRPs	Innovation skills

Improved capacity to change, learn and innovate

In 2008–09, 29 members of the Australian sugarcane industry had the chance to get off the farm, get away from the office, or hang up their lab coats, thanks to SRDC’s investments in Capacity Building Projects. A list of these projects can be found in Appendix C.

Participating growers, millers and researchers travelled to other sugar producing regions and attended conferences to learn from their peers and share ideas. The projects were about helping members of the sugarcane industry to think outside the square and to find out about the latest thinking in their field.

Diagnostic procedures for quarantine of downy mildew

Sugarcane downy mildew is one of the most serious diseases of sugarcane at the Ramu plantation in Papua New Guinea. It is rated as one of the highest exotic disease risk to the Australian sugar industry. While the sugarcane downy mildew was eradicated in 1957, there has been an increase in use of susceptible varieties. Currently there is no molecular diagnostic assay for these pathogens in Australia, and the pathogen species are difficult to distinguish by traditional taxonomy, however there has been active research in this area in the USA.

As part of a SRDC Capacity Building Project, Dr Nicole Thompson of BSES travelled to the USA in November / December 2008 to meet with scientists from USA Federal Government

Agencies, Universities and private Companies to discuss the quarantine and pathology issues faced by the sugarcane industry. This trip involved laboratory research, meetings and presentations to:

- Establish links between agencies on quarantine and diagnostic procedures for post – entry quarantine of sugarcane;
- Acquire and optimise a molecular diagnostic test for the causal agent of sugarcane downy mildew; and
- Examine quality control procedures and the use of disease diagnostics in the Kleentek tissue culture operations in Louisiana.

On return to Australia, Dr Thompson has shared information from her learnings with many researchers and investors increase diagnostic procedures for quarantine of downy mildew in the event of an outbreak. (BSS322)



In 2009 Dr Graham Bonnett, was awarded the Queensland-Smithsonian Fellowship and received an SRDC capacity building project grant.

Exploring risk management issues of GM sugarcane

Queensland sugarcane research specialist, Dr Graham Bonnett, was awarded the Queensland-Smithsonian Fellowship at the Premier's Hall, Parliamentary Annex, Brisbane, in February 2009.

The Queensland-Smithsonian Fellowship, worth around \$25,000, will provide Dr Bonnett with the opportunity to fast track Australia's research into possible environmental issues that need exploring before the release of genetically modified (GM) sugarcane and (if necessary) to assess risk management strategies at the famed Smithsonian Institution.

Dr Bonnett will spend five months at the Smithsonian Tropical Research Institute (STRI), Panama, from August to December 2009. Here, he will follow up on his work with CRC SIIB to determine if GM sugarcane has any altered weediness potential.

The Queensland-Smithsonian Fellowship Award is a Queensland Government Smart State initiative. The expense of the research will be covered by the CRC SIIB and some travel and living expenses, whilst conducting the research, will be funded under SRDC's Capacity Building Project.



During Dr Bonnett's research at the Smithsonian Tropical Research Institute in Panama he will investigate if genetically modified sugarcane has the potential to alter weediness. This photo shows an inflorescence of sugarcane in one of the bags. During experiments bags are used to collect guinea grass seed for germination testing.



In April 2009 SRDC hosted a Generation next forum in Lucinda attracting over 40 young sugar industry representatives.

Generation Next Forum

Over 40 young sugar industry representatives attended the Generation Next forum held at Lucinda in April 2009. Coordinated by SRDC, with support from BSES Limited, the forum was designed as an opportunity for representatives from all sections of the sugarcane supply chain to workshop ideas and work towards creating a future that is more profitable and sustainable.

The aim of the forum was to gather ideas, discuss issues and create a vision for the industry to strive for by 2015. To achieve this, delegates reflected on past industry achievements, identified future challenges, and made recommendations for current industry leaders to consider when planning for the future.

Some of the top issues raised by the Generation Next group were:

- Address industry resistance to change;
- Enhance industry unity and better communication;
- Improve perception of industry;
- Investigate opportunities for industry diversification;
- Develop succession plan and strategy for all sectors of the industry; and
- Increase financial and environmental viability of industry.

According to SRDC investment manager Dr Diana Saunders, the number of young people working in the sugarcane industry is decreasing with some moving away from agriculture altogether. The sugarcane industry is resilient, innovative, and provides steady employment for thousands of people across the supply-chain. It is these positive aspects of our industry that needs to be told when encouraging young people to commit to the industry longer term.

SRDC will continue to support programs which provide young people with a platform to learn, develop or plan their future careers in the sugarcane industry long term. (SRD025)

Developing leadership capacity

An SRDC-funded project provided industry participants with leadership training to develop the necessary skills, knowledge, confidence and networks to encourage leadership roles. As a result of this project, participants developed and implemented projects of benefit to the industry including the creation of the Mackay Future Farmers Group, a community training model for growers in the Wet Tropics, and implementation of succession planning strategies in Mossman.

Another positive outcome resulted in five of the participants completing a Diploma in Rural Business Management at the Australian Agricultural College. Three of the participants in the Advance in Sugar project have increased their involvement in the industry and have taken on new challenges including four Impact on Sugar Leadership Programs and one Advance in Sugar Leadership Development Program, with 61 people from across different sectors and regions participating.

SRDC acknowledges the need to continue supporting the future leaders of the industry by providing a long-term strategic program for young people across sectors and regions. It is also clear that this support must be in collaboration with other industry players. (LDI001)

Promoting on-farm water quality testing by growers

SRDC has strongly supported grower led programs as part of an active learning strategy. One such program involved a project group of 12 growers in the Herbert region to develop simple tools to monitor water quality. The success of this project has inspired other grower groups in Babinda, Innisfail, Burdekin and the Mackay Whitsunday regions to initiate water quality monitoring projects. (GC013)

Building on this investment in people development and environmental monitoring, SRDC invested in a CANEGROWERS water quality testing workshop held in the Herbert region in 2008. The workshop provided an opportunity for approximately 50 growers to share learnings about on-farm water quality testing and hear about other water quality monitoring programs held in the district.

As part of the workshop, a 20-page field guide titled "Water quality monitoring in the Australian sugar industry" was published to provide information on the findings of the initial Herbert research project.

The workshop and field guide provided just one step towards achieving large numbers of growers conducting their own water quality monitoring using simple techniques and low cost equipment.

This project is improving understanding by land holders of the relationship between land management practices and water quality. Outcomes have seen grower participants improving on-farm activities such as harvesting practices and the use of herbicides, pesticides and nutrients, and expect to see improvements in the quality of water leaving the sugarcane farming areas. (CG020)



Isis Canegrowers' water-use efficiency extension officer Sandra Webb was a finalist of the Queensland Rural Industries Research and Development Corporation's Rural Women's Award.

Supporting women in the sugar industry

In recognition of the valuable role of women in the Australian sugarcane industry, SRDC supported a number of projects which focussed on enhancing their skills and abilities. Isis Canegrowers' water-use efficiency extension officer, Sandra Webb, was selected as a Queensland finalist for the prestigious 2009 Rural Industries Research and Development Corporation's Rural Women's Award.

As well as developing the individual skills of women, SRDC invested in a project which aims to build stronger networks between women and to strengthen their collective voice in the industry in two case study regions the wet tropics and Bundaberg. As a result of the CSIRO Sustainable Ecosystems-led project the Women in Sugarcane E-network (WIS E-network) has been formed.

The WIS E-network is a cross-regional initiative which brings together women from all sectors of the sugar industry, provides a network for women to share information of relevance to the sugar industry and helps to increase their knowledge of industry issues.

The WIS E-network has the potential to increase women's input into the industry by encouraging participation and broadening their knowledge of industry issues. This is important, as women are often the industry interface with the community. (CSE016)

Recognising industry research and innovation

Australia's sugarcane industry celebrated its innovative members at the annual Sugar Research and Development Corporation's Innovation Awards, announced in Ballina, as part of the 2009 ASSCT conference. The SRDC Innovation Awards program recognises the contribution of individuals, and teams, towards the implementation of technologies and practices that create a positive change to the Australian sugarcane industry.

The awards program reinforces SRDC's efforts in encouraging industry, researchers, and other stakeholders, to collaborate and embrace advances in science, technology and engineering, and to maintain a leading edge in the competitive world market through innovation. The program is helping SRDC reinforce the importance of creating an innovative culture.



Dr David Kannar and Dr Barry Kitchen from Horizon Science received the 2009 Innovation Award.



Dr Robert Troedson received the 2009 Service Award.

2009 SRDC Innovation Awards

Winners of the 2009 SRDC Innovation Awards were announced during a special awards ceremony at the Australian Society of Sugar Cane Technologists conference in Ballina, in April 2009. The awards recognised innovation in the sugarcane industry and each award category were won by talented, dedicated and forward-thinking people.

The 2009 SRDC innovation award was won by Horizon Science, for developing the world's first all natural low glycemic index (GI) cane sugar (pictured). The team was lead by Dr Barry Kitchen and Dr David Kannar.

Horizon Science is a scientific R&D company, focussed on developing innovative, polyphenol-enhanced products, derived from sugarcane waste streams. Horizon Science specialises in the commercialisation of patented technology, including functional foods, beverages, nutritional supplements and nutraceuticals/ pharmaceuticals. Partnering with eminent research institutions across Australia, and globally, Horizon Science continues to explore the frontiers of science in search of healthier foods and food related products. LoGiCane is a registered trademark of Horizon Science.

Two highly commended certificates were presented: one to the NSW Sugar Milling Co-operative for their development of the co-generation project and one to the BSES Limited/CSIRO plant breeders and pathologists, for the speed in which they developed a 'smut resistant sugarcane variety' in response to the sugarcane smut incursion in Queensland in 2006.

BSES Limited Principal Researcher, Dr Robert Magarey, was selected winner of the SRDC Research and Development Award for his outstanding contribution to the sugar industry over the past five years.

The 2009 Service Award is given to someone that shows strong leadership and influence in the management, policy development or promotion of innovative R&D. In strong recognition of the high esteem in which he is held throughout the industry, Robert Troedson was nominated for his commitment and dedication to the industry, as well as his ability to link innovative science with the sugarcane industry.

Innovative science recognised

Reducing and measuring greenhouse gas emissions is one of the hottest topics and challenges facing the sugarcane industry. Applying nitrogen as a fertiliser or by planting legumes has been a popular choice for many growers to boost crop production. However, research found not all fertiliser stays in the soil, but releases significant levels of nitrous oxide gas into the atmosphere.

Funded by the Australian Greenhouse Office a team of scientists from the ANU, CSIRO, University of Wollongong, Queensland Department of Natural Resources, and BSES Limited Australian National University measured the drivers of soil nitrogen gas emissions and develop new farming systems to mitigate nitrogen loss. If not managed, nitrous oxide emissions represent substantial economic and environmental losses to the industry. SRDC supported promotion of this research to industry by inviting ANU scientist Dr Ben Macdonald to present results at a SRDC seminar.

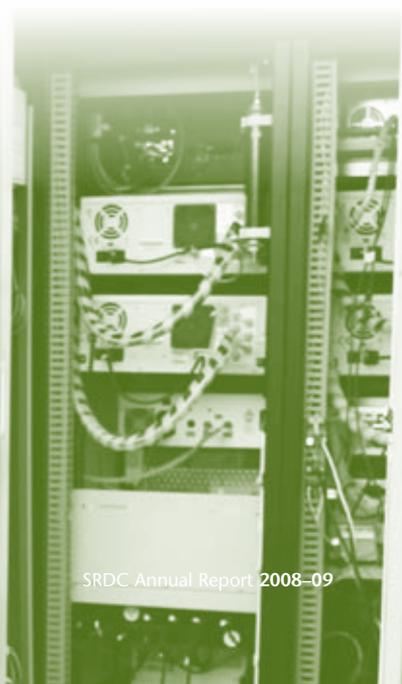
In 2008 Dr Macdonald was selected as the winner of the SRDC category of the 2008 Young Science and Innovation Award. This provided Dr Macdonald with a SRDC grant to

extend his research to investigate the linkage between iron and nitrogen cycles and their impact on acid sulfate soils in NSW.

Initial results indicate nitrate is causing oxidation of reduced iron in the soil. Research is still in progress with results due to be presented at the Australian Society of Sugar Cane Technologists conference in Bundaberg in 2010.

If soil-nitrogen loss through emissions can be minimised, growers will benefit through the reduced need for fertiliser application, providing welcome relief from rising fertiliser prices. Sugarcane will always need to use a synthetic or organic fertiliser such as nitrogen. However, emissions can be reduced by applying some simple mitigation options such as mounds to prevent soil water logging, and strategic lime and fertiliser applications.

Some growers have been able to reduce fertiliser inputs through the use of green sugarcane harvesting, controlled traffic, and the use of cover and break crops. To develop a thorough understanding of the other emission drivers and mitigation options, more research is expected to be investigated in other sugarcane growing areas. (AFF002)





In November 2008, SRDC scholarship holders attended a research writing workshop at the SRDC office in Brisbane. SRDC investment manager Dr Diana Saunders said, the aim of the workshop was to build the capacity of current SRDC scholarship students in writing papers by learning how to conceptualise and structure a scientific argument.

Improving research writing techniques

University and PhD students submitting research and industry development papers now have access to useful guides and training support from SRDC. In November 2008, ten SRDC scholarship holders attended the first research writing workshop at the SRDC office in Brisbane.

The aim of the workshop was to build the capacity of current SRDC scholarship students in writing papers by learning how to conceptualise and structure a scientific argument. During the workshop, participants gained practical skills by analysing each component of a draft research paper and learned techniques on how to edit sections to communicate the research outcomes with maximum reader impact.

Participants enjoyed the hands-on approach of the workshop to advance on their papers, the opportunity to get feedback from their peers and from SRDC experts. The specific objectives of the workshop were to learn:

- How to master the strategic moves that need to be made at each stage of an argument;
- How to focus the article to make it easier to write and easy to read;
- How to see what remains unsaid in the manuscript;
- A structure to build first-class abstracts;
- How to guide the readers through the argument; and
- How to work productively with editors and referees.

In May 2009, some SRDC scholarship holders presented their final papers at the ASSCT conference in Ballina, or submitted their papers to be published in international journals. See Appendix E for list of papers published.

Fostering targeted continuing education

As part of its ongoing commitment to invest in the future research capacity of the industry, SRDC's scholarship program provided opportunities for postgraduate students to undertake training in technical and social disciplines. The following students were enrolled in course study in 2008–09:

Peter Wulf - Self-regulatory codes of practice & their effectiveness in achieving best environmental management practices within NQ primary industries.

Mira Durr - Microbiology of acid sulfate soils in agricultural environments.

Kylie Anderson - Invasion potential of *Eumetopina flavipes*, vector of Ramu Stunt Disease of Sugarcane.

Su Yin Tan - Studies on bagasse fractionation using ionic liquids.

Karen Benn - The motivators and barriers to the adoption of more sustainable farming practices.

Kenji Osabe - Development and application of a mature stem specific promoter in sugarcane.

Tom Rainey - Improved bagasse fibre properties for the manufacture of paper, board and composite materials.

Anna Satje - Improving the cation retention capacity of sugarcane-growing soils using high activity clays.

Felicity Atkin - Estimates of breeding value of sugarcane clones and their impact on efficient parent management and cross pollination.

Palmina Bonaventura - Communicate to advance and innovate.

Henry Thomas - Making database application development as straight forward as building spreadsheets.

