Cooperative Research Centre for National Plant Biosecurity

CRC PLANTbiosecurity

Annual Report

2006-07

Established and supported under the Australian Government's Cooperative Research Centres Programme

about CRC PLANTbiosecurity

The Cooperative Research Centre for National Plant Biosecurity is the central coordinating body for plant biosecurity research across all Australian states and territories.

CRC Plant Biosecurity is a cooperative venture between the following (core and supporting) Participant organisations, established and supported under the Australian Government's Cooperative Research Centres Programme.

Core Participants:

- Department of Agriculture and Food, Western Australia
- Grains Research and Development Corporation
- Department of Primary Industries, Victoria
- New South Wales Department of Primary Industries
- Murdoch University
- CSIRO
- Queensland Department of Primary Industries & Fisheries
- Queensland University of Technology
- Commonwealth Department of Agriculture, Fisheries and Forestry
- Saturn Biotech Limited
- Charles Darwin University
- South Australian Research and Development Institute
- Plant Health Australia Ltd

Supporting Participants:

- University of Adelaide
- Horticulture Australia Limited
- Northern Territory Department of Primary Industry, Fisheries and Mines
- Southern Cross University
- University of Western Australia

OUR VISION is to be a world leader in the generation, development and delivery of plant biosecurity science and education.

OUR MISSION is to foster scientific collaboration and engage stakeholders to deliver plant biosecurity technologies that will reduce risk to, and ensure sustainability of, Australia's plant industries.

Contact CRC Plant Biosecurity

2/4 Phipps Close, Deakin ACT 2600
+61 (0)2 6163 6200
+61 (0)2 6162 1297
info@crcplantbiosecurity.com.au
crcplantbiosecurity.com.au

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COVER IMAGE Khapra beetle (*Trogoderma granarium*), a biosecurity threat to Australia's stored grain industry.

During 2006-07, CRC Plant Biosecurity was successful in its bid for supplementary funding from the CRC Programme, which will result in new projects to reduce the biosecurity threat presented by stored grain pests, including Khapra beetle.

This image was provided courtesy of PaDIL, an online pest and disease image library that the CRC has partnered to deliver new biosecurity tools to biosecurity professionals. www.padil.gov.au

“strengthening plant health”

The Hon. Peter McGauran, MP, Minister for Agriculture, Fisheries and Forestry
CRC Plant Biosecurity Launch
Parliament House, Canberra, 4 September 2006

EXECUTIVE SUMMARY

The CRC for National Plant Biosecurity's second year of operation continues a period of rapid expansion for the Centre. Highlights from 2006-07 are summarised below and more detail is provided throughout this report.

Centre officially launched

CRC Plant Biosecurity was officially launched by the Hon. Peter McGauran, MP, Minister for Agriculture, Fisheries and Forestry at Parliament House in Canberra on 4 September 2006.

New Centre Participants

CRC Plant Biosecurity welcomed two new Participants in 2006-07:

- Queensland University of Technology (core Participant)
- University of Western Australia (supporting Participant)

La Trobe University will also join the CRC as a core Participant during 2007-08. The addition of these organisations to the CRC's Participant base will fill strategic gaps in the CRC's research capacity, both in terms of skills and locations.

Successful Supplementary Bid

The CRC was successful in a Supplementary Bid to the CRC Programme in 2006. The success of this bid reflects the increasing biosecurity needs of the grains industry, particularly relating to insects in stored grain, and introduces a new "Post-Harvest Integrity" program to the Centre's research portfolio from 1 July 2007.

As a result of this bid, the CRC will welcome four more new Participants in 2007-08, plus increased investments from five existing CRC Participants:

- Co-operative Bulk Handling Ltd (core Participant)
- ABB Grain Ltd (core Participant)
- GrainCorp Operations Ltd (core Participant)
- Charles Sturt University (supporting Participant)
- GRDC (existing core Participant)
- CSIRO (existing core Participant)
- QDPI&F (existing core Participant)
- DAFWA (existing core Participant)
- NSWDPI (existing core Participant)

The CRC's investment in biosecurity research and education will increase from approximately $70 million to $100 million as a result of these new partnerships.

Continued research growth

Efforts have continued to build the Centre's existing research and education programs, while at the same time developing an integrative research strategy for the new grains industry projects that will come on board in 2007-08. As of 30 June 2007, the Centre had 40 active research projects (including 18 PhD and Honours projects), with 11 due to begin in 2007-08 and a further 12 currently under development. A large number of research projects for the grains industry are also anticipated for development during 2007-08.

Contracting difficulties on projects have delayed two research and education milestones during the reporting period, an issue that had been flagged in last year's Annual Report. The CRC has introduced a more streamlined contracting system to mitigate this problem in future years and is taking steps to ensure that the Centre's organisational structure is adequate to meet the increased workload presented by the new grains industry research in 2007-08. The Centre appointed its Delivery and Adoption Program Leader in December 2006, a position that will assist the Centre in meeting its future commitments.

Expanding international linkages

The CRC has continued its focus on developing linkages with other research organisations, both in Australia (such as with the Centre of Excellence for Risk Analysis and National ICT Australia) and internationally (such as through Quads). New international research linkages were formalised in 2006-07 with the University of Mahasaraswati in Indonesia, and with ACIAR and Thailand's Department of Agriculture on a project which aims to identify investment strategies for future plant biosecurity research in Thailand. The Centre was also successful in establishing a new linkage with a number of European Union and New Zealand organisations through the successful EU 7th Framework Pratique consortium, presenting considerable opportunities for future collaborations. The CRC will be looking to capitalise on these linkages with new partnership research projects being developed in 2007-08.

CHAIRMAN'S REPORT

The year has been marked by a number of important milestones along the Centre's road to promoting plant biosecurity, built on science.

On 4 September 2006, the Cooperative Research Centre for National Plant Biosecurity (CRCNPB) was formally launched in the Mural Hall of Parliament House by the Minister for Agriculture, Fisheries and Forestry, the Hon. Peter McGauran, MP. In his remarks, the Minister recognised the increasingly high profile of biosecurity in a shrinking world, where communications are rapid and breaches of biosecurity increasingly likely.

Following the launch, attention immediately turned to developing the Centre's Supplementary Bid. Although early in the life of the CRCNPB, interest in biosecurity by the downstream sector of the grains industry stimulated an approach to DEST which was successful. In addition to substantially boosting the Centre's financial resources, the entry of three large commercial entities (ABB Grain Ltd; Co-operative Bulk Handling Ltd; and Graincorp Operations Ltd) strongly supported the performance-oriented approach taken by the independent, skills-based Board of the CRCNPB. Five existing Participants (CSIRO, GRDC, DAFWA, NSWDPI and QDPI&F) added further resources as part of the bid, and Charles Sturt University was admitted as a supporting Participant. Perhaps the most significant outcome of the Supplementary Bid is that the CRCNPB now presents as a Centre which is dealing with plant biosecurity science on a whole-of-value-chain basis.

The Board's strategic intent to fill gaps in the Centre's coverage, both intellectual and geographic, has been further advanced by the admission of the Queensland University of Technology, the University of Western Australia, and La Trobe University (during 2007-08).