Ian O'Hara - Pre-treatment of sugarcane bagasse for enzymatic hydrolysis and fermentation.

Daniel Zamykal - Intelligent data analysis methods from effective integration of precision agriculture within the sugar industry.

Milovan Bokan - Abiotic stress tolerant sugarcane: Drought-proofing sugarcane with cell-death protection genes.



Case study – Communicate to advance and innovate – Palmina Bonaventura

In 2009, University of Queensland graduate, Palmina Bonaventura, completed her Masters in communication, looking at ways the industry can “Communicate to advance and innovate”. Palmina believes that there is a need for more effective communication, in order to reach growers across a changing and fractured sugarcane industry.

“Effective communication, such as making better use of the media and improving the technology transfer process between research and development in the industry, will translate into productivity and profitability improvements and greater adoption of R&D,” Ms Bonaventura said.

“Other advantages of improved communication include better environmental stewardship due to uptake of best management practices and the enhancement of the industry’s public reputation,” Ms Bonaventura said.

Perhaps the biggest highlight of Palmina’s project, was sharing her research with industry by presenting a paper “Sing like no one can hear you, dance like no one can see you but write like everyone will read you” at the Australian Society of Sugar Cane Technologists (ASSCT) conference in Ballina in May 2009.

Based in a regional sugarcane growing area, Palmina aims to upgrade the capacity of the sugarcane industry by using her communication skills and industry knowledge to develop better engagement and information sharing between researchers and growers in the industry. (Project code **STU061**)



Postgraduate researcher in JCU's School of Earth and Environmental Sciences Anna Satje, has been investigating ways to improve farm profitability and industry performance.

Retaining nutrients in soil - Anna Satje

The secret to better sugar yields and a healthier environment lies in the soil's capacity to retain nutrient. Despite the benefits it provides to Queensland, the sugarcane industry is under pressure to improve efficiency, reduce costs and become more environmentally sustainable.

James Cook University scholar Anna Satje, has been investigating ways to improve farm profitability and industry performance. As a recipient of a three-year SRDC scholarship, Anna has been working for the past 12 months on the idea of using bentonite (a mixture of high activity clays) to enhance the productivity of highly weathered tropical sugarcane growing soils.

Ms Satje presented a paper detailing the effect of bentonite on the chemical and physical properties of selected sugarcane producing soils at the ASSCT conference held in Ballina in May 2009. (STU059)



Research completed by ANU PhD student Mira Durr has identified the types of bacterial populations which exist in acid sulfate soil environments.

Case study – Acid sulfate soils - DNA analysis reveals complex biological communities

DNA genetic techniques commonly used by Police forensic teams was applied by Australian National University (ANU) student Mira Durr during her PhD research to identify the role bacteria plays in acid sulfate soils.

The role of soil bacteria, both as oxidisers and in nutrient cycles, is a key knowledge gap in the field of acid sulphate soils. Mira used her SRDC scholarship to identify and quantify the various bacteria in these environments and link them to key soil interactions, including plant nutrient uptake and increased soil productivity.

“Oxidation of coastal acid sulfate soils has been linked to widespread environmental degradation and productivity losses in agricultural land”, Ms Durr said.

Mira’s research set out to examine the bacterial and archaeal community structure and identification of species found in acid sulfate soils to allow scientists to probe the moduli operandi of these life forms and their influence on element cycles in the future. The aim of this research was to explore the microbial community in acid sulfate soils including:

- community structure;
- functional capacity for transforming iron; and
- sulfur and nitrogen identification of bacterial and archaeal species.

“With this information we are now able to link the soil properties under sugar cane to better understand biological nutrient cycling of acid sulfate soils”, Ms Durr said.

“Further analysis of functional communities may enable more effective management of these soils and the manipulation of the nitrogen cycle, with the possible reduction of greenhouse gases emissions.”, Ms Durr said.

This PhD research project has provided growers with a general understanding of ecosystems to enable better management of acid sulphate soils in the future. (STU 050)



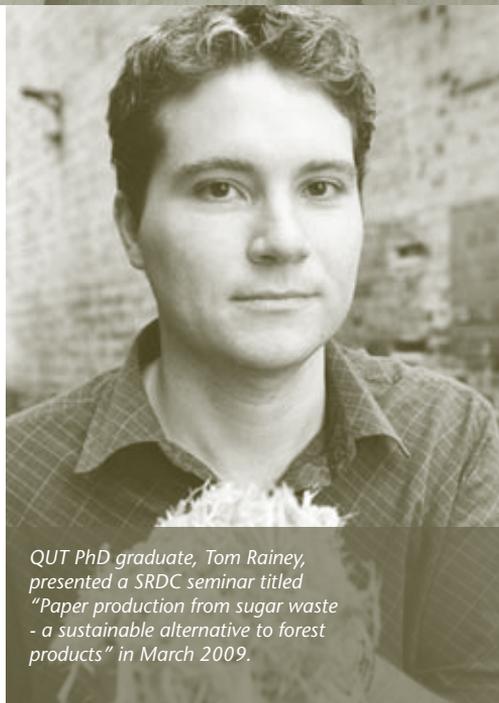
In 2009 Dr Elizabeth Meier completed a University of Queensland PhD thesis study to measure nitrogen levels found in green cane trash blanketed soils in the wet tropics, and the impact of nitrogen on productivity and profitability.

Nitrogen in green sugarcane trash – Elizabeth Meier

Elizabeth Meier completed her PhD thesis study to measure nitrogen levels found in green cane trash blanketed soils in the wet tropics, and the impact of nitrogen on productivity and profitability at the University of Queensland in 2009.

Field experiments conducted in north Queensland assessed whether the nitrogen in trash improved soil fertility in the wet tropics. As trash blankets contain 30kg to 50kg of nitrogen per hectare, retaining trash blankets has the potential to improve the fertility of soils. However, in the wet tropics it is unclear whether the nitrogen in trash will stay in the soil or be lost to the environment.

Field experiments showed that less than six per cent of the nitrogen contained in trash or applied as fertiliser at the beginning of one crop was recovered in the first or second crops after application. Consequently, the crops were relying on nitrogen stored in the soil from trash and fertiliser applied in years prior to the field experiment. (STU036)



QUT PhD graduate, Tom Rainey, presented a SRDC seminar titled "Paper production from sugar waste - a sustainable alternative to forest products" in March 2009.

Using bagasse for paper pulp – Tom Rainey

Queensland University of Technology PhD graduate, Tom Rainey, presented outcomes from his research at a SRDC seminar "Paper production from sugar waste - a sustainable alternative to forest products" at the Queensland University of Technology in March 2009.

Bagasse is the waste product left over after the juice has been squeezed out of sugarcane stalks. It is a good source of heat energy and is used as an energy source for sugar mills and as a resource for the manufacture of cellulosic ethanol.

During this presentation, Tom outlined how his project addressed a major technical hurdle in optimising the filtration properties of bagasse fibres so they can be made into pulp, paper, cardboard, structural and packaging materials. The research will enable these paper products to be made economically from bagasse rather than from hardwood, increasing the opportunity cost of bagasse for millers and growers. (STU057)

4. Report of Corporate Operations

Corporate Operations

Corporate Governance

SRDC Board

SRDC Staff

Reporting Requirements

Report of Corporate Operations

Corporate Governance

The SRDC Board is committed to governance systems that enhance performance and ensure that SRDC is operating according to accountability provisions of the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act) and the *Commonwealth Authorities and Companies Act 1997* (the CAC Act). The Corporate Governance practices adopted by SRDC are:

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, Portfolio Budget Statement 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; and
- evaluating its own performance and that of its committees and SRDC management against agreed indicators.

Planning and reporting

The five year *R&D Plan 2007–2012* defines SRDC's core business, indicates broad priorities for R&D and defines the corporate strategy to achieve its outputs and outcome. The plan is reviewed annually.

Annual Operational Plan

The 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.

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.

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 to stakeholders

SRDC is accountable to both the Australian Government and industry representative organisations.

Responsible Minister

SRDC is responsible to the Federal Parliament through Honourable Tony Burke the Minister for Agriculture, Fisheries and Forestry. The Minister:

- Approves the five-year R&D Plan;
- Annual Operational Plan;
- Appoints Directors, other than the Chair and Executive Director, of SRDC on the recommendation of the Sugar Research and Development Corporation Selection Committee; and
- Appoints the Chairperson of SRDC.

Industry Representative Organisations

The PIERD Act prescribes the following representative organisations of SRDC:

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

As required by the PIERD Act, the Executive Director, representing the Corporation, held formal consultations with the Representative Bodies on three occasions in 2008–09. No payments were made to the Representative Bodies for these or any other consultations or purpose in 2008–09.

The major issues discussed at the meetings with the Representative Bodies included SRDC's strategic direction and research priorities for the AOP 2009–10. Directors interacted frequently with the industry peak bodies on several occasions during industry events in 2008–09.

Consultation with other industry organisations

During the year the Executive Director made presentations to the Boards or annual meetings of Australian Sugar Milling Council, NSW Sugar Milling Cooperative and Queensland Sugar Limited on SRDC's role in the R&D partnership between government and industry, and SRDC's R&D portfolio and outcomes.

Due diligence

As part of SRDC's Corporate Governance Framework, the Board completes a Due Diligence Checklist at the conclusion of each Board meeting. At every meeting in 2008–09, the Board confirmed that all decisions had complied with the requirements of the Due Diligence Checklist.

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 management and auditing

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 Equivalents to International Financial Reporting Standards.

Financial statements and cash flow forecasts are prepared monthly and discussed at each Board meeting. Following the annual external audit of the Corporation's financial accounts, the Executive Director presents a Management Representation Memorandum to the Board for final adoption of the annual financial statements. The Board approves annual financial statements at its August meeting.

CAC Act compliance

A report indicating CAC Act compliance and financial sustainability for the 2008–09 financial year was approved by the Board on 28 August 2009 and forwarded to the Department of Finance and Administration and the Department of Agriculture, Fisheries and Forestry.

Risk management

SRDC is committed to managing risk to continue to protect its:

- stakeholders;
- employees and their skills;
- environment;
- quality of service;
- assets and intellectual property;
- contractual and statutory obligations; and
- image and reputation.

At the February 2009 Board Meeting, the Board adopted the Fraud Control Plan, Risk Management Plan and Business Continuity Plan as approved by the February 2009 Audit Committee. SRDC complies with the policies of the Protective Security Manual.

Indemnities for officers

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

Monitoring

The SRDC R&D Plan 2007–2012 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 investments and management performance.

R&D investment portfolio management

Following a call for project proposals, made annually in July, SRDC appointed Working Parties with representatives from industry, government and research organisations provide advice to the SRDC Board on the proposals received.

Proposals are assessed 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).

Following an initial application process which attracts a broad range of research projects, and based on the advice of the Working Parties, the Corporation interacts with project teams throughout the development of Full Project Proposals. This process results in higher quality and better targeted Full Project Proposals,

involving stronger partnerships between industry, research and community participants.

Five R&D Investment Managers managed a portfolio of projects to maximise the return on R&D investment in delivering outcomes consistent with the accountability expectations of SRDC's stakeholders.

Intellectual property management

SRDC's intellectual property management is based on the Intellectual Property Management (IPM) Plan. The IPM 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 IPM Plan ensures that intellectual property issues are considered fully during the development of project 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. The Corporation is a party to several patents and provisional patent applications.

Communications

The SRDC Board re-affirmed their commitment to establishing a culture of innovation within the industry and continued to foster two-way communication with stakeholders consistent with the SRDC Communications Plan 2008–09. The annual 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.

Communication tools including SRDC Update (published monthly with the support of industry publications and on the SRDC website), an e-newsletter (distributed monthly to subscribers via email) along with regular media releases help support SRDC’s communication strategies.

The SRDC website allows access to information, results and resources about SRDC’s investment portfolio. Published outputs from SRDC funded research and development projects are listed in Appendix E. These include papers presented at the annual conference of the Australian Society of Sugar Cane Technologists held in Ballina in April 2009, other conference papers, and articles published in recognised Australian and international scientific journals.

Throughout 2008–09 SRDC has significantly improved its communication performance through media releases, feature articles, newsletters, rural media interviews and website reporting. The main communication challenge for SRDC into the future will be to continue to refine its overall communication direction and in particular, to explore new and meaningful ways to engage with stakeholders.

SRDC Board

The SRDC Board is responsible for the stewardship of the Corporation, and oversees corporate governance within SRDC. Its other functions include establishing goals, setting strategic direction, approving the annual budget, developing and approving a five year R&D plan and ensuring that R&D resources are allocated to address priority issues effectively.

The roles and responsibilities of members of the Board and their code of conduct are detailed in SRDC's BPMS. In 2008–09 SRDC Directors included:

- Chair, appointed in 2007 by the then Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry;
- Executive Director, appointed by the Board of the Corporation and the only full-time Director; and
- Seven Nominated Directors, appointed by the Minister for Agriculture, Fisheries and Forestry on the recommendation of the Sugar Research and Development Corporation Selection Committee.

Directors other than the Executive Director serve on the Board for a term not exceeding three years. 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, sociology or public administration.

New Board members go through a formal induction process. With the Chair's approval, Directors may obtain independent professional advice, at SRDC's expense, on matters arising in the course of their board and committee duties.

SRDC Directors at 30 June 2009



Ian Knop AM BBus CPA

Chair (Non-executive)

Appointed 1 October 2007 for a three year term
Ian Knop is Chairman and Managing Director of Profile Ray & Berndtson an Executive Search & Consulting Business with offices in Sydney, Canberra and Hobart. Mr Knop is current Chair of the Sullivans Cove Waterfront Authority (Tasmanian Government). In addition Mr Knop has Chaired or been a senior representative on a wide range of Boards and Authorities including, the Export Finance & Insurance Corporation, Aurora Energy, Austrade, Soccer Australia and Sydney Ports Corporation. Mr Knop was awarded a Member of the Order of Australia in 2007 for his services to industry and his contribution to Sport and Indigenous Affairs in Australia.



1. Stephen Guazzo, 2. Frikkie Botha, 3. Ian Sampson, 4. David Campbell.

1. Stephen Guazzo

Deputy Chair (Non-executive)

Re-appointed 8 May 2008 for a three year term

Appointed Deputy Chair

6 June 2008

Re-appointed Member of SRDC Audit Committee 6 June 2008

Stephen Guazzo is a third generation canegrower from the Herbert River region with over 35 years experience in the industry. Stephen has a reputation for innovative sugarcane production and harvesting practices. He has served on the Herbert Regional Advisory Group (RAG) and other industry bodies and is a Director or CANEGROWERS Herbert River, CANEGROWERS Queensland and Sugar Terminals Limited.

2. Dr Frikkie Botha

BSc, BSc (Hons), MSc, PhD

Executive Director (Executive)

Appointed 11 October 2007

With a career spanning 30 years in the plant research field, Dr Botha most recently served as the director of the South African Sugarcane Research Institute and is well known and respected within the Australian and international sugarcane industry. He commenced with SRDC in January 2008 and is Professor of Plant Biotechnology at the University of Stellenbosch in South Africa.

3. Ian Sampson BComm, LLB.

GAICD

Director (Non-executive)

Appointed 8 May 2008 for

a three year term

Chair of SRDC Audit Committee

Ian Sampson is currently a Director of Lysaght Peoplecare Ltd and Executive Consultant for Audrey Page and Associates. During 2008 and early 2009 he was Executive General Manager of People and Sustainability at Thiess. Since 2004 Ian has worked as a strategic advisor to several sugar companies, as well as consulting in the mining, manufacturing, aviation, petroleum and services industries in Australia, South Africa, Papua-New Guinea and Fiji. From 1999–2004 he was General Manager Human Resources and Stakeholder Relations for CSR Sugar. During this time he co-led a SRDC-funded project to build the capacity of industry leaders. He received the SRDC Innovators Award for 2003 for this project. Ian's qualifications include a Bachelor of Commerce and a Bachelor of Laws from the University of NSW. He is a Graduate Member of The Australian Institute of Company Directors.

4. David Campbell B.Agr.Sc. (Hons),

M.Bus.Mktg, AFAIM, GAICD

Director (Non-executive)

Appointed 8 May 2008 for

a three year term

Member of SRDC Audit Committee

David Campbell has over 25 years of experience in product and business development; commercialisation of technologies; marketing; logistics and general management. His experience spans the life sciences, biotechnology, agribusiness and chemical industries domestically and internationally. He has wide experience with the research sector and with government interaction. David has held senior positions at Stem Cell Sciences plc, Monash Commercial Pty Ltd, Monsanto Australia Limited, Linfox Group, and Pivot Ltd (now Incitec Pivot Ltd). He has run a successful consultancy in strategy and policy development, and commercialisation for the life sciences and agribusiness industries, government and Rural R&D Corporations. He is currently Executive Director, Office of Knowledge Capital in Melbourne.



5. Michael Braude, 6. Angela Williams, 7. Caroline Coppo, 8. Anthony Pressland.

5. Michael Braude BBus, ASCPA, SF Fin, MBus
Director (Non-executive)
Appointed 8 May 2008 for a three year term

Michael Braude has 25 years commercial experience in management, economics, finance and treasury across three major corporations. He has lead risk management, insurance and corporate treasury functions, and has acted as a company appointed Alternate Director and Trustee. Michael has also been actively involved with professional associations and tertiary educational bodies, as a lecturer, course convenor and presenter. He is a regular presenter on a wide range of finance and business related topics to a number of professional associations. Michael is a Senior Fellow of the Financial Services Institute of Australia and a Fellow of the Finance & Treasury Association. He holds a Masters of Business (Applied Finance) degree from the University Of Technology, Sydney (UTS), and ASCPA, FINSIA Diploma and Bachelor of Business qualifications.

6. Angela Williams B Agr. Sc.
Director (Non-executive)
Appointed 8 May 2008 for a three year term
Chair of Scholarship Committee

Angela Williams has spent the past 20 years growing and refining her skills in agricultural extension, community development and engagement processes across a range of rural industries and communities across Queensland. Angela runs a successful consultancy business specialising in training and facilitation support, and project managing short term contracts specifically those relating to organisational change management, strategic and business planning.

She recently managed and delivered the Sugar Executive Officer contract as part of the Sugar Industry Reform Program in the Bundaberg-Isis sugar region. Angela is passionate about working and supporting rural industries and associated rural communities through innovation and managing the challenges of constant change.

7. Caroline Coppo BSc, PgDip EnvEd, BEd, GAICD
Director (Non-executive)
Appointed 8 May 2008 for a three year term
Member of Scholarship Committee

Caroline Coppo has been involved in a sugarcane farming business in the Herbert region for ten years and has actively contributed to community development, sugar industry innovation and environmental issues in the region. She has a background as a marine biologist, teacher and catchment coordinator and has extensive knowledge of water quality, environmental and natural resource management issues.

Caroline was the Sugar Executive Officer in the Herbert sugar region as part of the Sugar Industry Reform Program. Caroline's qualifications include a Bachelor of Science and a Bachelor of Education from James Cook University. She is a Graduate Member of the Australian Institute of Company Directors.

8. Dr Anthony Pressland PSM, B Agric Sci, MSc, PhD
Director (Non-executive)
Appointed 7 July 2008 for a three year term

Tony Pressland is a consultant with extensive experience in research and development and natural resource management,

both as a scientist and administrator. He has worked in the pastoral and agricultural lands of Queensland and has had responsibility for State Government programs in weed and pest management, catchment management, and natural resource planning and management, including those which were community based. He has undertaken various reviews related to agriculture, and has developed and delivered tertiary post graduate courses. He is a member of a faculty advisory committee on science and technology for a tertiary institution.

Meetings of the Corporation

During the year ended 30 June 2009, the SRDC Board met five times, including one Resolution without Meeting via email. Attendance of Directors at Board meetings is listed in Table 4.1.

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. Directorships held by Directors were also recorded in the Register of Declared Interest by Directors.

Table 4.1 Directors' attendance at Board meetings and meetings of the Audit and Scholarships Committees in 2008–09

	Board meetings attended	Meetings held during membership	Audit committee meetings attended	Audit committee meetings held during membership	Scholarship committee meetings attended	Scholarship committee meetings held during membership
F Botha	5	5	3	3	-	-
M Braude	5	5	-	-	-	-
D Campbell	5	5	3	3	-	-
C Coppo	5	5	-	-	1	2
S Guazzo	5	5	3	3	-	-
I Knop	4	5	-	-	-	-
A Pressland	4	5	-	-	-	-
I Sampson	4	5	3	3	-	-
A Williams	5	5	-	-	2	2

Board Committees

The Board's effectiveness is increased through the establishment of two committees which 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 2008–09 were:

- Ian Sampson, a non-executive Director of SRDC and member and Convenor of the Audit Committee from 6 June 2008;
- David Campbell, a non-executive Director of SRDC and member of the Audit Committee from 6 June 2008; and
- Mr Steve Guazzo, a non-executive Director of SRDC and member of the Audit Committee from 22 March 2007.

The Committee met on three occasions during 2008–09. Attendance by members is listed in Table 4.1. The meetings were also attended by the Executive Director and the Corporation's Senior Investment Manager as observers to provide assistance. The Corporation's external accountant and a representative of the external

auditor attended the July 2008 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 2008–09 were:

- Angela Williams, a non-executive Director of SRDC and Chair of the Scholarships Committee from 6 June 2008; and
- Caroline Coppo, a non-executive Director of SRDC and member of the Scholarships committee from 6 June 2008.

The Committee met on two occasions in 2008–09 to assess scholarship applications, and to interview and select successful candidates. Attendance by Director Members is listed in Table 4.1.

SRDC Staff

SRDC staff are employed under Section 87 of the PIERD Act. At 30 June 2009 the Corporation employed five full-time staff and one part time staff member in addition to the Executive Director. Responsibilities for each staff member are indicated in SRDC's Corporate Structure (Figure 4.1).

Staff are located at the SRDC office at Level 16, 141 Queen Street, Brisbane 4003.

Executive Director - Dr Frikkie Botha
Senior Investment Manager - Annette Sugden
Investment Manager - Bianca Cairns
Investment Manager - Dr Diana Saunders
Communications Manager - Carolyn Martin
Executive Assistant - Christine Ipson
Project Administration Officer (PT) - Kathy Mitchell

Figure 4.1 SRDC Corporate Structure



Reporting Requirements

Enabling legislation

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;
- 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;
- 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, or by contacting SRDC.

General policies of the Government

Under section 28 of the CAC Act, the Minister may notify the SRDC Board of any general Australian Government policies that apply to the SRDC.

As at 30 July 2009, the following notifications had been received:

- Commonwealth Fraud Control Guidelines 2002;
- Finance Circular No. 2002/01 – Foreign Exchange (FOREX) Risk Management;
- Finance Circular No. 2002/02 – Cost Recovery by Government Agencies;
- National Code of Practice for the Construction Industry and the Commonwealth's Implementation Guidelines;
- Finance Circular 2005/04 – Application of general policies of the Australian Government to bodies under the Commonwealth Authorities and Companies Act 1997;
- Finance Circular 2005/05 – Investment of surplus money;
- Australian Government Property Ownership Framework;
- The Protective Security Manual 2005;
- Finance Circular No. 2006/11 – Compliance Reporting – CAC Act Bodies;
- Statement of Expectations – September 2007.

SRDC is complying with the notified policies.

Industry levy rates

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 2006–07 the levy was \$0.14 per tonne of sugarcane crushed, divided equally between growers and millers.

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 2008–09. 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 Section 4 of this Annual Report.

Privacy Commission

SRDC complied with all obligations to the Privacy Commission in 2008–09.

Freedom of Information

SRDC received no enquiries under the Freedom of Information (FOI) Act in 2008–09.

Australian Bargaining Framework

SRDC complied with the Australian Government Bargaining Framework when exercising power to engage employees in accordance with the requirements of section 143 of the *PIERD Act* and clause 12 of Schedule 1 of the *CAC Act ROO Orders* in 2008–2009.

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.

No health and safety issues required external reporting during 2008–09.

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. Information on the SRDC website is available in PDF format, making it easily accessible to people with disabilities.

SRDC's employment policies do not discriminate against disabled persons.

5. Financial Statements

Independent auditor's report letter –
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INDEPENDENT AUDITOR'S REPORT

To the Minister for Agriculture, Fisheries and Forestry

Scope

I have audited the accompanying financial statements of Sugar Research and Development Corporation (the Corporation) for the year ended 30 June 2009, which comprise: a Statement by Directors; Income Statement; Balance Sheet; Statement of Changes in Equity; Cash Flow Statement; Schedule of Commitments and Notes to and forming part of the Financial Statements, including a Summary of Significant Accounting Policies.

The Directors' Responsibility for the Financial Statements

The Directors are responsible for the preparation and fair presentation of the financial statements in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, including the Australian Accounting Standards (which include the Australian Accounting Interpretations). This responsibility includes establishing and maintaining internal controls relevant to the preparation and fair presentation of the financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. These auditing standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of

material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Corporation's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Corporation's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Directors, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

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

Auditor's Opinion

In my opinion, the financial statements of 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*, including the Australian Accounting Standards; and
- (b) give a true and fair view of the matters required by the Finance Minister's Orders including the Corporation's financial position as at 30 June 2009 and its financial performance and cash flows for the year then ended.

Australian National Audit Office



Mark A Moloney

Senior Director

Delegate of the Auditor-General

Canberra

7 September 2009

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
STATEMENT BY THE DIRECTORS AND EXECUTIVE DIRECTOR

In our opinion, the attached financial statements for the year ended 30 June 2009 are 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.



I Knop
Chairman

Date: 28 August 2009



F Botha
Executive Director

Date: 28 August 2009

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
 INCOME STATEMENT
 for the year ended 30 June 2009

	Notes	2009 \$'000	2008 \$'000
INCOME			
Revenue			
Revenue from Government	3A	6,110	6,283
Interest	3B	647	803
Industry Contributions (sugar levies)	3C	4,317	5,028
Other Revenues	3D	19	44
Total revenue		11,093	12,158
Total Income		11,093	12,158
EXPENSES			
Employee Benefits	4A	971	1,028
Suppliers	4B	946	895
Depreciation	4C	37	18
Write-Down and Impairment of Assets	4D	6	-
Losses from asset sales	4E	-	13
Grants	4F	8,292	9,139
Total Expenses		10,252	11,093
Surplus		841	1,065
Surplus attributable to the Australian Government		841	1,065

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
BALANCE SHEET
for the year ended 30 June 2009

	Notes	2009 \$'000	2008 \$'000
ASSETS			
Financial Assets			
Cash and cash equivalents	5A	2,850	65
Trade and other receivables	5B	1,308	3,031
Investments	5C	6,783	8,052
Total financial assets		10,941	11,148
Non-Financial Assets			
Leasehold improvements	6A	77	81
Plant and equipment	6B	55	26
Other non-financial assets	6D	24	18
Total non-financial assets		156	125
Total Assets		11,097	11,273
LIABILITIES			
Payables			
Suppliers	7A	38	82
Grants	7B	489	429
Other payables	7C	11	1,008
Total payables		538	1,519
Provisions			
Employee provisions	8A	110	146
Total provisions		110	146
Total Liabilities		648	1,665
Net Assets		10,449	9,608
EQUITY			
Contributed equity		-	-
Reserves		2	2
Retained surplus		10,447	9,606
Total Equity		10,449	9,608
Current Assets		10,965	11,166
Non-Current Assets		132	107
Current Liabilities		629	1,651
Non-Current Liabilities		19	14

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
 STATEMENT OF CHANGES IN EQUITY
 for the year ended 30 June 2009

	Retained Earnings		Asset Revaluation Reserves		Total Equity	
	2009 \$'000	2008 \$'000	2009 \$'000	2008 \$'000	2009 \$'000	2008 \$'000
Opening balance						
Balance carried forward from previous period	9,606	8,541	2	2	9,608	8,543
Adjusted opening balance	9,606	8,541	2	2	9,608	8,543
Surplus (Deficit) for the period	841	1,065			841	1,065
Closing balance as at 30 June	10,447	9,606	2	2	10,449	9,608
Closing balance attributable to the Australian Government	10,447	9,606	2	2	10,449	9,608

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
 CASH FLOW STATEMENT
 for the year ended 30 June 2009

	Notes	2009 \$'000	2008 \$'000
OPERATING ACTIVITIES			
Cash received			
Industry contribution (sugar levies)		4,489	4,823
Receipts from Government		6,471	5,035
Interest		868	785
Net GST received		788	562
Other cash received		25	45
Total cash received		12,641	11,250
Cash used			
Employees		1,021	792
Suppliers		1,032	1,227
Grants		9,005	9,943
Total cash used		11,058	11,962
Net cash from / (used by) operating activities	9	1,583	(712)
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		-	37
Total cash received		-	37
Cash used			
Purchase of property, plant and equipment		67	102
Total cash used		67	102
Net cash from / (used by) investing activities		(67)	(65)
Net increase or (decrease) in cash held		1,516	(777)
Cash and cash equivalents at the beginning of the reporting period		8,117	8,894
Cash and cash equivalents at the end of the reporting period	5A	9,633	8,117

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
 SCHEDULE OF COMMITMENTS
 for the year ended 30 June 2009

	2009 \$'000	2008 \$'000
BY TYPE		
Commitments receivable		
GST recoverable on commitments	1,481	1,979
Total commitments receivable	1,481	1,979
Commitments payable		
Other commitments payable		
Operating leases	689	904
Research and development grants - PIERD	15,604	20,864
<i>Total other commitments</i>	16,293	21,768
Net commitments by type	14,812	19,789
BY MATURITY		
Commitments receivable		
One year or less	691	1,000
From one to five years	773	932
Over five years	17	47
<i>Total commitments receivable</i>	1,481	1,979
Commitments payable		
Operating lease commitments		
One year or less	214	214
From one to five years	475	690
<i>Total operating lease commitments</i>	689	904
Other commitments		
One year or less	7,383	10,781
From one to five years	8,032	9,565
Over five years	189	518
<i>Total other commitments</i>	15,604	20,864
Net commitments by maturity	14,812	19,789

NB: Commitments are GST inclusive where relevant.

¹ Operating leases included are effectively non-cancellable and comprise:

Leases for office accommodation

Lease payments are subject to annual increases of 5%. The initial periods of office accommodation are still current.

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

SUGAR RESEARCH AND DEVELOPMENT CORPORATION
 SCHEDULE OF CONTINGENCIES
for the year ended 30 June 2009

Contingent Liabilities	Guarantees		Total	
	2009	2008	2009	2008
	\$'000	\$'000	\$'000	\$'000
Balance from previous period	18	18	18	18
Total Contingent Liabilities	18	18	18	18

No contingent assets exist as at 30 June 2009.