A milestone of great significance was the successful completion of the Centre's First Year Review. Particularly pleasing was commendation of the Centre for recruiting a completely independent Board and for meeting DEST's expectations in respect of reporting. Attention is now turning to meeting the rigours of the Third Year Review where the Centre's commitment to delivery of outcomes will certainly be tested.

The Centre has been well served by its Science Coordinator and Program Leaders who have moved the science programs from the 'start-up' phase to project development and initiation. Particularly pleasing has been the ability to attract PhD students in a highly competitive marketplace.

The CRCNPB's inaugural Biosecurity Symposium was held in Canberra on 5 and 6 September 2006. Honours and postgraduate students, industry and Participant representatives, Centre management and members of the Board all contributed to a stimulating program which further enhanced the profile of national plant biosecurity.

A further milestone for the CRC has been the initiation and/or strengthening of international initiatives with Australia's near neighbours, including Indonesia, Malaysia, New Zealand and Thailand. These linkages are an essential contribution to enhancing the nation's capability to deal with emerging pre-border plant biosecurity risks.

In conclusion, it is pleasing to be able to report continued strong support from the CRCNPB's Participant community. Participants meetings, by teleconference and face-to-face, have provided for robust, positive and constructive discussion. To consolidate Participant relations, the Board has included visits to key sites as part of its quarterly meetings. This initiative also provides for Centre strategy to be overtly linked to CRCNPB science in the laboratory and the field, emphasising that plant biosecurity is built on science.

Professor John Lovett
CHAIRMAN

CEO's REPORT

The 2006-07 year saw significant advances in the activities of CRC Plant Biosecurity, most notably through the success of our Supplementary Bid in late 2006. This success brings new research for the post-harvest grains industry into the CRC, resulting in a substantial increase to the Centre's research portfolio from 1 July 2007. New projects arising from this investment will be fully integrated across the CRC, and a new Post-Harvest Integrity research program will be created to cater for the Centre's increased focus on post-harvest threats to biosecurity.

The success of the past year's activities is due to the efforts of a number of people and I would like to particularly acknowledge the Science Committee for its contribution. The Program Leaders and Science Coordinator are developing a large portfolio of projects that promise to produce world-class research for the benefit of Australia's plant industries. Collaboration is fundamental to plant biosecurity, and the CRC's Program Leaders have demonstrated strong leadership in developing project linkages amongst the Centre's Participants and identifying synergies with other research organisations, both within Australia and internationally.

A full list of the CRC's 40 active projects over 2006-07 is provided on pages 24-25 of this report. Several projects are worthy of special note following their achievements over the reporting period. Project CRC40016 (Pathogen Eradication Strategies), led by Dr Mark Sosnowski, has made significant steps towards developing new technology that will minimise the costs of future pest eradications in perennial crops. This project has developed strong linkages with industry and with researchers overseas.

Projects CRC30023 (Smart Trap Technology) and CRC30015 (Hyperspectral Pathogen Detection) are being undertaken cooperatively with National ICT Australia (NICTA). These projects are developing cutting-edge detection technologies that can be applied to biosecurity surveillance. Leadership for these projects is being provided by Dr Louise Morin (CRC30023), and Ms Alison Mackie and Dr Shane Hetherington (CRC30015).

Project CRC20012 (National Diagnostic Database), led by Dr Gary Kong, is developing a world-class diagnostic database to support Australia's biosecurity system and has achieved strong support from government agency end-users.

Being our first full year of operation, the CRC has invested a great deal of time and effort towards implementing the policies and processes that are required to ensure effective governance of the Centre. The overarching objective of the CRC's management processes is to provide effective governance of the Centre while minimising the administrative impact on our members. I acknowledge the efforts of the Centre's Management team and Participants in supporting this process.

A continuing challenge for the CRC is the development of a research portfolio that includes a balance of short, medium and long-term outcomes for industry. Even though most of our projects are still at early stages of research, successful delivery and adoption of CRC outputs remains our foremost concern. The imperatives of maintaining Australia's favourable biosecurity status and market access are strong drivers for all activities undertaken at the CRC and the need to support our pest-free status with scientific evidence will continue to increase in the years ahead.

Dr Simon McKirdy
CHIEF EXECUTIVE OFFICER

INDUSTRY CONTEXT

Context and Major Developments During the Year

The CRC for National Plant Biosecurity operates within the agricultural sector, developing research and education products to ensure Australia's continued biosecurity and, thus, access to global markets. During 2006-07, Australia's agricultural industries faced continued pressure from widespread severe drought as well as a number of pest and disease incursions nationally. For the moment at least, the economic impact of the drought on farmers has not affected the CRC's level of industry funding nor its ability to meet milestones, but this situation may change in future years should the drought continue.

The CRC's biosecurity context means that Participants' in-kind resources often need to be redirected to deal with emergency plant pest incursions as they occur. Given the CRC's national focus, almost all plant pest incursions across Australia during 2006-07 have had some impact on the CRC's research capacity, and the diversion of key staff to deal with an outbreak of Khapra beetle in Perth in April 2007 has had a serious impact on progress of one CRC research project. This situation has now been resolved and the Centre will make every effort to make up for delays in 2007-08.

Key CRC Changes

- *Appointments of key staff during 2006-07.*
  Ms Sue McKell commenced as Communications Manager / Delivery and Adoption Program Leader on 1 December 2006.

- *Staff departures during 2006-07.*
  Mr Sangarapillai (Sunther) Suntheraraj departed from the position of Business Manager on 4 June 2007.

- No major equipment was purchased during the year.

NATIONAL RESEARCH PRIORITIES

The CRC for National Plant Biosecurity is making a major contribution towards Australia's national research priorities and, in particular, the "Safeguarding Australia" priority to protect Australia from invasive diseases and pests. The proportion of CRC research that relates to national research priorities and goals are outlined in the table below.

Table 1: National Research Priorities and CRC Research

NATIONAL RESEARCH PRIORITIES	CRC RESEARCH (%)
FRONTIER TECHNOLOGIES FOR BUILDING AND TRANSFORMING AUSTRALIAN INDUSTRIES *Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research*	
Frontier technologies	3
Smart information use	4
Promoting an innovation culture and economy	3
SAFEGUARDING AUSTRALIA *Safeguarding Australia from terrorism, crime, invasive diseases and pests, strengthening our understanding of Australia's place in the region and the world, and securing our infrastructure, particularly with respect to our digital systems*	
Protecting Australia from invasive diseases and pests	90

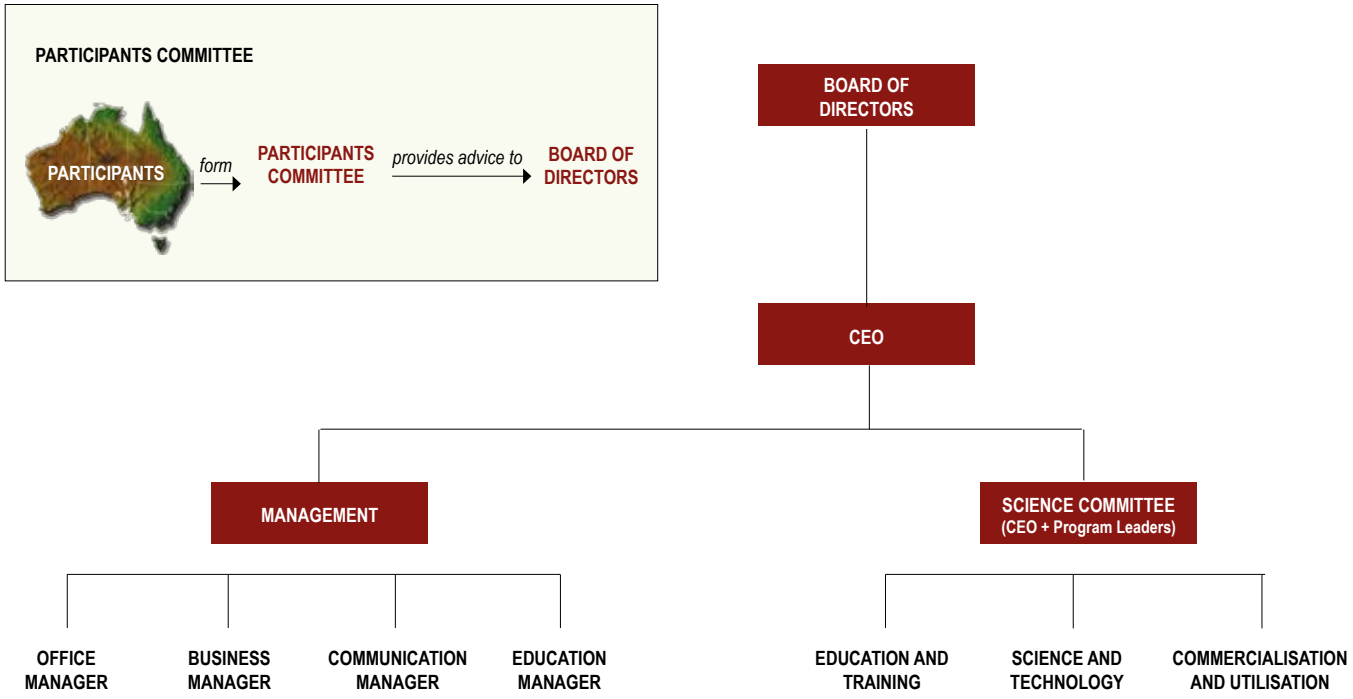
Biosecurity Research & Education for Australia's Plant Industries

GOVERNANCE AND MANAGEMENT

CRC PLANT biosecurity

ORGANISATIONAL STRUCTURE

FIGURE 1: CRCNPB ORGANISATION CHART



BOARD OF DIRECTORS

- CRC Plant Biosecurity's Board develops and oversees delivery of the Centre's strategic objectives. The CRC's independent, skills-based Board was established with careful consideration to ensure a broad spectrum of expertise and to maximise the Board's input to CRC direction and management.
- Changes to membership during 2006-07: none.
- Board meetings held during 2006-07:
  - 4 September 2006 (Canberra)
  - 14 November 2006 (Canberra)
  - 20 February 2007 (Adelaide)
  - 14 May 2007 (Perth)
- Attendance at Board meetings held during 2006-07 (apologies indicated in red):

Prof John Lovett	■	■	■	■
Mr Barry Windle	■	■	■	■
Ms Christine Campbell	■	■	■	■
Dr Jim Cullen	■	■	■	■
Prof John Irwin	■	■	■	■
Dr Peter Merriman	■	■	■	■
Mr Chris Richardson	■	■	■	■
Dr Simon McKirdy (CRCNPB CEO)	■	■	■	■

GOVERNANCE

CRC PLANT BIOSECURITY: BOARD PROFILES

- CRC Plant Biosecurity Board Membership:
  - Prof John Lovett (Chairman)
  - Mr Barry Windle (Deputy Chairman)
  - Ms Christine Campbell
  - Dr Jim Cullen
  - Prof John Irwin
  - Dr Peter Merriman
  - Mr Chris Richardson

» Professor John Lovett (Chairman)

Term of office: *Chair of the Board since 1 July 2005.*

Key skills: *Leadership in plant science research.*

Independent: *Yes*

Experience: *Executive Board member: Global Crop Diversity Trust (2007). Chair: CRC for Greenhouse Accounting (2004-2006). Chair: Agrifood Awareness Australia Ltd (2003). Board member: HRZ Wheats Pty Ltd. Managing Director: Grains Research and Development Corporation (1994–2003). President: Australian Agronomy Society (1990-1993). Professor of Agronomy: University of New England (1987–1993). Professor of Agricultural Science: University of Tasmania (1984–1987).*

Board Committee Membership: *None*

» Mr Barry Windle (Deputy Chairman)

Term of office: *Deputy Chair since 1 July 2005.*

Key skills: *Leadership in plant science research.*

Independent: *Yes*

Experience: *Executive Director: Agriculture, Food and Fisheries, Primary Industries and Resources SA (PIRSA) (2002–August 2004). Senior Executive: PIRSA (1993–2002). Acting Chief Executive: PIRSA (2002). General Manager: Agricultural Industries (1995–1997). Principal Horticulturist and General Manager Horticulture (1988–1993). Horticultural Development Consultant: World Bank, India (1989–90).*

Board Committee Membership: *None*

» Ms Christine Campbell

Term of office: *Director since 1 July 2005.*

Key skills: *Leadership in finance and management for the plant industries.*

Independent: *Yes*

Experience: *Executive Chair: Twynam Agricultural Group. Australian Cotton Industry Council (2002–2005). Chair: Cotton Australia (2001–2003). Private Sector Advisory Panel to International Cotton Advisory Council (2004–2005). Director: Cotton Australia (1999–2005). CEO: Twynam Agricultural Group (1986). Financial Controller: Twynam Agricultural Group (1977).*

Board Committee Membership: *Finance and Audit Committee (Chair)*

» Dr Jim Cullen

Term of office: *Director since 1 July 2005.*

Key skills: *Leadership in plant science research.*

Independent: *Yes*

Experience: *Member: Quarantine & Exports Advisory Council (1997–2003). Chief: CSIRO Entomology (1997–2002). Board Member: CRC for Australian Weed Management (Weed Management Systems) (1995–2002) (Acting Director 1995). Member: Australian Weeds Committee (1988–2002). External Advisor (Science & Research): Environmental Risk Management Authority NZ (2002). President: Australian Entomological Society (1997–2000).*

Board Committee Membership: *None*

» Professor John Irwin

Term of office: *Director since 1 July 2005.*

Key skills: *Leadership in plant science research and education.*

Independent: *Yes*

Experience: *Professor of Botany: School of Integrative Biology, University of Queensland (1993–present). CEO: CRC for Tropical Plant Protection (1999–2006). CEO: CRC for Tropical Plant Pathology (1992–1999). Member: National Crop Improvement Committee, Grains Research and Development Corporation (1991–1993). Lecturer, Senior Lecturer, Reader: University of Queensland (1982–1992). Plant Pathologist / Research Fellow: Queensland Department of Primary Industries / University of Wisconsin (1972–1982).*