Details of each class of contingent liabilities and assets, including those not included above because they cannot be quantified or considered remote, are disclosed in **Note 10: Contingent Liabilities and Assets**.

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

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Note 1: Summary of Significant Accounting Policies

1.1 Objectives of Sugar Research and Development Corporation

The objective of Sugar Research and Development Corporation (the Corporation) is to foster an innovative and sustainable Australian sugar industry through targeted investment in research and development.

The Corporation's corporate outcome expresses the overall goal of a profitable and internationally competitive and sustainable Australian sugar industry providing economic, environmental and social benefits for rural and regional communities through targeted investment in research and development.

1.2 Basis of Preparation of the Financial Report

The financial statements and notes 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 continued existence of the Corporation in its present form and with its present programs is dependent on Government policy and on continuing appropriations by Parliament for the Corporation's administration and programs.

The Financial Statements and notes have been prepared in accordance with:

- Finance Minister's Orders (or FMO) for reporting periods ending on or after 1 July 2008; and
- Australian Accounting Standards and Interpretation issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial report has been prepared on an accrual basis and is in accordance with the historical cost convention, except for certain assets at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial report is presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless alternative treatment is specifically required by an accounting standard or the FMO, assets and liabilities are recognised in the balance sheet when and only when it is probable that future economic benefits will flow to the Corporation and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under agreements equally proportionately unperformed are not recognised unless required by an accounting standard.

Unless alternative treatment is specifically required by an accounting standard, revenues and expenses are recognised in the income statement when and only when the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

1.3 Significant Accounting Judgement and Estimates

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that may have a financial impact on the entity and that are believed to be reasonable under the circumstances.

Makegood provision on office lease

A condition of the lease over the office premises is that the space occupied by the Corporation will be returned to its original condition at the end of the lease period. The Lease agreement specifies the conditions that must be met. The value of this makegood provision is yet to be quantified.

1.4 New Accounting Standards

Adoption of New Australian Accounting Standard Requirements

No accounting standard has been adopted earlier than the application date as stated in the standard. The following new standards and amendments to standards are applicable to the current reporting period:

AASB 2007-9 *Amendments to Australian Accounting Standards arising from the Review of AASs 27, 29 and 31* relocated a number of paragraphs from AASs 27, 29 and 31 substantively unamended into the following existing standards AASB 3, 5, 8, 101, 114, 116, 127 and 137.

AASB 1004 *Contributions* also received a number of substantively unamended paragraphs from AASs 27, 29 and 31 following their withdrawal.

AASB 1050 *Administered items* and AASB 1052 *Disaggregated Disclosures* were created and received a number of substantively unamended paragraphs from AASs 27 and 29.

It is not expected that the relocation of AASs 27, 29 and 31 will have a material financial impact but may affect the disclosure presented in future financial reports.

AASB 1051 *Land Under Roads* was created and takes over from AASs 27, 29 and 31 in respect of land under roads. The new standard allows entities to recognise or not to recognise as an asset, land under roads acquired before the end of the first reporting period ending on or after 31 December 2007. The Corporation elects not to recognise. The standard also clarifies that the principles in other Standards (including AASB 116 *Property, Plant and Equipment*) apply to land under roads, except to the extent that AASB 1051 requires or permits otherwise, including the requirement that land under roads acquired after the end of the first reporting period ending on or after 31 December 2007 is accounted for in accordance with AASB 116. It is not practicable to determine the financial impact this will have.

AASB 123: *Borrowing Costs* and AASB 2007-6: *Amendments to Australian Accounting Standards arising from AASB 123 (AASB 1, AASB 101, AASB 107, AASB 111, AASB 116 and AASB 138 and Interpretations 1 and 12)* (applicable for annual reporting periods commencing from 1 January 2009). The revised AASB 123 has removed the option to expense all borrowing costs and will

therefore require the capitalisation of all borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset.

It is not expected that any changes will have a material effect on future financial statements.

AASB 2008-5: Amendments to Australian Accounting Standards arising from the Annual Improvements Project (July 2008) and AASB 2008-6: Further Amendments to Australian Accounting Standards arising from the Annual Improvements Project (July 2008) detail numerous non-urgent but necessary changes to accounting standards arising from the IASB's annual improvement project. No changes are expected to materially affect the Corporation.

Future Australian Accounting Standard Requirements

AASB 3: Business Combinations, AASB 127: Consolidated and Separate Financial Statements, AASB 2008-3: Amendments to Australian Accounting Standards arising from AASB 3 and AASB 127 (AASB Standards, 1, 2, 4, 5, 7, 101, 107, 112, 114, 116, 121, 128, 131, 132, 133, 134, 136, 137, 138 and 139 and Interpretations 9 and 107) (applicable for annual reporting periods commencing from 1 July 2009) and AASB 2008-7: Amendments to Australian Accounting Standards - Cost of an Investment in a Subsidiary, Jointly Controlled Entity or Associate (AASB 1, AASB 118, AASB 121, AASB 127 and AASB 136) (applicable for annual reporting periods commencing from 1 January 2009). These Standards are applicable prospectively and so will only affect relevant transactions and consolidations occurring from the date of application. Neither of these Standards are currently applicable to the Corporation.

AASB 101: Presentation of Financial Statements, AASB 2007-8: Amendments to Australian Accounting Standards arising from AASB 101, and AASB 2007-10: Further Amendments to Australian Accounting Standards arising from AASB 101 (all applicable to annual reporting periods commencing from 1 January 2009). The revised AASB 101 and amendments supersede the previous AASB 101 and redefine the composition of financial statements including the inclusion of a statement of comprehensive income. There will be no measurement or recognition impact on the Corporation.

1.5 Revenue

Revenues from Government

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).

Funding received or receivable from agencies (appropriated to the agency as a CAC body payment item for payment to the Corporation) is recognised as Revenue from Government unless they are in the nature of an equity injection.

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.

Amounts appropriated for Departmental outputs appropriations for the year (adjusted for any formal additions and reductions) are recognised as revenue when the agency gains control of the appropriation, except for certain amounts which relate to activities that are reciprocal in nature, in which case revenue is recognised only when it has been earned.

Appropriations receivable are recognised at their nominal amounts.

The Corporation has received additional funding as part of the Regional and Community Projects (RCP) initiative run by the Australian Government to improve the production and performance of sugarcane varieties. The Corporation has selected a project which is to be supported by this additional funding.

Interest revenue is recognised using the effective interest method as set out in AASB 139 *Financial Instruments: Recognition and Measurement*.

1.6 Gains

Sale of Assets

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

1.7 Transactions with the Government as Owner

Equity Injections

Amounts that are designated as equity injections for a year are recognised directly in contributed equity in that year.

1.8 Employee Benefits

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

Liabilities for short-term employee benefits (as defined in AASB 119) and termination benefits due within twelve months of balance date are 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.

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 at the estimated salary rates that applied at the time the leave is taken, 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 estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Superannuation

Staff of the Corporation are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or the PSS accumulation plan (PSSap).

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported by the Department of Finance and Deregulation as an administered item.

The Corporation makes employer contributions to the Employee Superannuation Scheme at rates determined by an actuary to be sufficient to meet the cost to the Government of the superannuation entitlements of the Agency's employees. The Corporation accounts for the contributions as if they were contributions to defined contribution plans.

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

1.9 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 rewards incidental to ownership of leased non-current assets. An operating lease is a lease that is not a finance lease. In operating leases, the lessor effectively retains substantially all such risks and benefits.

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

The Corporation has no finance leases.

1.10 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.

Grants expenses are recognised when a milestone is approved.

1.11 Cash

Cash and cash equivalents includes notes and coins held and any deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value. Cash is recognised at its nominal amount.

1.12 Financial Assets

The Corporation classifies its financial assets in the following categories:

- held-to-maturity investments;
- loans and receivables.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition.

Financial assets are recognised and derecognised upon trade date.

Effective Interest Method

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets that are recognised at fair value through profit or loss.

Held-to-Maturity investment

Non-derivative financial assets with fixed or determinable payments and fixed maturity dates that the group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are recorded at amortised cost using the effective interest method less impairment, with revenue recognised on an effective yield basis.

Loans and Receivables

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as loans and receivables. They are included in current assets, except for maturities greater than 12 months after the balance sheet date. These are classified as non current assets. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Impairment of Financial Assets

Financial assets are assessed for impairment at each balance date.

- *financial assets held at amortised cost* - if there is objective evidence that an impairment loss has been incurred for loans and receivables or held to maturity investments held at amortised cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in the income statement.

1.13 *Financial Liabilities*

Financial liabilities are classified as either financial liabilities at fair value through profit or loss or other financial liabilities.

Financial liabilities were recognised and derecognised upon trade date.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

1.14 *Contingent Liabilities and Contingent Assets*

Contingent Liabilities and Contingent Assets are not recognised in the Balance Sheet but are reported in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

1.15 *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. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

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 agency's accounts immediately prior to the restructuring.

1.16 Property, Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the balance sheet, 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).

Assets which have a net book value of less than \$2,000 at year end are removed from the asset register and expensed.

Revaluations

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

Leasehold improvements	Depreciated replacement cost
Plant and equipment	Market Selling Price

Following initial recognition at cost, property plant and equipment are carried at fair value less accumulated depreciation and accumulated impairment losses. Valuations are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depends upon the volatility of movements in market values for the relevant assets.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under the heading of asset revaluation reserve except to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised through surplus and deficit. Revaluation decrements for a class of assets are recognised directly through surplus and deficit except to the extent that they reverse a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset restated to the revalued amount.

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.

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.

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

	2009	2008
Computer equipment	3 years	3 years
Furniture and fittings	13 $\frac{1}{3}$ years	13 $\frac{1}{3}$ years
Leasehold improvements	Lease term	Lease term

Impairment

All assets were assessed for impairment at 30 June 2009. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the Corporation were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

1.17 Taxation

The Corporation is exempt from all forms of taxation except fringe benefits tax (FBT) 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 2: Events After the Balance Sheet Date

No events have occurred after balance date that affect the Corporation's 2008-2009 financial statements.

Note 3: Income

Note 3A: Revenue from Government

	2009	2008
Revenue		
Commonwealth contribution - PIERD Act	5,110	5,283
Commonwealth contribution - RCP	1,000	1,000
Total revenue from Government	6,110	6,283

Note 3B: Interest

Cash at bank	164	117
Short term deposits	483	686
Total interest	647	803

Note 3C: Industry Contributions (sugar levies)

Industry contributions (sugar levies)	4,317	5,028
Total industry contributions (sugar levies)	4,317	5,028

Note 3D: Other Revenues

Royalties	19	44
Total other revenues	19	44

Note 4: Expenses

Note 4A: Employee Benefits

	2009	2008
Wages and salaries	830	917
Superannuation		
Defined contribution plans	117	118
Leave and other entitlements	(40)	(69)
Other employee expenses	64	62
<i>Total employee benefits</i>	971	1,028

Note 4B: Suppliers

Provision of goods - external parties	228	318
Rendering of services - external parties	512	408
Operating lease rentals- external parties:		
Minimum lease payments	205	168
Workers compensation premiums	1	1
<i>Total supplier expenses</i>	946	895

Note 4C: Depreciation

Depreciation:

Plant and equipment	16	11
Leasehold improvements	21	7
<i>Total depreciation</i>	37	18

Note 4D: Write-Down and Impairment of Assets

Asset write-down and impairments from:

Plant and equipment	6	-
<i>Total write-down and impairment of assets</i>	6	-

Note 4E: Loss from Asset Sales

	2009	2008
Plant and equipment:		
Proceeds from disposal	-	(37)
Net book value of assets disposed	-	50
Total loss from asset sales	-	13

Note 4F: Grants

The Corporation makes grants to support research and development for the sugar industry in Australia.

Research and development grants - PIERD	8,292	9,139
Total grants	8,292	9,139

Note 5: Financial Assets

Note 5A: Cash and Cash Equivalents

Cash at bank	2,850	65
Total cash and cash equivalents	2,850	65

Note 5B: Trade and Other Receivables

Goods and services - external parties	18	1,100
Levies receivable	68	241
GST receivable from the Australian Taxation Office	100	75
Commonwealth contribution receivable	1,087	1,348
Interest receivable	35	256
FBT refund receivable from the Australian Taxation Office	-	11
Total trade and other receivables (net)	1,308	3,031

All receivables are current assets.

No indicators of impairment were found for trade and other receivables.

Receivables (gross) are aged as follows:

Not overdue	1,308	3,031
Total receivables (gross)	1,308	3,031

Note 5C: Investments

Deposits	6,783	8,052
Total investments	6,783	8,052

All investments are current assets.

Note 6: Non-Financial Assets

Note 6A: Leasehold improvements

	2009	2008
Leasehold improvements:		
Fair value	105	88
Accumulated depreciation	(28)	(7)
<i>Total leasehold improvements</i>	77	81

Note 6B: Plant and equipment

Plant and equipment:		
Fair value	72	40
Accumulated depreciation	(17)	(14)
<i>Total plant and equipment</i>	55	26

All revaluations are conducted in accordance with the revaluation policy stated in Note 1.

No indicators of impairment were found for leasehold improvements, plant and equipment.

Note 6C: Analysis of Property, Plant and Equipment

TABLE A - Reconciliation of the opening and closing balances of property, plant and equipment (2008–2009)

Item	Leasehold improvements \$'000	Plant & equipment \$'000	Total \$'000
As at 1 July 2008			
Gross book value	88	40	128
Accumulated depreciation/amortisation and impairment	(7)	(14)	(21)
Net book value 1 July 2008	81	26	107
Additions:			
By purchase	17	51	68
Depreciation/amortisation expense	(21)	(16)	(37)
Disposals:			
Other disposals	-	(6)	(6)
Net book value 30 June 2009	77	55	132
Net book value as of 30 June 2009 represented by:			
Gross book value	105	72	177
Accumulated depreciation/amortisation and impairment	(28)	(17)	(45)
	77	55	132

TABLE A - Reconciliation of the opening and closing balances of property, plant and equipment (2007–2008)

Item	Leasehold improvements \$'000	Plant & equipment \$'000	Total \$'000
As at 1 July 2007			
Gross book value	-	82	82
Accumulated depreciation/amortisation and impairment	-	(9)	(9)
Net book value 1 July 2007	-	73	73
Additions:			
By purchase	88	14	102
Depreciation/amortisation expense	(7)	(11)	(18)
Other movements (give details below)	-	-	-
Disposals:			
Other disposals	-	(50)	(50)
Net book value 30 June 2008	81	26	107
Net book value as of 30 June 2008 represented by:			
Gross book value	88	40	128
Accumulated depreciation/amortisation and impairment	(7)	(14)	(21)
	81	26	107

Note 6D: Other Non-Financial Assets

	2009	2008
Prepayments	24	18
<i>Total other non-financial assets</i>	24	18

All other non-financial assets are current assets.

No indicators of impairment were found for other non-financial assets.

Note 7: Payables

Note 7A: Suppliers

Trade creditors	38	82
<i>Total suppliers payable</i>	38	82

All supplier payables are current liabilities.

Settlement is usually made net 30 days.

Note 7B: Grants payable

Grants payable	489	429
<i>Total grants payable</i>	489	429

All grants payable are current liabilities.

Note 7C: Other Payables

Revenue received in advance	-	1,000
Salaries and wages	10	7
Superannuation	1	1
<i>Total other payables</i>	11	1,008

All other payables are current liabilities.