Board Committee Membership: *Finance and Audit Committee*

» Dr Peter Merriman

Term of office: *Director since 1 July 2005.*

Key skills: *Leadership in plant biosecurity research.*

Independent: *Yes*

Experience: *Chair of the Board: Victorian Strawberry Industry Certification Authority. Chair: Institute Bio-safety Committee, Hexima Pty Ltd. Consultant: Plant Protection and Biosecurity to Horticulture and Grains industries. Member: Plant Health Committee and Consultative Committee for Exotic Plant Pests and Diseases (1980–2003). Principal Research Scientist: Department of Primary Industries, Victoria (1990–2003). Member of the Advisory Board: Centre for Environment Stress and Adaptation research (1999–2002). Director: Australian Development Assistance Project, Control of Coffee Leaf Rust in PNG (1988–1992).*

Board Committee Membership: *None*

» Mr Chris Richardson

Term of office: *Director since 1 July 2005.*

Key skills: *Leadership in management and biosecurity for the agricultural industries.*

Independent: *Yes*

Experience: *Chair: Agriculture Protection Board of WA (Board member since 1998 and Chair since 2002). Chair: WA Footrot Eradication Campaign Advisory Committee (1999 – present). Chair: WA Ovine Johnes Disease Advisory Committee (2004 – present). Board member: Corredene Pty Ltd. CEO: Australian Merino Society Inc (1999 – present).*

Board Committee Membership: *Finance and Audit Committee*

round table leadership...

CRC PLANT BIOSECURITY BOARD

Dr Jim Cullen, Dr Peter Merriman, Mr Barry Windle, Prof John Lovett, Dr Simon McKirdy (CEO)
Ms Christine Campbell, Mr Chris Richardson (Absent: Prof John Irwin)

FINANCE & AUDIT COMMITTEE

- The Finance and Audit Committee reviews and recommends the financial statements of the Company and the Centre for approval by the Board.
- Meets as required.
- Changes to membership during 2006-07: none.
- Membership:
  - Ms Christine Campbell (Chair)
  - Prof John Irwin
  - Mr Chris Richardson
- Finance and Audit Committee meetings during 2006-07:
  - 25 August 2006 (teleconference)
  - 14 November 2006 (teleconference)
  - 1 February 2007 (teleconference)
  - 18 February 2007 (Adelaide)
  - 13 May 2007 (Perth)
- Attendance at Finance and Audit Committee meetings during 2006-07:

Ms Christine Campbell	■	■	■	■	■
Prof John Irwin	■	■	■	■	■
Mr Chris Richardson	■	■	■	■	■

CRC NPB Ltd

- The Cooperative Research Centre for National Plant Biosecurity is an unincorporated joint venture, managed through the incorporated entity CRC NPB Ltd.
- General meetings for shareholders of CRC NPB Ltd are held twice yearly.
- Shareholders are core Participants of the CRC for National Plant Biosecurity:
  - see page opposite
- General Meetings held during 2006-07:
  - 15 November 2006 (Canberra)
  - 14 May 2007 (Perth)
- Attendance at General Meetings during 2006-07:
  - see page opposite

MANAGEMENT COMMITTEE

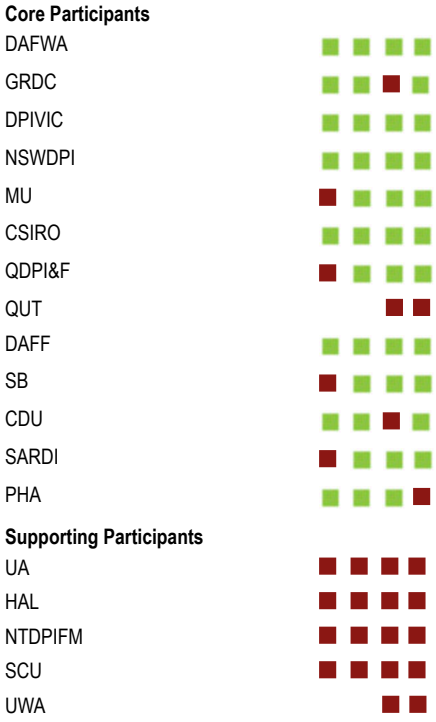
- The Management Committee administers the policies and delegation authorities of the Board, and provides executive support to the Centre.
- Membership:
  - Dr Simon McKirdy, CEO (Chair)
  - Ms Mellanie Balment-Sanders, Office Manager/Executive Assistant
  - Dr Kirsty Bayliss, Education Manager
  - Ms Sue McKell, Communications Manager
  - Mr Sangarapillai (Sunther) Suntheraraj, Business Manager
- Changes to membership during 2006-07: none.

PARTICIPANTS COMMITTEE

- The Participants Committee monitors the progress of the Centre, including current and proposed projects, and commercialisation of Centre IP.
- Meets as required.
- Membership:
  - Ms Jane Moran, Department of Primary Industries Victoria (Chair)
  - Prof Peter Baverstock, Southern Cross University
  - Mr Jeff Bilman, Murdoch University
  - Mr John Chapman, Queensland Department of Primary Industries and Fisheries
  - Dr Anthony Clarke, Queensland University of Technology
  - Adj Assoc Prof Chris Florides, Saturn Biotech Limited
  - Dr David Hall, New South Wales Department of Primary Industries
  - Mr Kim James, Horticulture Australia Ltd
  - Assoc Prof Mike Keller, University of Adelaide
  - Mr Ian Kilduff, NT Department of Primary Industries, Fisheries and Mines
  - Prof George Milne, University of Western Australia
  - Dr Pauline Mooney, South Australian Research and Development Institute
  - Mrs Lois Ransom, Commonwealth Department of Agriculture, Fisheries and Forestry
  - Mr John Sandow, Grains Research and Development Corporation
  - Dr Shashi Sharma, Department of Agriculture and Food Western Australia
  - Dr Andy Sheppard, CSIRO
  - Mr Rodney Turner, Plant Health Australia Ltd
  - Prof Robert Wasson, Charles Darwin University
- Changes to membership during 2006-07:
  - Prof George Milne joined the Committee on 7 February 2007
  - Dr Anthony Clarke joined the Committee on 7 February 2007

- Participants Committee meetings during 2006-07:
  - 11 August 2006 (teleconference)
  - 15 November 2006 (Canberra)
  - 7 February 2007 (teleconference)
  - 14 May 2007 (Perth)

- Attendance at Participants Committee meetings during 2006-07 (apologies indicated in red):

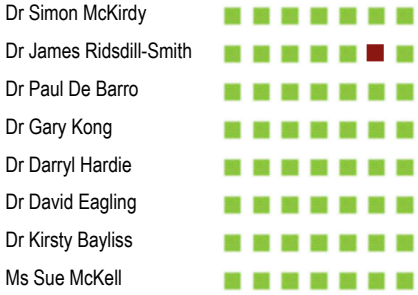


committed to science...