Note 8: Provisions

Note 8A: Employee Provisions

	2009	2008
Leave	110	146
Total employee provisions	110	146
Employee provisions are represented by:		
Current	91	132
Non-current	19	14
Total employee provisions	110	146

The classification of current includes amounts for which there is not an unconditional right to defer settlement by one year, hence in the case of employee provisions the above classification does not present the amount expected to be settled within one year of reporting date. Employee provisions expected to be settled in twelve months from the reporting date \$48,983 (2008: \$53,790), in excess of one year \$60,686 (2008: \$92,099)

Note 9: Cash Flow Reconciliation

Reconciliation of cash and cash equivalents as per Balance Sheet to Cash Flow Statement

Report cash and cash equivalent as per:

Cash flow statement	9,633	8,117
Balance sheet	9,633	8,117
Difference	-	-

Reconciliation of operating result to net cash from operating activities:

Operating result	841	1,065
Depreciation	37	18
Loss from disposal of assets	6	13
(Increase) / decrease in net receivables	1,722	(2,783)
(Increase) / decrease in prepayments	(6)	(11)
Increase / (decrease) in employee provisions	(33)	(65)
Increase / (decrease) in supplier payables	(44)	33
Increase / (decrease) in grants payable	60	18
Increase / (decrease) in other payables	(1,000)	1,000
Net cash from / (used by) operating activities	1,583	(712)

Note 10: Contingent Liabilities and Assets

The Schedule of Contingencies reports a contingent liability as at 30 June 2009 being a bank guarantee of \$17,675 provided over the lease of the head office premises at Level 16, 141 Queen Street, Brisbane.

At 30 June 2009, the Corporation had no unquantifiable contingencies.

Note 11: Director Remuneration

	2009 \$'000	2008 \$'000
The number of directors of the Corporation included in these figures are shown below in the relevant remuneration bands:		
\$ Nil to \$149 999	8	14
\$150 000 to \$224 999	1	-
Total number of directors of the Corporation	9	14
Total remuneration received or due and receivable by directors of the Corporation	\$ 441,335	\$ 344,408

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 12: Related Party Disclosures

During the 2009 year, no Director of the Corporation served on the Board of a related party.

Note 13: Executive Remuneration

The aggregate amount of Executive Director remuneration is disclosed in Note 11.

Note 14: Remuneration of Auditors

The fair value of audit services provided was:	15	15
No other services were provided by the Auditor-General.		

Note 15: Financial Instruments

Note 15A: Categories of Financial Instruments

	2009 \$'000	2008 \$'000
Financial Assets		
Loans and receivables:		
Cash at bank or on deposit	2,850	65
Receivables for goods and services	18	1,100
Interest receivable	35	256
Investments	6,783	8,052
<i>Carrying amount of financial assets</i>	<u>9,686</u>	<u>9,473</u>
Financial Liabilities		
Other financial liabilities at amortised cost:		
Trade creditors	38	82
Grants payable	489	429
<i>Carrying amount of financial liabilities</i>	<u>527</u>	<u>511</u>

Note 15B: Net Income and Expense from Financial Assets

Loans and receivables

Interest revenue	647	803
Net gain/(loss) loans and receivables	<u>647</u>	<u>803</u>
Net gain/(loss) from financial assets	<u>647</u>	<u>803</u>

Note 15C: Net Income and Expense from Financial Liabilities

The Corporation does not incur any expenses in relation to financial liabilities.

Note 15D: Fair values of financial instruments

	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	2009	2009	2008	2008
	\$'000	\$'000	\$'000	\$'000
FINANCIAL ASSETS				
Cash	2,850	2,850	65	65
Interest receivable	35	35	256	256
Other receivables	18	18	1,100	1,100
Term deposits	6,783	6,783	8,052	8,052
Total	9,686	9,686	9,473	9,473
FINANCIAL LIABILITIES				
Trade creditors	38	38	82	82
Grants payable	489	489	429	429
Total	527	527	511	511

Note 15E: Credit Risk

The Corporation is exposed to minimal credit risk as the majority of loans and receivables are cash and appropriations made under law (which guarantees fixed amounts of funding that the entity can drawdown as required) or amounts owed by the Australian Taxation Office in the form of a Goods and Services Tax Refund. The maximum exposure to credit risk is the risk that arises from the potential default of a debtor. This amount is equal to the total amount of trade receivables (2009: \$17,975 and 2008: \$1,100,000). The Corporation has assessed that there is no risk of default and has not recognised an impairment allowance account.

The Corporation manages its credit risk by undertaking background checks and general probity reviews as part of its project analysis process prior to allowing a debtor relationship.

The Corporation holds no collateral to mitigate against credit risk.

Credit quality of financial instruments not past due or individually determined as impaired

	Not Past Due Nor Impaired	Not Past Due Nor Impaired	Past due or impaired	Past due or impaired
	2009	2008	2009	2008
	\$'000	\$'000	\$'000	\$'000
Cash at bank or on deposit	2,850	65	-	-
Receivables for goods and services	18	1,100	-	-
Interest receivable	35	256	-	-
Investments	6,783	8,052	-	-
Total	9,686	9,473	-	-

There are no financial assets that are past due or impaired for 2008 or 2009.

Note 15F: Liquidity Risk

The Corporation's financial liabilities are payables for goods and services. The exposure to liquidity risk is based on the notion that the Corporation will encounter difficulty in meeting its obligations associated with financial liabilities. This is highly unlikely due to appropriation funding and mechanisms available to the Entity and internal policies and procedures put in place to ensure there are appropriate resources to meet its financial obligations.

The Corporation is appropriated funding from the Australian Government. The Corporation manages its budgeted funds to ensure it has adequate funds to meet payments as they fall due. In addition, the Corporation has policies in place to ensure timely payments are made when due and has no past experience of default.

Maturities for financial liabilities 2009

	On demand	within 1 year	1 to 2 years	2 to 5 years	> 5 years	Total
	2009	2009	2009	2009	2009	2009
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Trade creditors	-	38	-	-	-	38
Grants payable	-	489	-	-	-	489
Total	-	527	-	-	-	527

Maturities for financial liabilities 2008

	On demand	within 1 year	1 to 2 years	2 to 5 years	> 5 years	Total
	2008	2008	2008	2008	2008	2008
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Trade creditors	-	82	-	-	-	82
Grants payable	-	429	-	-	-	429
Total	-	511	-	-	-	511

Note 15G: Market risk

The Corporation holds basic financial instruments that do not expose the Corporation to certain market risks. The Corporation is not exposed to 'currency risk' or 'other price risk'.

The Corporation's only exposure to interest rate risk is through credit cards. This risk is minimised by ensuring that the balance owing is paid monthly by the due date.

Note 16: Appropriations

Note 16A: Appropriations

	2009	2008
		Outcome 1
	\$'000	\$'000
Appropriation for reporting period	-	-

The Corporation is not directly appropriated as it is a CAC Act body. Appropriations are made to the Department of Agriculture, Fisheries and Forestry which then pay monies to the Corporation.

Note 17: Reporting of Outcomes

The Corporation's mission is 'to foster an innovative and sustainable Australian sugar industry through targeted investment in research and development'.

The Corporation is structured to meet one outcome; 'A profitable and internationally competitive and sustainable Australian sugarcane industry providing economic, environmental and social benefits for rural and regional communities through targeted investment in research and development'.

Three Output Groups have been identified as contributing to the one corporate outcome:

- 1.1 Implementation of innovative farming, harvesting, transport, milling and marketing systems tailored to the needs and opportunities of each region (Regional Futures).
- 1.2 Rapid translation of relevant emerging technologies that will enhance the industry's competitive edge in the global marketplace (Emerging Technologies).
- 1.3 Development of individuals and networks across the sugarcane industry that enhance the capacity for continuous improvement (People Development).

The disclosure for the Output Groups in the 2008 year has been amended to reflect the Output Groups as outlined in the Research and Development Plan 2007-2012. There has been no change to the Outcome totals presented.

Note 17A: Net Cost of Outcome Delivery

	Outcome 1		Total	
	2009 \$'000	2008 \$'000	2009 \$'000	2008 \$'000
Expenses				
Departmental expenses	10,252	11,093	10,252	11,093
Total expenses	10,252	11,093	10,252	11,093
Other external income				
Departmental				
Industry Contributions (Sugar Levies)	4,317	5,028	4,317	5,028
Interest	647	803	647	803
Other	19	44	19	44
Total other external income	4,983	5,875	4,983	5,875
Net cost/(contribution) of outcome	5,269	5,218	5,269	5,218

Note 17B: Major Classes of Departmental Income and Expenses by Output Groups and Outputs

	Outcome 1		Output Group 1.1		Output Group 1.2		Output Group 1.3		Outcome 1 Total	
	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Departmental expenses										
Employees	583	616	194	206	194	206	194	206	971	1,028
Suppliers	566	537	190	179	190	179	190	179	946	895
Grants	4,976	5,483	1,658	1,828	1,658	1,828	1,658	1,828	8,292	9,139
Depreciation	23	10	7	4	7	4	7	4	37	18
Write-Down and Impairment of Assets	4	-	1	-	1	-	1	-	6	-
Loss from Asset Sales	-	7	-	3	-	3	-	3	-	13
Total departmental expenses	6,152	6,653	2,050	2,220	2,050	2,220	2,050	2,220	10,252	11,093

Funded by:

Departmental income

Revenues from Government	3,666	3,771	1,222	1,256	1,222	1,256	1,222	1,256	6,110	6,283
Interest	389	481	129	161	129	161	129	161	647	803
Industry Contributions (Sugar Levies)	2,591	3,018	863	1,005	863	1,005	863	1,005	4,317	5,028
Other	11	26	4	9	4	9	4	9	19	44
Total departmental income	6,657	7,296	2,218	2,431	2,218	2,431	2,218	2,431	11,093	12,158

Note 17C: Major Classes of Departmental Assets and Liabilities by Outcomes

	Outcome 1		Total	
	2009	2008	2009	2008
	\$'000	\$'000	\$'000	\$'000
Departmental assets				
Cash and cash equivalents	2,850	65	2,850	65
Trade and other receivables	1,308	3,031	1,308	3,031
Investments	6,783	8,052	6,783	8,052
Leasehold improvements	77	81	77	81
Plant and equipment	55	26	55	26
Other non-financial assets	24	18	24	18
Total departmental assets	11,097	11,273	11,097	11,273
Departmental liabilities				
Suppliers	38	82	38	82
Grants	489	429	489	429
Other payables	-	1,000	-	1,000
Employee provisions	121	154	121	154
Total departmental liabilities	648	1,665	648	1,665



6. Appendices

Appendix A – Composition of National Research Priorities

Appendix B – Composition of Rural Research and Development Priorities

Appendix C – Project Listing 2008–09

Appendix D – Final Reports Approved 2008–09

Appendix E – Published Papers and Publications

Appendix F – Freedom of Information Act Statement

Appendix G – Abbreviations

**Appendix H – Table of Compliance with Publishing Guidelines
and Legislation**

Appendix I – General Index

Appendix A

Composition of National Research Priorities attributed to each Program 2008–09 (\$'000)

National Research Priorities (NRP)	An Environmentally Sustainable Australia					Promoting and Maintaining Good Health		Frontier Technologies for Building and Transforming Australian Industries			Safeguarding Australia	Total
	A1	A2	A3	A5	A7	B3	B4	C2	C4	C5	D3	
Regional Futures	286	541	464	36	206	22	2,227	262	12	352	629	5,037
Emerging Technologies	123	31	99	0	149	46	925	1,059	14	8	0	2,454
People Development	28	0	15	0	18	0	114	22	21	583	0	801
Total	437	572	578	36	373	68	3,266	1,343	47	943	629	8,292

Key to NRP Goals in which SRDC has R&D investments

An Environmentally Sustainable Australia

A1: Water – a critical resource
 A2: Transforming existing industries
 A3: Overcoming soil loss, salinity and acidity
 A5: Sustainable use of Australia's biodiversity
 A7: Responding to climate change and variability

Frontier Technologies for Building and Transforming Australian Industries

C2: Frontier technologies
 C4: Smart information use
 C5: Promoting an innovation culture and economy

Promoting and Maintaining Good Health

B3: Preventive healthcare
 B4: Strengthening Australia's social and economic fabric

Safeguarding Australia

D3: Protecting Australia from invasive diseases and pests

Appendix B

Composition of Rural Research and Development Priorities attributed to each Program (\$'000 and % values) 2008–09

Rural Research & Development Priorities (RRDP)	Productivity and Adding Value		Supply Chain and Markets		Natural Resource Management		Climate Variability & Climate Change		Biosecurity		Innovation Skills		Technology		Total	
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%
Regional Futures	2,058	25	257	3	1,390	17	211	3	629	8	293	4	198	2	5,037	60
Emerging Technologies	1,367	16	17	0	182	2	155	2	46	1	8	0	680	8	2,454	29
People Development	75	1	11	0	4	0	18	0	7	0	684	8	0	0	801	11
Total	3,500	42	286	3	1,577	19	384	5	682	9	984	12	878	10	8,292	100

Appendix C

Project Listing 2008–09

Project	Title	Research Contact	Email address	Funds (2007–08)
Regional Futures				
Value Chain Integration				
CGH002	Enhancing efficiency and integration from field to factory in the Herbert	Peter Sheedy	Peter_Sheedy@hbr.canegrowers.com.au	\$17,000
CGT001	Development and implementation of harvest management planning tools for the maximisation of CCS in the Tully district	Trent Stainlay	tulprod@westnet.com.au	\$41,623
CHC002	Development of a real time information system for Clarence harvesters	Peter Rose	pjrose@westnet.com.au	\$37,450
CRC005	Understanding the reproductive biology and ecology of sugarcane to manage the safe release of genetically modified cultivars	Dr Graham Bonnett	graham.bonnett@csiro.au	\$160,177
CSR033	Benchmarking harvest group practices in the Burdekin	Ian Haigh	idhaigh@bigpond.com	\$10,823
CSR038	Increasing in-mill NIR effectiveness and communicating data to all sectors for improved decision making in the sugarcane value chain	John Markley	j.markley@mkysugar.com.au	\$135,620
CVA003	Managing Climate Variability Program Phase 2	Dr Diana Saunders	dsaunders@srdc.gov.au	\$90,000
GTG002	Implementation of the communication plan for the Sugarcane Gene Technology Group	Warren Males	warren.males@qldsugar.com	\$10,000
JCU027	Defeating the Autumn Predictability Barrier	Dr Yvette Everingham	Yvette.everingham@jcu.edu.au	\$30,000
LWA003	Climate Change Research Strategy for Primary Industries Phase 2	Dr Diana Saunders	dsaunders@srdc.gov.au	\$12,000
MAS001	A regional partnership approach to developing a sustainable sugar cane system	Alan Rudd	armossag@bigpond.net.au	\$40,000
MAS002	Improving harvest efficiency in the Mossman Central Mill area	Darryl Parker	dpmossag@bigpond.net.au	\$16,763
NSC005	Implementing an integrated sugar system in NSW	Rick Beattie	rbeattie@nswsugar.com.au	\$25,000
OHS003	Farm Health and Safety Joint Venture Phase 3	Bianca Cairns	bcairns@srdc.gov.au	\$20,000
RIR001	Life Cycle Assessment in Rural Industries	Simon Winter	simonwinter@bigpond.com	\$0
WS009	Assessment of regional R&D needs and opportunities	Carolyn Martin	cmartin@srdc.gov.au	\$181
Regional Futures				
Farming and Harvesting Systems				
BBF001	Pilot area-wide natural resource management group- Building grower capacity to understand and better manage groundwater	Enrico Mio	miofarm@tpg.com.au	\$65,092
BPS001	Identifying management zones within cane paddocks: an essential foundation for precision sugarcane agriculture	Dr Ross Coventry	ross@SoilHorizons.com.au	\$206,094
BSS257	GrubPlan 2: Developing improved risk assessment and decision-support systems for managing greyback canegrub	Dr Peter Samson	psamson@bses.org.au	\$50,000