Program Leaders, Dr Gary Kong and Dr Darryl Hardie (background) at a CRCNPB Science Committee meeting

SCIENCE COMMITTEE

- The Science Committee manages and delivers the science program as agreed by members, and is responsible for recommending new projects to the Board.
- Meets monthly.
- Membership:
  - CEO, Dr Simon McKirdy (Chair)
  - Science Coordinator, Dr James Ridsdill-Smith
  - Program 1 Leader – Preparedness and Prevention Research, Dr Paul De Barro
  - Program 2 Leader – Diagnostics Research, Dr Gary Kong
  - Program 3 Leader – Surveillance Research, Dr Darryl Hardie
  - Program 4 Leader – Impact Management Research, Dr David Eagling
  - Program 5 Leader – Education and Training, Dr Kirsty Bayliss
  - Program 6 Leader – Delivery and Adoption, Ms Sue McKell
- Changes to membership during 2006-07: none.
- Science Committee meetings during 2006-07:
  - 13 July 2006 (teleconference)
  - 31 July - 3 August 2006 (Perth)
  - 9 October 2006 (teleconference)
  - 6-7 February 2007 (Canberra)
  - 23 March 2007 (teleconference)
  - 16-17 April 2007 (Melbourne)
  - 1 June 2007 (teleconference)
- Attendance at Science Committee meetings during 2006-07 (apologies indicated in red):



SPECIFIED PERSONNEL

Table 2.1: CEO and Governing Board Members

Name	Organisation	CRC Position / Role
Dr Simon McKirdy	CRCNPB	Chief Executive Officer
Prof John Lovett	Independent	Chairman
Mr Barry Windle	Independent	Deputy Chairman
Ms Christine Campbell	Independent	Director
Dr Jim Cullen	Independent	Director
Prof John Irwin	Independent	Director
Dr Peter Merriman	Independent	Director
Mr Chris Richardson	Independent	Director

Table 2.1: CRC Program Leaders

Name	Organisation	CRC Position / Role
Dr Paul De Barro	CSIRO	Program 1 Leader, Preparedness and Prevention Research
Dr Gary Kong	QDPI&F	Program 2 Leader, Diagnostics Research
Dr Darryl Hardie	DAFWA	Program 3 Leader, Surveillance Research
Dr David Eagling	DPIVIC	Program 4 Leader, Impact Management Research
Dr Kirsty Bayliss	Murdoch	Program 5 Leader, Education and Training
Ms Sue McKell	CRCNPB	Communications Manager and Program 6 Leader, Delivery and Adoption

biosecurity built on science...

RESEARCH PROGRAMS

RESEARCH ACTIVITIES AND ACHIEVEMENTS

SCIENCE COORDINATOR :: DR JAMES RIDSDILL-SMITH

This year has been one of consolidation for the CRC for National Plant Biosecurity in terms of building the science program. During the year, the Centre's Supplementary Bid for post-harvest grains research was successful, and is due to commence in July 2007. There are some common areas of capability in the post-harvest horticulture biosecurity area, and new projects will be developed in the post-harvest area in each of the research programs: Preparedness and Prevention, Diagnostics, Surveillance, and Impact Management, as well as the Education & Training and Delivery & Adoption programs. A new program leader has been appointed for Post-Harvest Integrity research, Dr Pat Collins, and a new program leader in Delivery and Adoption, Ms Sue McKell, will ensure that all projects have better focus on the end-users of our research outputs and hence delivery from our research. The Education program is focused on training scientists in plant biosecurity with PhD degrees, and this year marked the first stage of development of course material towards a coursework Masters degree through a consortium of five universities headed by Queensland University of Technology.

Key research achievements

The number of research projects in the research program of the CRC for National Plant Biosecurity continues to grow. By 30 June 2007, there were 40 projects underway, of which 18 were PhD and Honours projects. This is more than double the number 12 months earlier; however, there are another 11 projects where the research has been developed and the project approved by the Board but not yet contracted, and more than that number again under development.

Reasons for milestones not being reached

While the CRC is on track to deliver on its milestones, there have been delays in converting project ideas into collaborative projects on the ground. As indicated above, the projects that will deliver the milestones in many cases have been developed and approved by the CRC's Science Committee and Board, but are not yet contracted. There are delays as the projects go through the administration systems of the Centre's Participants, and difficulties in moving staff into new projects.

The success of the Supplementary Bid has provided a substantial injection of new funds for research into post-harvest research for the grains industry. A small number of projects were contracted before the start of the new CRCNPB program, and these will be rolled into the CRC as projects, but the majority will need to be developed. A number of workshops have been held with the research community and with strong input from the supporting industry companies and the Grains Research and Development Corporation. The Science Committee has always insisted that we get the science right for the future benefit of Australia, and not waste the opportunity to develop plant biosecurity through poor project selection.

Number of collaborations entered into

All projects being developed involve at least two of the CRC's 18 Participant organisations, and frequently three or four. The Centre has a research agreement with National ICT Australia (NICTA); some projects have started and we anticipate further work developing in the areas of smart traps and the use of sensors in detecting pests and pathogens and their symptoms.

The CRC is in the process of developing a number of joint projects with the Australian Centre of Excellence for Risk Analysis at the University of Melbourne which receives funding from DAFF. The Centre is also involved in discussions over training and projects with the Australian Biosecurity CRC for Infectious Diseases and the CRC for Spatial Information. We have an observer status on the Plant Health Committee; several of the science team are members of working parties on the PHA fruit fly strategy group; and two members of the CRC are members of the HAL Working Group on Market Access Research and Development; SPHDS; and the NCRIS 5.8 working group.

The CRC's PhD students all have a supervisor in a university and at least one co-supervisor in one of the Centre's Participant organisations where it is expected they will spend some time. A limited number of PhD projects will be supervised through agreements with the Australian National University and University of Queensland, where suitable skills are not available for supervision by Centre Participants.

Number of international collaborations

Plant biosecurity problems for Australia by definition originate overseas and the CRC is developing international collaborations to reflect the importance of this, and the benefit to Australia from developing these links. We have collaborative projects with Kansas State University, with Utah State University and Cornell University in the US, with Better Border Security (B3) in New Zealand, and with the Department of Agriculture in Thailand (supported though ACIAR). An incursion of a major EPP in the US during 2006-07 has also led to a significant collaborative effort between CRC researchers and the US Government on alternative strategies for insect eradication. The Centre is a member of a successful European Union 7th Framework bid for Project CRC10010 (Enhanced Risk Analysis Tools). The CRC is also a key plant biosecurity research organisation in the QUADS group (Australia, USA, NZ, Canada), and has a Memorandum of Understanding with Mahasaraswati University in Indonesia. CRC researchers have also been supported to attend meetings in NZ, USA and Europe throughout the year.

External grants

While our main emphasis so far has been developing projects with the existing resources from DEST and Centre Participants, the CRC has developed three substantial projects with co-funding from HAL on enhanced risk analysis and on fruit fly trapping and sampling as well as a smaller project on fireblight. In addition to the funding that GRDC has agreed to invest in the CRCNPB, it has also co-funded a further project on khapra beetle diagnostics. Collaboration with NICTA and with ACERA has led to co-funding of projects with CRCNPB, and further projects are planned.

Changes to future directions

The main change to future directions in the CRC will be the development of biosecurity for post-harvest industries, as a result of the success of the Supplementary Bid on post-harvest research for the grains industry. There are common issues with post-harvest biosecurity in both horticulture and grains that have strong impact on trade. Research will provide underpinning science to strengthen Australia's position.

CRC PLANT BIOSECURITY PROJECTS: 2006–07

PREPAREDNESS AND PREVENTION RESEARCH

CRC10001	Early Warning Threat Identification	Early warning of pre-emergent pests
CRC10010	Enhanced Risk Analysis Tools	Enhanced risk analysis tools
CRC10071	Climate Change	The impact of climate change on plant biosecurity

DIAGNOSTICS RESEARCH

CRC20004	Karnal Bunt Detection	Enhancing the detection of *Tilletia indica*, the cause of Karnal Bunt
CRC20012	National Diagnostic Database	A national diagnostic database for Emergency Plant Pests (EPPs)
CRC20030	Nanobead Diagnostic Platform	Nanotechnology in Molecular Analysis Systems
CRC20031	Detection of *Phytophthora Ramorum*	Diagnostic testing protocol for *P. ramorum* and *kernoviae*
CRC20055	DNA Databank	Australian Plant Pathogen DNA Repository

SURVEILLANCE RESEARCH

CRC30009	Grains Surveillance Strategy	Development of national grains industry surveillance strategy
CRC30014	PDA-assisted Surveillance	Using PDA technology to provide a national system for rapid and secure plant biosecurity surveillance data capture
CRC30015	Hyperspectral Pathogen Detection	Investigation of the potential use of hyperspectral imaging in surveillance for emergency plant pests
CRC30022	Female Fruit Fly Lures	Development of lures for female fruit flies for use in fruit fly traps
CRC30023	Smart Trap Technology	Scoping study to assess the value of spectral imaging and pattern recognition to develop automatic detection systems for EPPs caught in early warning traps
CRC30032	Flying Spore Traps	Use of remote-controlled aircraft to spatially monitor spores

IMPACT MANAGEMENT RESEARCH

CRC40005	Rice Blast	Survey of Australian rice blast races and cultivar susceptibility
CRC40006	Russian Wheat Aphid	Evolution of Russian wheat aphid virulence and resistance sustainability
CRC40007	Predictive Economic Model	Development of an economic module as a key component of a national predictive simulation system
CRC40016	Pathogen Eradication Strategies	Optimising eradication strategies for EPP incursions on perennial crops
CRC40024	Insect Eradication	An integrated approach to the eradication of arthropod EPPs
CRC40035	Movement of EPP Samples	Risk management processes for the movement of samples during an EPP incursion
CRC40049	Community-based Biosecurity	A community-based model to manage EPPs

DELIVERY AND ADOPTION

CRC60036	National Communication Strategy Framework	Assessment of a national plant biosecurity communication strategy and a biosecurity planning framework for emerging industries

EDUCATION AND TRAINING

CRC50002	Lettuce Aphids (PhD)	Biotic factors affecting the spread of small wind-dispersed insect
CRC50003	Ascochytia Wind Tunnel (PhD)	Biotic factors affecting the spread of an air-borne/splash-borne fungus
CRC50008	Terrestrial Observation Predictive Systems (PhD)	Postgraduate training in terrestrial data assessment
CRC50011	OrdGuard Community Engagement (PhD)	Community engagement in biosecurity – the Ordguard case study
CRC50017	Detection in Pathogen Mixtures (PhD)	Novel approaches to surveillance monitoring for EPP pathogens
CRC50027	Scarab Beetle Barcoding (Hons)	Development of DNA barcoding system for the identification of Australian insect species: a case study of scarab beetle larvae in NSW
CRC50029	Taxonomy of *Phytophthora Citricola* (Hons)	Study of *Phytophthora Citricola*-like Pathogen
CRC50033	Hosts of *Phytophthora ramorum* (PhD)	Susceptibility of Australian plant species to *Phytophthora ramorum*, an emerging potential threat to Australian plant industries & ecosytems
CRC50034	Bayesian Surveillance Systems (PhD)	Surveillance optimisation strategies developed for EPP early warning surveillance
CRC50037	Fire Blight Diagnostics (PhD)	Enhanced Specificity of Fire Blight Diagnostics
CRC50038	Epiphyas Revision (PhD)	Clarifying the taxonomy of light brown apple moth
CRC50040	Luteovirus (PhD)	The Luteoviridae as a pilot to evaluate virulence evolution in Emergency Plant Pests
CRC50041	Surveillance Systems Analysis (PhD)	Tools and methodologies for assessing the sensitivity of surveillance and inspection methods/tests used in the detection of EPPs
CRC50042	*Phytophthora* Taxonomy (PhD)	Classical and molecular taxonomy and pathogenicity testing of Phytophthora species
CRC50043	Microarrays for Virus Diagnostics (PhD)	Development of a microarray-based method for plant virus diagnostics
CRC50046	Khapra Beetle (PhD)	Morphological and molecular diagnostic techniques for identification of *Trogoderma* pest species
CRC50047	National Plant Biosecurity Curriculum	New, flexibly delivered coursework Masters degree in plant biosecurity, offered by multiple Australian universities
CRC50051	Silverleaf Whitefly in Sydney (Hons)	The distribution of silverleaf whitefly in the Sydney region
CRC50052	Biopesticides for Incursion Management (Hons)	Biopesticides for management of pest incursions
CRC50069	School Education Strategy	Primary and secondary school initiatives to raise awareness of plant biosecurity issues
CRC50072	Masterclass in Plant Biosecurity	Building plant biosecurity capacity of Australia's near neighbours

CRCNPB PROJECTS COMPLETED DURING 2006-07

CRC50026	Citrus Canker Fingerprinting (Hons)	Characterisation of citrus canker isolates and validation of new diagnostic methods
CRC50028	Fusarium Head Blight Characterisation (Hons)	Aetiology and epidemiology of the Fusarium head blight epidemic in wheat in 2005 in North West NSW

RESEARCH :: PROGRAM 1

Preparedness and Prevention

PROGRAM LEADER :: DR PAUL DE BARRO

The past 12 months has seen the successful establishment of a solid suite of activities with a strong theme of underpinning science delivering to key biosecurity needs. The next 12 months will see us building on this platform and developing a range of activities that will further broaden the CRC's engagement and impact. The program has five projects either underway or in the final stages of contracting. Collectively they involve staff from Biosecurity Australia, CSIRO, DAFWA, QDNRW, QDPI&F, NTDPIFM, ENSIS, Lincoln University, NSWDPI, OCPPO, PHA, DPIVIC, QUT and SARDI with linkages to ACERA and the CRC for Spatial Information. The projects cover the spectrum of threat identification, threat prioritisation, probability of entry, probability of establishment, probability of spread and impact of climate change. As the projects evolve, it is expected that they will begin to integrate as the outputs of one start to influence the activities of another.

The next 12 months will offer a number of further growth opportunities. The successful linkage between the CRC and a number of European Union and New Zealand organisations through the successful EU 7th Framework Pratique consortium offers considerable opportunities for us to exchange our collective knowledge and expertise and we will be looking for ways to further expand this budding interaction. The launch of our climate change project will be the start of what is hoped to be a major area of activity for the CRC. The capacity of agriculture to adapt to the biosecurity threats encompasses not only those external to Australia, but also those already established. Critical here will be a capacity to interlink the predicted changes in distribution and abundance with a range of scenarios involving changes in land use, thereby developing the means to predict impact and map risk.