BSS265	Smut-proofing the Australian industry - ensuring a reliable cane supply through reduced genetic vulnerability to sugarcane smut	Barry Croft	bcroft@bses.org.au	\$60,963
BSS266	Optimum canegrub management within new sustainable cropping systems	Dr Peter Samson	psamson@bses.org.au	\$90,000
BSS268	Accelerated adoption of best-practice nutrient management	Dr Bernard Schroeder	bschroeder@bses.org.au	\$112,238
BSS269	A new cropping system for the Central District	Bradley Hussey	bhussey@bses.org.au	\$23,877
BSS286	Improved sugar-cane farming systems	Dr Barry Salter	BSalter@bses.org.au	\$219,813
BSS294	Whole-farm planning for management of varieties to maximise productivity and reduce losses from diseases	Barry Croft	bcroft@bses.org.au	\$246,591
BSS296	Evaluation of genotypes for a controlled-traffic farming system	Dr Barry Salter	BSalter@bses.org.au	\$168,188
BSS297	Delivering web-based irrigation management	Trevor Willcox	twillcox@bses.org.au	\$142,526
BSS302	Epidemiology studies into sugarcane smut	Dr Robert Magarey	RMagarey@bses.org.au	\$200,000
BSS303	Sugarcane biosecurity integrated plan	Dr Mohamed Sallam	msallam@bses.org.au	\$92,752
BSS304	Cane-grower implemented drying-off irrigation scheduling on the Tableland	David Donald	ddonald@bses.org.au	\$54,111
BSS306	Establishing the second crop cycle into permanent beds	Bradley Hussey	bhussey@bses.org.au	\$35,000
BSS318	Measurement of in-field sucrose loss by mobile refractometry	Cam Whiteing	cwhiteing@bses.org.au	\$20,000
CG018	A review of institutional arrangements in the Burdekin Irrigation Area with a view to managing sustainable farming practices in the region	Eric Danzi	eric_danzi@canegrowers.com.au	\$35,000
CG013	Growers working together to improve water quality in the Herbert Sugar Industry	Eric Danzi	eric_danzi@canegrowers.com.au	\$29,937
CPI009	New soybean varieties for fallow cropping of sugarcane fields	Dr Andrew James	Andrew.James@csiro.au	\$15,376
CSE011	Improved environmental outcomes and profitability through innovative management of nitrogen	Dr Peter Thorburn	peter.thorburn@csiro.au	\$213,077
CSE012	Adopting systems approaches to water and nutrient management for future cane production in the Burdekin	Dr Peter Thorburn	peter.thorburn@csiro.au	\$131,826
CSE020	Ecosystem services in sugar lands: Where are we now and how can they be enhanced?	Dr Peter Thorburn	peter.thorburn@csiro.au	\$25,598
CSE022	A collaborative approach to Precision Agriculture R,D&E for the Australian Sugar Industry	Dr Robert Bramley	rob.bramley@csiro.au	\$109,724
DPI015	Enhancing an economic way of doing business in the cane industry	Mark Poggio	mark.poggio@dpi.qld.edu.au	\$16,000
DPI020	Management solutions to optimize performance of new farming systems in southern cane lands.	Dr Mike Bell	mike.bell@dpi.qld.gov.au	\$110,000
FSA001	A review of opportunities to improve the design and performance of sugar cane harvesters	Rod Davis	Rod.Davis@fsaconsulting.net	\$60,963
GGP012	Researching soil health and economics of two farming systems in the Herbert River district	Michael Waring	mjwaring@bigpond.net.au	\$6,300

GGP015	Development of a precision mill mud applicator for a new farming system	Jeff Atkinson	botatk@aussiebroadband.com.au	\$6,000
GGP017	Improving soil health in undulating, dryland farms in the Central region	Rino De Boni	rinodb@bigpond.com	\$1,000
GGP018	Nutrient management from variable rate technology in a control traffic system by the Oakenden Grower Group	John Muscat	jjmuscat@orion-online.com.au	\$38,000
GGP019	Increasing productivity and profitability in soldierly-affected crops in the Pioneer Valley	Paul Argent	pdrargent@mackay.net.au	\$2,000
GGP020	Beach sand to black clay - Adapting technology and best practice for Homebush farming conditions	Tony Bugeja	Chrisc78@hotmail.com	\$4,000
GGP024	Validation of fibre cropping in rotation with sugar cane by Mackay Fibre Producers	Joe Muscat	jmuscat@bses.org.au	\$7,000
GGP026	Implementation of a 2M farming system	Rajinder Singh	singh_rajinda@hotmail.com	\$8,000
GGP027	Developing a sediment trapping system in the Silkwood drainage board area (SDBA)	Ian Brooks	farmlets@comnorth.com.au	\$14,000
GGP028	Facilitating enhanced peanut / sugarcane rotations by assessing and managing the issues related to growing peanuts	Don Halpin	Donella1@bigpond.com	\$2,600
GGP029	Mulgrave cane growers strategic grub management: implementing BSES decision-making tools	Jeffrey Day	mulgrave@canegrowers.com.au	\$50,000
GGP030	Utilising a predictive model for the monitoring and management of cane grubs in the Mackay region by the Mount Kinchant Growers Group	Paul Vassallo	panavass@activ8.net.au	\$27,000
GGP031	Seed To Fuel: Enhancing the value of rotational break crops to produce oil and bio-fuel in the Central region	Joe Muscat	jmuscat@bses.org.au	\$8,000
GGP032	The operation of the two-in-one harvesting attachment in a controlled traffic system	Elio Castellani	yamaha1@bigpond.net.au	\$30,000
GGP034	Profits through Recycling: Pilot processing of sugar industry and community by-products to improve on-farm sustainability	Neal Ross	jr.cqfcoop@qld.chariot.net.au	\$36,000
GGP035	Developing implement coulters for volcanic red soils	Miles Darveniza	mdarv@qld.chariot.net.au	\$7,000
GGP036	Total concept sugarcane planting system	Daryl Morellini	daryl.m@itnq.com.au	\$36,658
GGP038	Improving billet planter efficiency	Chris Shannon	candkshannon@bigpond.com.au	\$12,500
GGP040	Build a prototype planter suitable for planting peanuts into uncultivated Cane Trash Blanket	Don Halpin	Donella1@bigpond.com	\$1,500
GGP041	Better frost tolerant varieties for NSW	Alan Munro	alan@rmunroandsons.com.au	\$12,000
GGP042	Winter soybean for biodiesel and nitrogen fixation	David Singh	megadeen@bigpond.com.au	\$3,000
GGP044	Enhancing nutrient placement: Sub surface application of cane specific compost	Barbara Walker	bwalker@orion-online.com.au	\$35,000
GGP047	Maximising Soys in Central Queensland	Simon Mattson	mattson@mcs.net.au	\$0
GGP048	Better targeting of new cultivars for north Queensland through additional trials in four areas	Chris McClelland	chris@jonnysmowers.com	\$2,500
GGP049	Investigating reduced nitrogen application rates for profitability and sustainability	Chris McClelland	chris@jonnysmowers.com	\$0
GGP050	Improving soybean and nitrogen management in subtropical NSW cane systems	Alan Munro	alan@rmunroandsons.com.au	\$9,150

GGP051	Maximising Centre Pivot Efficiencies	John Fox	jjfox@activ8.net.au	\$0
GGP052	The Next Step For Precision Agriculture	Tony Bugeja	Chrisck78@hotmail.com	\$6,000
MAF002	Evaluating alternative irrigation for a greener future	Chris Hesp	sonyah@austarnet.com.au	\$90,817
NFS002	An integrated approach to nut grass control	Dr Bob Aitken	raitken@bses.org.au	\$32,960
NPSI01	National Program for Sustainable Irrigation	Guy Roth	guyroth@roth.net.au	\$100,000
NSC012	Single drum harvester chopper development	Dr Bruce Lamb	blamb@nswsugar.com.au	\$70,446
PCS002	Enhancing trap cropping technique for greyback canegrub in rain-fed cane	Jackie Richters	jrichters@bses.com.au	\$10,000
UQ043	Harnessing soil biology to improve the productivity of the new sugarcane farming system	Dr Susanne Schmidt	susanne.schmidt@uq.edu.au	\$272,194
WAA003	Evaluation and Implementation of modified farming systems in the ORIA	Dr Joe Sherrard	jsherrard@agric.wa.gov.au	\$55,570

Regional Futures

Transport, Milling and Marketing Systems

LEV001	Restoring efficiency to harvested cane transport in New South Wales	Michael O'Connor	macoilau@norex.com.au	\$10,000
MUL002	Evaluation of new clarification technologies for improved factory operation and overall sugar quality	Glenn Pope	Mulgrave Central Mill Co-op Ltd.	\$89,890
QUT019	Improved train safety through improved locomotive braking performance	Dr Geoff Kent	g.kent@qut.edu.au	\$3,809
QUT020	Use of the SRI noxious gas jigger system to increase the juice processing capacity of evaporator stations	Darryn Rackemann	d.rackemann@qut.edu.au	\$40,000
QUT021	Assessment of a low-cost analyser for on-line monitoring of sugar in process water streams	Darryn Rackemann	d.rackemann@qut.edu.au	\$68,400
QUT023	Automation of the clarifier and filter stations	Rod Steindl	r.steindl@qut.edu.au	\$64,837
QUT024	Reducing transport costs through the automation of schedule generation	Dr Geoff Kent	g.kent@qut.edu.au	\$56,808
QUT028	Semi-automated stockpile tarping system for improved safety and fuel quality	Dr Phil Hobson	p.hobson@qut.edu.au	\$20,000
TSL001	Improved management of scale formation and scale removal in the Tully evaporator station	John King	jking@tsl.com.au	\$73,600
TSL002	Pelletising mill mud and ash	John King	jking@tsl.com.au	\$61,050

Emerging Technologies

Genetics and Breeding Systems

BSS305	More crop per drop: developing water-efficient and drought tolerant sugarcane cultivars for irrigated and dryland farming	Dr Prakash Lakshmanan	plakshmanan@bses.org.au	\$10,000
BSS307	Development and implementation of NIR based predictive tools to rate sugarcane varieties against smut and Fiji leaf gall	Dr Michael O'Shea	moshea@bses.org.au	\$100,000
BSS319	Maximising the rate of parental improvement in the Australian sugarcane breeding program	Dr Xianming Wei	xwei@bses.org.au	\$131,153
BSS325	SmutBuster: Accelerated breeding of smut-resistant sugarcane varieties	Dr Mike Cox	mcox@bses.org.au	\$654,844

CRC006	Complete genome map of sugarcane	Dr Karen Aitken	Karen.Aitken@csiro.au	\$363,149
CRC008	Creating sustainable sugarcane production systems: reducing plant nitrogen demand	Dr Susanne Schmidt	susanne.schmidt@uq.edu.au	\$100,000
CRC009	High early sugar varieties: improved selection methods and marker-assisted breeding	Dr Barrie Fong Chong	bfongchong@bses.org.au	\$100,000
CRC010	Testing the sucrose accumulation model	Dr Rosanne Casu	Rosanne.casu@csiro.au	\$150,000
CRC011	Production of PHB/PHAs in sugarcane plants	Dr Stevens Brumbley	s.brumbley1@uq.edu.au	\$150,000
CSE014	Increased CCS, cane yield and water use efficiency by exploiting interactions between genetics and management	Dr Geoff Inman-Bamber	geoff.inman-bamber@csiro.au	\$140,110
CSE023	Pathways to exploiting enhanced photosynthetic efficiency for higher sucrose and biomass yield	Dr Geoff Inman-Bamber	geoff.inman-bamber@csiro.au	\$149,194
UQ040	Extending Sugar Booster technology into multiple sugarcane cultivars for optimal deployment by Australian industry	Dr Robert Birch	r.birch@botany.uq.edu.au	\$386,078

Emerging Technologies

Farming, Harvesting, Transport, Milling and Marketing Systems

CRC007	Bioactive natural products from sugarcane	Assoc Prof David Leach	dleach@scu.edu.au	\$100,000
GRF001	Automating harvester and haulout forward progression during harvest utilizing DGPS	Bryan Granshaw	Bryangranshaw@bigpond.com	\$47,217
JCU029	Evaluation of membrane technology for clarification of sugar cane juice	Dr V Jegatheesan	jega.jegatheesan@jcu.edu.au	\$245,052
NCA010	Development of a prototype precision spot spray system using image analysis and plant identification technology	Steven Rees	reesst@usq.edu.au	\$43,000
PCS003	Sweet sorghum – Enhancing the Plane creek value chain, capital utilisation and district viability	Jackie Richters	jrichters@csr.com.au	\$37,500
QUT015	Pilot scale development and evaluation of an improved process for furfural and fuel production from bagasse	Dr Phil Hobson	p.hobson@qut.edu.au	\$85,056
QUT016	High value products from furfural waste residue	Dr William Doherty	w.doherty@qut.edu.au	\$17,000
QUT030	Vacuum condenser design modification	Kameron Dunn	k.dunn@qut.edu.au	\$11,194

People Development

Individual Capacity

AANR01	Australian Agriculture and Natural Resource Online	Dr Diana Saunders	dsaunders@srdc.gov.au	\$3,100
AFF002	Science and Innovation Awards for Young People	Carolyn Martin	cmartin@srdc.gov.au	\$24,000
BSS308	Improving the economic analysis skills of NSW farmers using FEAT	Peter McGuire	pmcguire@bses.org.au	\$0
BSS316	Develop a variety exchange program with Mitr Phol Thailand	Dr George Piperidis	gpiperidis@bses.org.au	\$0
BSS317	Travel to the ISSCT Pathology and Molecular Biology workshop	Dr Kathy Braithwaite	kbraithwaite@bses.org.au	\$0
BSS320	Conference to improve the efficiency of extension service provision through building individual capacity	Dr Peter Allsopp	pallsopp@bses.org.au	\$10,000

BSS322	Quality control and diagnostic procedures for quarantine and tissue culture based propagation systems	Dr Nicole Thompson	nthompson@bses.org.au	\$5,000
BSS323	Travel to the International Congress of Entomology and SASRI	Dr Kerry Nutt	knutt@bses.org.au	\$2,500
BSS324	Attend XXIV International Biometrics Conference, University College Dublin	Dr Joanne Stringer	jstringer@bses.org.au	\$5,000
BSS326	Attend the ISSCT Entomology Workshop and model the dynamics of cane grub populations	Dr Peter Samson	psamson@bses.org.au	\$5,000
CPI015	Learning from the development of a significant weed issue, the incursion of wild sugarcane in Panama	Dr Graham Bonnett	graham.bonnett@csiro.au	\$5,000
CPI016	Visit by Dr Christine Hackett, Scottish Crop Research Institute, to CSIRO MIS, PI and BSES	Peter Baker	peter.baker@csiro.au	\$3,575
JCU031	Participation at the International congress of Entomology, Durban, South Africa – SRDC scholarship results delivered to international audience	Kylie Anderson	Kylie.Anderson1@jcu.edu.au	\$4,058
LDI001	Developing the leadership capacity of the Australian Sugar Industry	Cheryl Phillips	cheryl.phillips@iinet.net.au	\$19,000
NCT003	Travel to Egypt and China to attend and present at two international conferences	Robert Quirk	rgquirk@bigpond.com	\$4,000
NSC015	Sugar Processing Research Institute Conference on sugar processing research	Stephen King	sking@nswsugar.com.au	\$4,750
NSC016	ISSCT Engineering Workshop – Design, manufacturing and maintenance of sugar mill equipment	Stephen Scott	sscott@nswsugar.com.au	\$5,000
NSC017	ISSCT Workshop on Green cane impact on sugar processing	David Moller	dmoller@nswsugar.com.au	\$5,000
QUT003	An integrated pest management strategy for climbing rat in the far-north Queensland sugarcane production system	Dr Susan Fuller	s.fuller@qut.edu.au	\$9,712
QUT023	Automation of the clarifier and filter stations	Rod Steindl	Queensland University of Technology	\$64,837
QUT032	Developing a new methodology for competency based training courses for shift supervisors in sugar factories	Dr Ross Broadfoot	r.broadfoot@qut.edu.au	\$0
QUT033	Improving the efficiency of traffic office operations through improved traffic officer training	Dr Geoff Kent	g.kent@qut.edu.au	\$23,976
QUT034	Assessing the latest developments in factory equipment design, manufacturing and maintenance for the benefit of the Australian sugar milling industry	Dr Geoff Kent	g.kent@qut.edu.au	\$5,000
RDA005	Fostering and rewarding an innovation culture in the Australian sugar industry	Ms Carole Sweatman	caroles@terrain.org.au	\$52,098
SRD019	Building the presentation and media skills of SRDC Scholarship students	Dr Diana Saunders	dsaunders@srdc.gov.au	\$18,950
SRI130	Technology transfer – more skilled factory staff via troubleshooting/help manuals and access to SRI modeling software. QUT SRI	Rod Steindl	rod.steindl@qut.edu.au	\$36,664
STU015	* Andrew Ward - The development of a decision support system for sustainable management of greyback canegrub. JCU	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0
STU016	* Graeme Cox – Yield mapping system for sugarcane. USQ	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0

STU023	* Laurelea Pickering – Trans gene mediated resistance to sugarcane mosaic virus. UQ	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0
STU027	* Stuart McCarthy – Automatic control of topper height USQ	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0
STU039	* Elizabeth Meier - The availability of nitrogen in GCTB soils in the wet tropics and its impact on productivity and profitability. ANU	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0
STU040	* Jason Perna Measuring soil bulk density in the field. UQ	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0
STU045	* Kevin Greenwood A web-based siding allocation system. CQU	Dr Diana Saunders	dsaunders@srdc.gov.au	\$0
STU049	* Peter Wulf - Self-regulatory codes of practice & their effectiveness in achieving best environmental management practices within NQ primary industries. UQ	Dr Ann Peterson	a.peterson@uq.edu.au	\$0
STU050	* Mira Durr - Microbiology of acid sulfate soils in agricultural environments. ANU	Prof Ian White	ian.white@anu.edu.au	\$0
STU052	Kylie Anderson - Invasion potential of Eumetopina flavipes, vector of Ramu Stunt Disease of Sugarcane. JCU	Dr Brad Congdon	brad.congdon@jcu.edu.au	\$34,372
STU053	* Su Yin Tan - Studies on bagasse fractionation using ionic liquids. QUT - SRI	Prof Doug MacFarlane	douglas.macfarlane@sci.monash.edu.au	\$0
STU055	* Karen Benn - The motivators and barriers to the adoption of more sustainable farming practices. JCU	Dr Janice Elder	Janice.Elder@jcu.edu.au	\$0
STU056	Kenji Osabe - Development and application of a mature stem specific promoter in sugarcane. UQ	Dr Robert Birch	r.birch@botany.uq.edu.au	\$32,000
STU057	Tom Rainey - Improved bagasse fibre properties for the manufacture of paper, board and composite materials. QUT – SRI	Dr William Doherty	w.doherty@qut.edu.au	\$16,000
STU059	Anna Satje – Improving the cation retention capacity of cane-growing soils using high activity clays. JCU	Dr Paul Nelson	paul.nelson@jcu.edu.au	\$19,255
STU060	Felicity Atkin - Estimates of breeding value of sugarcane clones and their impact on efficient parent management and cross pollination. UQ	Dr Joanne Stringer	jstringer@bses.org.au	\$32,000
STU061	Palmina Bonaventura - Communicate to advance and innovate. UQ	Dr Peter Allsopp	pallsopp@bses.org.au	\$13,000
STU062	Henry Thomas - Making database application development as straight forward as building spreadsheets. USQ	Dr John Leis	leis@usq.edu.au	\$32,000
STU063	Ian O'Hara - Pretreatment of sugarcane bagasse for enzymatic hydrolysis and fermentation. QUT – SRI	Dr Les Edye	l.edye@qut.edu.au	\$38,000
STU064	Daniel Zamykal - Intelligent data analysis methods from effective integration of Precision Agriculture within the Australian Sugar Industry. JCU	Dr Yvette Everingham	Yvette.everingham@jcu.edu.au	\$32,000
STU065	Milovan Bokan - Abiotic stress tolerant sugarcane: Drought-proofing sugarcane with cell-death protection genes. QUT – SRI	Dr Harjeet Khanna	h.khanna@qut.edu.au	\$32,000

People Development				
Social Capacity				
BCA002	Performance evaluation of SRDC R&D investments	Annette Sugden	asugden@srcd.gov.au	\$40,000
BSS314	Developing an integrated cropping-systems RD&E program for the sugar industry	Dr Peter Allsopp	pallsopp@bses.org.au	\$2,000
BSS315	Conduct an RD&E symposium in the Burdekin	Palmina Bonaventura	pbonaventura@bses.org.au	\$3,070
BSS321	Contrasting broad acre enterprise management of herbicide resistance development with that of the sugarcane industry	Barry Callow	bcallow@bses.org.au	\$5,000
BSS328	Workshop for sugar industry staff on sugarcane disease identification and management	Barry Croft	bcroft@bses.org.au	\$5,000
CG020	Workshop to promote on-farm water quality testing by growers	Eric Danzi	eric_danzi@canegrowers.com.au	\$4,600
CMY003	Computer training for use of AgDat	Janice Nelson	janice_nelson@canegrowers.com.au	\$8,430
CNSW01	New thinking on harvesting sugarcane for co-generation in NSW	Rick Beattie	rbeattie@nswsugar.com.au	\$4,180
CSE016	Sugar communities and resilience to change: Opportunities for enhancing women's participation in sustainability initiatives	Dr Emma Jakku	emma.jakku@csiro.au	\$58,809
CSR042	What can we learn from the Burdekin CPI?	Robin Juffs	RJuffs@csr.com.au	\$5,000
CTF001	Presentations of sugar industry perspectives at CTF 08 Conference in Dubbo	Dr Don Yule	don@ctfsolutions.com.au	\$4,998
FMT001	Farm Business Management Groups: Learning from Victorian, New South Wales and South Australian agricultural development and extension experiences	Andrew Lashmar	alashmar@bigpond.com	\$0
GGN001	Grower Group Network	Chris Aylward	grower-group-services@live.com.au	\$185,001
GGP001	Group Innovation Projects liaison and support	Annette Sugden	asugden@srcd.gov.au	\$1,130
HCP001	The Australian Sugarcane Industry Beyond 2010: Give Day 2009	Errol Cantamessa	ergican@bigpond.net.au	\$4,800
MAP002	Mackay alignment of grower services (MAGS)	Burn Ashburner	burnashburner@maps.org.au	\$20,000
MSF005	Improving productivity and profitability on dry-land cane farms in Maryborough	Andrew Dougall	andrew.dougall@dpi.qld.gov.au	\$4,800
NQB001	Driving value-adding opportunities in the Herbert Region	Anthony Castorina	aecastorina@bigpond.com	\$10,000
SRD025	Supporting regional Generation Next initiatives	Dr Diana Saunders	dsaunders@srcd.gov.au	\$24,118
SRD026	Preparing the Sugar Industry for Climate Change and Emissions Trading Workshop	Dr Diana Saunders	dsaunders@srcd.gov.au	\$523

*Final scholarship project reports received and approved by SRDC in 2008–2009 with final payments made outside of this period.

Appendix D

Final Reports Approved 2008–09

Project	Title	Research Contact	Organisation
Regional Futures			
Value Chain Integration			
CGH002	Enhancing efficiency and integration from field to factory in the Herbert	Peter Sheedy	Canegrowers – Herbert River
CSR033	Benchmarking harvest group practices in the Burdekin	Ian Haigh	CSR Limited
MAS001	A regional partnership approach to developing a sustainable sugar cane system	Alan Rudd	Mossman Agricultural Services
MAS002	Improving harvest efficiency in the Mossman Central Mill area	Darryl Parker	Mossman Agricultural Services
NSC005	Implementing an integrated sugar system in NSW	Rick Beattie	New South Wales Sugar Milling Co-operative
RIR001	Life Cycle Assessment in Rural Industries	Simon Winter	simonwinter@bigpond.com
Regional Futures			
Farming and Harvesting Systems			
BSS257	Grub Plan 2: Developing improved risk assessment and decision-support systems for managing grey back canegrub	Dr Peter Samson	BSES Limited
BSS265	Smut-proofing the Australian industry - ensuring a reliable cane supply through reduced genetic vulnerability to sugarcane smut	Barry Croft	BSES Limited
BSS269	A new cropping system for the Central District	Bradley Hussey	BSES Limited
CPI009	New soybean varieties for fallow cropping of sugarcane fields	Dr Andrew James	CSIRO – Plant Industries
CSE012	Adopting systems approaches to water and nutrient management for future cane production in the Burdekin	Dr Peter Thorburn	CSIRO – Sustainable Ecosystems
CSE020	Ecosystem services in sugarlands: Where are we now and how can they be enhanced?	Dr Peter Thorburn	CSIRO – Sustainable Ecosystems
DPI015	Enhancing an economic way of doing business in the cane industry	Mark Poggio	QDPI&F
GGP012	Researching soil health and economics of two farming systems in the Herbert River district	Michael Waring	Grower Group Services
GGP015	Development of a precision mill mud applicator for a new farming system	Jeff Atkinson	Grower Group Services
GGP019	Increasing productivity and profitability in soldier fly-affected crops in the Pioneer Valley	Paul Argent	Grower Group Services
GGP020	Beach Sand to Black Clay - Adapting technology and best practice for Homebush farming conditions	Tony Bugeja	Grower Group Services
GGP024	Validation of fibre cropping in rotation with sugar cane by Mackay Fibre Producers	Joe Muscat	Grower Group Services
GGP026	Implementation of a 2M Farming System	Rajinder Singh	Grower Group Services
GGP040	Build a prototype planter suitable for planting peanuts into uncultivated Cane Trash Blanket	Don Halpin	Grower Group Services

NSC012	Single drum harvester chopper development	Dr Bruce Lamb	NSW Sugar Milling Co-operative
QUT021	Assessment of a low-cost analyser for on-line monitoring of sugar in process water streams	Darryn Rackemann	Queensland University of Technology
PCS002	Enhancing trap cropping techniques for greyback canegrub in rain-fed cane	Jackie Richters	Plane Creek Productivity Services
WAA003	Evaluation and Implementation of modified farming systems in the ORIA	Dr Joe Sheppard	Western Australia Department of Agriculture

Regional Futures

Transport, Milling and Marketing Systems

MUL002	Evaluation of new clarification technologies for improved factory operation and overall sugar quality	Glenn Pope	Mulgrave Central Mill
QUT019	Improved train safety through improved locomotive braking performance	Dr Geoff Kent	Queensland University of Technology

Emerging Technologies

Genetics and Breeding Systems

CRC009	High early sugar varieties: improved selection methods and marker-assisted breeding	Dr Barrie Fong Chong	CRC for Sugar Industry Innovation Through Biotechnology
CRC010	Testing the sucrose accumulation model	Dr Rosanne Casu	CRC for Sugar Industry Innovation Through Biotechnology
CRC011	Production of PHB/PHAs in sugarcane plants	Dr Stephens Brumley	CRC for Sugar Industry Innovation Through Biotechnology

Emerging Technologies

Farming, Harvesting, Transport, Milling and Marketing Systems

CRC007	Bioactive natural products from sugarcane	Assoc Prof David Leach	CRC for Sugar Industry Innovation Through Biotechnology
NCA010	Development of a prototype precision spot spray system using image analysis and plant identification technology	Mr Steven Rees	National Centre for Engineering in Agriculture

People Development

Individual capacity

AANR01	Australian Agriculture and Natural Resource Online	Dr Diana Saunders	SRDC
BSS308	Improving the economic analysis skills of NSW farmers using FEAT	Peter McGuire	BSES Limited
BSS316	Develop a variety exchange program with Mitr Phol Thailand	Dr George Piperidis	BSES Limited
BSS317	Travel to the ISSCT Pathology and Molecular Biology workshop	Dr Kathy Braithwaite	BSES Limited
BSS320	Conference to improve the efficiency of extension service provision through building individual capacity and the organisational adoption of best-practice methodology	Dr Peter Allsopp	BSES Limited
BSS322	Quality control and diagnostic procedures for quarantine and tissue culture based propagation systems	Dr Nicole Thompson	BSES Limited

BSS323	Travel to the International Congress of Entomology and SASRI	Dr Kerry Nutt	BSES Limited
BSS324	Attend XXIV International Biometrics Conference, University College Dublin	Dr Joanne Stringer	BSES Limited
LDI001	Developing the leadership capacity of the Australian Sugar Industry	Cheryl Philips	Leading Industries
NCT003	Travel to Egypt and China to attend and present at two international conferences	Robert Quirk	NSW Cane Growers Council
NSC015	Sugar Processing Research Institute Conference on sugar processing research	Stephen King	New South Wales Sugar Milling Co-operative Ltd
NSC016	ISSCT Engineering Workshop: Design, manufacturing and maintenance of sugar mill equipment	Steven Scott	New South Wales Sugar Milling Co-operative Ltd
NSC017	ISSCT Workshop on Green cane impact on sugar processing	David Moller	New South Wales Sugar Milling Co-operative Ltd
NQB001	Driving value-adding opportunities in the Herbert Region	Anthony Castorina	North Qld Bioenergy
QUT023	Automation of the clarifier and filter stations	Rod Steindl	Queensland University of Technology
RDA005	Rewarding an innovation culture in the Australian sugar industry	Carolyn Martin	SRDC
SRI130	Technology transfer - more skilled factory staff via troubleshooting help manuals and access to SRI modelling software	Rod Steindl	Queensland University of Technology
STU015	* Andrew Ward - The development of a decision support system for sustainable management of grey back canegrub	Dr Diana Saunders	James Cook University
STU016	* Graeme Cox – Yield mapping system for sugarcane	Dr Diana Saunders	The University of Southern Queensland
STU023	* Laurelea Pickering – Trans gene mediated resistance to sugarcane mosaic virus	Dr Diana Saunders	University of Queensland
STU027	* Stuart McCarthy – Automatic control of topper height.	Dr Diana Saunders	University of Southern Queensland
STU039	* Elizabeth Meier - The availability of nitrogen in GCTB soils in the wet tropics and its impact on productivity and profitability	Dr Diana Saunders	Australian National University
STU040	* Jason Perna Measuring soil bulk density in the field	Dr Diana Saunders	University of Queensland
STU045	* Kevin Greenwood A web-based siding allocation system	Dr Diana Saunders	Central Queensland University
STU049	* Peter Wulf - Self-regulatory codes of practice & their effectiveness in achieving best environmental management practices within NQ primary industries. - UQ	Dr Ann Peterson	University of Queensland
STU050	* Mira Durr - Microbiology of acid sulfate soils in agricultural environments. ANU	Prof Ian White	Australian National University
STU061	Palmina Bonaventura - Communicate to advance and innovate	Dr Peter Allsopp	BSES Limited and James Cook University