The success of the CRC's Supplementary Bid will see the integration of a range of post-harvest integrity activities in 2007-08. From a preparedness perspective, a reliable assessment of the level of risk of the grain storage and transport system to a range of biosecurity threats is hampered by the complex behaviour of the whole system that emerges out of the interactions of its individual elements. While aspects of the network are understood, key weaknesses and vulnerabilities in the network are not always apparent. These are likely to be further increased as the same drivers that will see growers producing products for non-traditional markets will also see the grain storage and transport network of the future handling a much broader array of products. This provides the CRC with an opportunity to draw upon a range of cutting-edge science in the form of network analysis, complex systems mathematics and inverse problem-solving to develop the tools that the industry will need in the future as it deals with ever more complexity in the number and types of products that it handles.

Significant planning and progress was made in the Preparedness and Prevention Program over the 2006-07 reporting period towards milestones in the Commonwealth Agreement; however, no milestones are due for this reporting period.

RESEARCH :: PROGRAM 2
Diagnostics
PROGRAM LEADER :: DR GARY KONG

Over the past year, projects in the Diagnostics Program have been developed across four key areas relating to databases, data, platforms, and remote tools. Projects in these areas address industry's need for improvements in diagnostic information, discovery and delivery. Projects developed this year include those that investigate the suitability of molecular methods; nanobead technology; proteomics and metabolomics for the detection and identification of plant pathogens; and the establishment of a remote microscope network to test the logistics and diagnostic efficiencies that distance, web-based diagnostics can provide.

The need for rapid, accurate and cheap diagnostic tools is a major driver of project development in Program 2. Technologies such as the nanobead diagnostic platform have the potential to deliver on all three of these priorities, while metabolomic and proteomic technologies may provide diagnostic accuracy for certain pathogens where many other technologies have failed. Likewise, projects started this year may deliver DNA-based tests for the potentially devastating pathogen *Phytophthora ramorum* and the grain pest, Khapra beetle, which is a major threat to Australia's grain trade.

Diagnostic databases are of central importance to Program 2. A project begun this year to develop an Emergency Plant Pest Diagnostic Database will deliver a comprehensive toolbox of diagnostic information via an open-access website. Good progress has been made in this project in the development of a prototype website together with the collection of existing diagnostic data to populate the database. In addition, new diagnostic information developed from other Program 2 projects will be entered into the database and made accessible via this website. For example, new diagnostic methods will be made available on the website together with a portal to the Remote Microscope Network, providing access to experts and information vital to incursion management.

Overall, good progress has been made in developing and starting projects, completing project contracts and engaging scientific staff within Participant organisations. In addition to those projects already underway, a number of new projects are in the advanced stages of development, including several that investigate the detection and genetics of phosphine resistance in grain pests and a joint project with ACIAR to provide comprehensive diagnostic training to scientists in Thailand.

Table 3.2: Research Outputs and Milestones 2006-07 — Research Program 2 (Diagnostics)

Output/ Milestone Number	Description	Contracted Achievement Date	Achieved	Reasons not achieved	Strategies to achieve unmet milestones
Milestone 2.2.1	Workshops to identify priority diagnostics completed.	31/12/2006	YES	n/a	n/a
Milestone 2.3.1	Protocols established for extraction and processing of nucleic acids, proteins or metabolites from survey samples for molecular diagnostic assays.	30/06/2007	NO	Delay in commencement of relevant projects due to extended contracting processes. Nucleic acid, protein and metabolite protocols established for laboratory samples but not established for field or survey samples.	This milestone will be achieved in line with the original projection relative to the delayed start date of projects.

RESEARCH :: PROGRAM 3

Surveillance

PROGRAM LEADER :: DR DARRYL HARDIE

This has been another demanding but satisfying year for the Surveillance Program. Existing projects are performing well in most cases even with the tight labour market and the resultant higher than expected turnover of in-kind staff from Participant organisations. Several new projects and collaborative associations have been developed to facilitate the required development of technically sound sample/survey methodologies and systems. This research is being undertaken to enhance our ability within Australia to capture a wide range of high quality information in an accurate and cost-effective manner that will be accepted at the domestic and international level.

During the financial year, members of the CRC Surveillance Program were involved in two new international initiatives. The first was a workshop on the use and impact of Personal Digital Assistant (PDA) devices in collecting and delivering biosecurity surveillance data, and involved biosecurity scientists from member countries of the Quadrilateral Scientific Collaboration (Quads), consisting of Australia, USA, Canada and New Zealand. An array of hardware platforms and software options were demonstrated and discussed at the workshop. This resulted in the development of a white paper for potential uses of PDAs in plant pest surveillance systems.

The other international collaboration was the development of an ACIAR project with the Thailand Department of Agriculture where newly developed CRC surveillance technologies will be field-tested on Emergency Plant Pests (EPPs) of common interest to both countries. A completed project proposal has been submitted to ACIAR for approval. Delivery of outputs from both of the international initiatives will be evident during the life of the CRC.

The CRC has a close working relationship with several Australian research and development corporations which has led to Horticulture Australia Limited (HAL) and the CRC's surveillance program co-investing and developing two new projects to deliver better trapping systems for EPP fruit fly species in Australia. The overriding driver for these projects is to reduce costs while maintaining the efficiency of the large fruit fly exclusion zones that are used to facilitate trade of host material. The projects are good examples of collaboration between funding bodies and CRC Participants to provide a biosecurity research solution. Both projects have been approved by the CRC board and will start early in the new financial year.

The Surveillance Program will enter a new and exciting phase with the CRC's successful Supplementary Bid in post-harvest research for the grains industry. Surveillance has been identified as a key research area to be developed. Meetings with the CRC's grain partners have mapped out new challenges for the Surveillance Program and project planning in this area is well advanced.

At the close of the year the Surveillance Program consisted of six active projects, with a further four submitted and approved by the CRC Board and in the process of being contracted to the various Participant organisations. A number of new concepts are being investigated and new projects are being prepared for the CRC board.

Significant planning and progress was made in the Surveillance Program over the 2006-07 reporting period towards milestones in the Commonwealth Agreement; however, no milestones are due for this reporting period.

RESEARCH :: PROGRAM 4

Impact Management

PROGRAM LEADER :: DR DAVID EAGLING

With all projects contracted, significant progress was made during the 2006-07 period. A number of the contracted projects developed into larger international research programs, including:

- collaboration with New Zealand (B3) and the US Department of Agriculture to develop new science-based eradication strategies (Projects CRC40016 and CRC40024); and
- a partnership with several Indonesian government and university bodies to develop community engagement processes to manage biosecurity threats (Project CRC40049).

These partnerships enhanced science quality and were highlighted by the following achievements:

1. Working with local communities – an Indonesian connection (Project CRC40049)

In recognition of the strategic importance of South East Asia to managing both the source and pathway for EPP incursions, a joint Indonesian/ Australian research venture was developed. As a key step, the CRC supported an International summit titled "Community management of biosecurity" which was held in Indonesia and involved more than 50 international participants. An Agreement of Cooperation between Mahasaraswati University and the CRC was signed during the Summit to develop projects that work with local communities in both Australia and neighbouring countries to identify ways existing community capacity can be harnessed to implement future incursion management strategies.