People Development

Social capacity

BSS314	Developing an integrated cropping-systems R,D&E program for the sugar industry	Dr Peter Allsopp	BSES Limited
BSS315	Conduct an R,D& E symposium in the Burdekin	Palmina Bonaventura	BSES Limited
CG020	Workshop to promote on-farm water quality testing by growers	Eric Danzi	Canegrowers
CMY003	Computer training for use of AgDat	Janice Nelson	Canegrowers - Mackay
CNSW01	New thinking on harvesting sugarcane for co-generation in NSW	Rick Beattie	NSW Cane Growers Council
CSE016	Sugar communities and resilience to change: Opportunities for enhancing women's participation in sustainability initiatives	Dr Emma Jakku	CSIRO – Sustainable Ecosystems
CSR042	What can we learn from the Burdekin CPI?	Robin Juffs	CSR Limited
CTF001	Presentations of sugar industry perspectives at CTF 08 Conference in Dubbo	Dr Don Yule	Australian Controlled Traffic Farming Association
FMT001	Farm Business Management Groups: Learning from Victorian, New South Wales and South Australian agricultural development and extension experiences	Andrew Lashmar	Farm Management Solutions
GGP001	Grower Group Innovation Projects liaison and support	Annette Sugden	SRDC
MSF005	Improving productivity and profitability on dry-land cane farms in Maryborough	Andrew McDougall	Maryborough Sugar Factory
QUT034	Assessing the latest developments in factory equipment design, manufacturing and maintenance for the benefit of the Australian sugar milling industry	Dr Geoff Kent	Queensland University of Technology
SRD025	Supporting regional Generation Next initiatives	Dr Diana Saunders	SRDC
SRD026	Preparing the sugar industry for climate change – emissions trading workshop	Dr Diana Saunders	

* Final scholarship project reports received and approved by SRDC in 2008–2009 with final payments made outside of this period.

Appendix E

Published Papers and Publications

(includes proceedings of the *Australian Society of Sugar Cane Technologists 2009 papers*)

Atkin, F., Stringer, J., Dieters, M. (2009) Interplot competition between sugarcane families significantly affects estimates of cane yield and family selection, *Australian Society of Sugar Cane Technologists*.31:326-331

Attard, S. J., Inman-Bamber, N. G., Hesp, C. (2009) Use of overhead irrigation in the lower Burdekin uses less water and does not penalise yield. *Australian Society of Sugar Cane Technologists* 31:230-239

Attard, S., Thorburn, P., Biggs, J., Kemei, J., Anderson, T. (2009) Improved understanding of water and nitrogen management in the lower Burdekin. *BSES Bulletin* 22:17-20.

Barnes, M. G., Loughran, J. G., Whiteing, C., Lamb B. W. (2009) Development and testing of a sugarcane harvester single drum chopper system, *Australian Society of Sugar Cane Technologists* 31:546-555

Bhuiyan, S. A., Croft, B. J., Cox, M. C. (2009) Survival of sugarcane smut teliospores under south east Queensland conditions. *Australian Society of Sugar Cane Technologists 2009* 31:135-144

Bhuiyan, S. A., Croft, B. J., Cox, M.C., Bade, G. (2009) Some biological parameters of the sugarcane smut fungus, *Ustilago scitaminea*. *Australian Society of Sugar Cane Technologists 2009* 31:125-134

Bonaventura, P. (2009) Sing like no one can hear you, dance like no one can see you but write like everyone will read you. *Australian Society of Sugar Cane Technologists* 31: 73-84

Boseley, B., Casu, R. E. (2009) Development of an ontology to aid sugarcane research.

Australian Society of Sugar Cane Technologists 31: 250-255

Botha, F.C. (2009) Energy yield and cost in a sugarcane biomass system. *Australian Society of Sugar Cane Technologists* 31: 1-10

Braithwaite, K. S., Croft, B. J., Magarey R. C., Scharaschkin, T. (2009) Phylogenetic placement of the sugarcane orange rust pathogen *Puccinia kuehnii* in a historical and regional context, *Australasian Plant Pathology*, 38:380–388

Clarke, M. (2009) Farm Health and Safety Research Compendium, *RIRDC Publication no. 09/065*

Coventry, R. J., Pollock, D. C., Hughes, J. R., Di Bella L. P. (2009) A role for soil EM mapping in precision agricultural practices for sugarcane production. *Australian*

Society of Sugar Cane Technologists 31:265-273

Drummond, F., Samson, P. and Chandler, K. (2008) A simulation model of the greyback canegrub and its pathogens, with special emphasis on *Metarhizium anisopliae*. XXIII International Congress of Entomology, Durban, South Africa, 6-12 July.

Everingham, Y.L., Zamykal, D., McKinna, L. I. (2009) Rain Forecaster - a seasonal climate forecasting tool, *Australian Society of Sugar Cane Technologists* 31:50-64

Fragar, L. (2009) Achieving Safety Change on Australian Farms – Using new and established pathways to improve adoption. *RIRDC Publication No. 09/053*

Garside, A. L., Bell, M.J., (2009) Row spacing and planting density effects on the growth and yield of sugarcane. 1. Responses in fumigated and non-fumigated soil. *Crop and Pasture Science* 60:532-543.

Garside, A. L., Bell, M.J., (2009) Row spacing and planting density effects on the growth and yield of sugarcane. 1. Responses with different cultivars. *Crop and Pasture Science* 60:555-565.

Garside, A.L., Bell, M.J., Robotham, B.G., (2009) Row spacing and planting density effects on the growth and yield of sugarcane. 2. Strategies for the adoption of controlled traffic. *Crop and Pasture Science* 60:544-554.

Garside, A. L., Poggio, M. J., Park, G., Salter, B., Perna, J. (2009) Long-term Ingham and Mackay farming system experiments: comparisons between permanent non-tilled beds and re-formed beds, *Australian Society of Sugar Cane Technologists* 31:282-295

Haines, M.G., Inman-Bamber, N.G., Attard, S.J., and Linedale, A.I. (2008) Enhancing irrigation management planning with enviroscan and WaterSense. *Irrigation Australia Conference*. 10p

Harris, S. and Narayanaswamy, V. (2009) Life Cycle Assessment Methodology for Australian Rural Industries, *RIRDC Publication no. 09/028*

Harris, S. and Narayanaswamy, V. (2009) A Literature review of Life Cycle Assessment in Agriculture, *RIRDC Publication no. 09/029*

Inman-Bamber, N.G., Attard, S.J., Haines, M.G., and Linedale, A.I. (2008) Deficit irrigation in sugarcane using the WaterSense scheduling tool. *Irrigation Australia Conference*. 9p

Kent, G. A. and Scott, S. J. (2009) Design, manufacturing and maintenance of sugar milling equipment: Observations from the 2008 ISSCT engineering workshop. *Australian Society of Sugar Cane Technologists* 31:481-488

King, S. (2009) The SPRI conference on sugar processing research: observations, learnings and their application to the Australian industry. *Australian Society of Sugar Cane Technologists* 31: 470-480

Magarey, R. C., Bade, G., Braithwaite, K. S., Croft, B.J., Lonie, K. J. (2009) Smut spore trapping studies conducted in Australian east coast production areas in late 2007–2008, *Proceedings of the Australian Society of Sugar Cane Technologists* 31:158-165

Magarey, R. C., Denney, D., Sheahan, T., Fowell, L., Croft, B. J., Lonie, K. J., Bull, J. I., Bhuiyan, S., Willcox, T. G. (2009) Results from smut epidemiology studies in the Herbert, Mackay and Bundaberg-Isis areas in 2007–2008. *Australian Society of Sugar Cane Technologists* 2009 31:145-157

Maldonado, D.P. and Troedson, R. J. (2009) Success factors in research collaboration: lessons from the Sugar Yield Decline Joint Venture, *Australian Society of Sugar Cane Technologists* 31: 39-49

Mankin, R.W., Moore, A., Samson, P.R. and Chandler, K.J. (2009) Acoustic characteristics of dynastid beetle stridulations. *Fla. Entomol.* 92, 123-133.

Mankin, R. W., Samson, P. and Chandler, K. (2008) Feasibility of acoustic detection for greyback canegrub detection and management. *XXIII International Congress of Entomology*, Durban, South Africa, 6-12 July.

Mankin, R.W., Samson, P. R., Chandler, K. J. (2009) Acoustic Detection of Melolonthine Larvae in Australian Sugarcane, *Journal of Economic Entomology* 102 (4) 1523-1535

Markley, J., Griffin, K., Everitt, P., Young, N. (2009) The development of electronic consignment bin recording, *Australian Society of Sugar Cane Technologists* 31:568-579

Millard, D., Croft, B., Cox, M., Payne D. (2009) Development of a web-based decision-support tool and information resource for sugarcane varieties in the Australian sugar industry. *Australian Society of Sugar Cane Technologists* 31:316-325

Parr, J., Sullivan, L. and Quirk, R. (2008) Sugarcane Phytoliths: Encapsulation and Sequestration of a long-lived carbon Fraction. *The International Association of Professionals in Sugar and Integrated Technologies*. Egypt, September 2008.

Purcell, D.E., O'Shea, M.G. and Kokot, S. (2009). Complex biopolymeric systems at stalk/epicuticular wax plant interfaces – an NIRS study of the sugarcane example. *Biopolymers*, 91(8):642-651.

Quirk, R. et al (2008) Integrated practice for an Improved Sustainable, Sub-Tropical Sugarcane Industry: a case study. *The International Association of Professionals in Sugar and Integrated Technologies*. Egypt, September 2008.

Quirk, R., Melville, M., Kinsela, A., Reynolds, J., Zwemer, T., Hancock, M., Macdonald, B., and White, I. (2009). Treatment of drainage from acidic canelands using a constructed wetland. *Sugar Tech*. 11(1): 73-76.

Quirk, R. G., Melville, M. D., White, I., Macdonald, B. C. T., Kinsela, A. S., Zwemer, T. G. (2008) Integrated Management of Acid Sulfate Soils Improve Drainage, Water Quality, Sugar Cane Yields and Cuts Inputs *Proceedings of the 6th International Acid Sulfate Soil Conference and Acid Rock Drainage Symposium*, China, September 2008.

Quirk, R. G., Melville, M. D., White, I., Macdonald, B. C. T., Kinsela, A. S., Zwemer, T. G. (2008) Acid Sulfate Soils :Their Drainage ,Oxidation, and Best Management *Proceeding 6th Acid Sulfate Soil Conference and Acid Rock Drainage Symposium*, China, September 2008

Quirk, R. G., Melville, M. D., White, I., Macdonald, B. C. T., Kinsela, A. S., Zwemer, T. G. (2008) Treatment of Drainage from Acid Sulfate Soils Using a Constructed Wetland 218-223 *Proceeding 6th Acid Sulfate Soil Conference and Acid Rock Drainage Symposium*, China, September 2008

Quirk, R. G., Melville, M. D., White, I., Macdonald, B. C. T., Kinsela, A. S., Zwemer, T. G. (2008) Treatment of Drainage from Acidic Cane Lands using a Constructed Wetland 40-43 of the proceeding *The International Association of Professionals in Sugar and Integrated Technologies*. Egypt, September 2008.

Rose, P., McRae, S., Codina, G., (2009) SHIRT – real time supply chain information for harvester managers, *Australian Society of Sugar Cane Technologists 31:365-371*

Ruxton, A. B. and Grabau, P. J. (2009) Automating harvester and haul-out forward progression during harvest using RTK-GPS, *Australian Society of Sugar Cane Technologists 31:355-364*

Samson, P., Sallam, M., Chandler, K. and Drummond, F. (2008) A prediction system for greyback canegrub, *Dermolepida albohirtum*, to aid growers' management decisions. *XXIII International Congress of Entomology*, Durban, South Africa, 6-12 July.

Sallam, M. and Samson, P. (2008) GrubPlan: A greyback canegrub monitoring program in Australian sugarcane fields. *XXIII International Congress of Entomology*, Durban, South Africa, 6-12 July.

Satje, A. and Nelson, P. (2009) Bentonite treatments can improve the nutrient and water holding capacity of sugarcane soils in the wet tropics. *Australian Society of Sugar Cane Technologists 31:166-176*

Schroeder, B. L., Hurney, A. P., Wood, A. W., Moody, P. W., Calcino, D. V., Cameron, T. (2009) Alternative nitrogen management strategies for sugarcane production - in Australia: the essence of what they mean. *Australian Society of Sugar Cane Technologists 2009 31: 93-103*

Schroeder, B.L., Wood, A. W., Park, G., Panitz, J. H. Stewart, R. L. (2009) Validating the 'Six



Easy Steps' nutrient management guidelines in the Johnstone catchment, - *Australian Society of Sugar Cane Technologists* 31:177-185

Thomas, W. H. P. (2009) Online shedmeetings: experiences producing video webcasts that showcase sugar industry best practice. *Australian Society of Sugar Cane Technologists* 31:240-249

Thorburn, P. J., Webster, A. J., Biggs, J. S., Biggs, I. M. (2009) Nitrogen needs of sugarcane crops: lessons from testing the N replacement concept, *Australian Society of Sugar Cane Technologists* 31:104-115

Appendix F

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).

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, Grower Group Innovation and Capacity Building 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 2008–09

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:

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 G

Abbreviations

ACFA	Australian Cane Farmers' Association
ACGC	Australian Cane Growers' Council
ASSCT	Australian Society of Sugarcane Technologists
DAFF	Australian Government Department of Agriculture Fisheries and Forestry
DAFWA	Department of Agriculture and Food, Western Australia
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
CPPB	Cane Protection and Productivity Board
CP2002	Cross Program Activity CP2002
CRC	Cooperative Research Centre
CRCSIIB	Cooperative Research Centre for Sugar Industry Innovation through Innovation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
FEAT	Farm Economics Assessment Tool
FMS	Farm Management Systems
GGIP	Grower Group Innovation Project
GIS	Geographical Information System
GPS	Global Positioning Service
GVP	Gross Value of Production (of sugarcane)
HGIP	Harvester Group Innovation Project
IGG	Industry Guidance Group
IP	Intellectual Property
IPM	Integrated Pest Management
ISSCT	International Society of Sugar cane Technologists
JCU	James Cook University
LWA	Land and Water Australia
MCV(P)	Managing Climate Variability (Program)
NSW	New South Wales
NSWSMC	New South Wales Sugar Milling Cooperative
OH&S	Occupational Health and Safety
ORIA	Ord River Irrigation Area
PBS	Portfolio Budget Statement
PIERD Act	Primary Industries and Energy Research and Development Act 1989
QDPI&F	Queensland Department of Primary Industries and Fisheries
QDNRM	Queensland Department of Natural Resources and Mines
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@QUT	Sugar Research Institute at Queensland University of Technology
SYDJV	Sugar Yield Decline Joint Venture
TLOP	Travel and Learning Opportunity Project
UQ	University of Queensland
WIS	Women in Sugar

Appendix H

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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	

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Notes





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