2. US seeks Australian help with eradication response (Project CRC40024)

The US is currently responding to an incursion of a key pest of many horticultural tree crops. As part of the response, CRC project members were sought as members of a technical panel to provide guidance to the US efforts. In further recognition of research undertaken through the CRC, the US has also approached project members to participate in research linked to the incursion response under financial support from the Californian Government.

3. Virulence evolution in Russian Wheat Aphid – a global effort (Project CRC40006)

Australia is free from the damaging Russian wheat aphid, and Australian industry is developing resistant germplasm as a safeguard. This is at risk from the development of new virulent strains of the aphid and, in response, the CRC project is researching virulence evolution. The project is a collaboration with Kansas State University, the US Department of Agriculture, and recent efforts have led to partnership talks with the Chinese Academy of Sciences. This will provide a unique opportunity to compare endemic and invasive populations as China has regions where the pest is native (in China's far north-west, adjacent to Kazakhstan and Russia) and other regions where it is invasive and one of the most damaging pests of grain crops.

Table 3.4: Research Outputs and Milestones 2006-07 — Research Program 4 (Impact Management)

Output/ Milestone Number	Description	Contracted Achievement Date	Achieved	Reasons not achieved	Strategies to achieve unmet milestones
Milestone 4.1.3	Incorporate socio-economic factors into economic model	30/06/2007	YES	n/a	n/a
Milestone 4.4.1	Assessment of secure packaging for EPPs completed.	31/12/2006	YES	n/a	n/a

COMMERCIALISATION AND UTILISATION

Delivery and Adoption

PROGRAM LEADER :: SUE MCKELL

In December 2006, Ms Sue McKell was appointed as the Centre's Commercialisation and Utilisation (Delivery and Adoption) Program Leader. Delivery and Adoption activities since this appointment was made have focussed on development of project delivery plans across all of the CRC's programs. This task will continue for existing CRC projects over 2007-08 and, moving forward, will become a core part of the project development process for new projects. The CRC's Project Delivery Plans aim to identify the key end-users and pathways to adoption for technology being produced from Centre projects, in an effort to develop successful strategies for their delivery. Developing a knowledge transfer strategy for the CRC will be a key activity for this program in 2007-08.

Table 4 on the following page reports on a delayed 2005-06 milestone that was achieved during the current reporting period. Significant planning and progress was made in the Delivery and Adoption Program during 2006-07 towards milestones in the Commonwealth Agreement; however, no new milestones are due for this reporting period. As most CRC projects are only between 6 and 12 months old, industry uptake of Centre technology through commercialisation arrangements (including spin-off companies and patents) and technology transfer still lies ahead. It is anticipated that previous delays that have been experienced across the CRC, in particular delays in the commencement of research activities, may have a flow-on effect on the Centre's ability to meet future Delivery and Adoption milestones; however, every effort is being made to make up for lost time in these areas.

Intellectual Property Management

The CRC has a number of mechanisms in place for managing its Intellectual Property. The CRC's management company CRC NPB Ltd is responsible for identifying, securing, maintaining, and protecting any patents and other intellectual property associated with the Centre. Background and potential IP from Centre projects is considered as part of the development and recommendation stages of all new projects. An IP register was established during 2006-07 as part of the Centre's online project management system and is maintained by the Centre's Business Manager.

The Centre has taken steps to protect intellectual property arising from its projects by stipulating confidentiality in individual project agreements and has developed policies and procedures to ensure the preservation of commercially sensitive information. These mechanisms ensure that the CRC's IP strategy adheres to the National Principles of IP Management.

In addition to these arrangements for managing IP on CRC projects amongst Centre Participants, agreements are also sought to formalise IP arrangements where the CRC partners with external parties for technology development. Significant progress has been made towards establishing IP agreements on collaborative projects that present significant potential commercial value for the CRC and its partners. This includes agreements between the CRC and: National ICT Australia (NICTA) on the development of hyperspectral imaging surveillance technology; and Nanomics Biosystems on the development of diagnostic nanotechnology. As the development of these and other CRC technologies are still in their infancy, commercialisation arrangements, technology transfer, and accrual of national benefit from Centre IP are yet to be realised.

Communication Strategy

CRC Plant Biosecurity's Delivery and Adoption Program aims to realise the benefits of CRC Plant Biosecurity, its programs and outputs, to stakeholders. As an important element in achieving this aim, the Centre's Communication Strategy has identified key delivery pathways for Centre outputs through its Participants. Key SME beneficiaries for the CRC are agricultural and farming businesses, and the Centre is developing linkages with GRDC, HAL and PHA (all Centre Participants) to ensure that CRC outputs benefit these groups. Stakeholder engagement with CRC research is achieved through project-level involvement and through Centre communication activities and events, such as the CRC Plant Biosecurity Symposium, which was held in Canberra on 5-6 September 2006.

Table 4: Commercialisation and Utilisation Outputs and Milestones 2006-07

Output/ Milestone Number	Description	Contracted Achievement Date	Achieved	Reasons not achieved	Strategies to achieve unmet milestones
Milestone 2.1.1	Priorities and agreements on data standards, distance diagnostics and databases established through international workshops	30/06/2006	YES	n/a	n/a

CRCNPB Chairman, Professor John Lovett makes a point during the 2006 CRC Plant Biosecurity Symposium

Table 5: Involvement of End-users in CRC Activities

End-user name	Relationship with CRCNPB	Type of activity and end-user location	Nature/scale of benefits to end-users	Actual or expected benefit to end-user
Australian Quarantine Inspection Service (AQIS), part of Commonwealth Department of Agriculture, Fisheries and Forestry	Participant	Quarantine services (National)	More accurate, efficient and cost-effective quarantine detection systems.	Better diagnostic tests expected to increase accuracy and efficiency of quarantine detection systems.
Biosecurity Australia, part of Commonwealth Department of Agriculture, Fisheries and Forestry	Participant	Quarantine assessment and policy advice (Canberra)	Improved surveillance data and modelling for quarantine assessments and policy advice.	Enhanced data expected to help ensure pest-free status and maintain international export markets.
Commonwealth Department of Agriculture, Fisheries and Forestry	Participant	Biosecurity Management (National)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Department of Agriculture and Food, Western Australia	Participant	Biosecurity Management (Western Australia)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Department of Primary Industries, Victoria	Participant	Biosecurity Management (Victoria)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Plant Industry SMEs	Industry	Principal beneficiaries of CRCNPB outputs (National)	CRC outputs will minimise economic, social and environmental impacts of future pest incursions leading to increased export opportunities and stable production costs.	Enhanced plant biosecurity will ensure market access and enable new market potential. Production costs will not increase due to minimising impact of future incursions.
New South Wales Department of Primary Industries	Participant	Biosecurity Management (New South Wales)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Northern Territory Department of Primary Industries, Fisheres and Mines	Participant	Biosecurity Management (Northern Territory)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Plant Health Australia Ltd	Participant	Plant Health Management (Canberra)	Better biosecurity planning and communication tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Queensland Department of Primary Industries and Fisheries	Participant	Biosecurity Management (Queensland)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.
Saturn Biotech Ltd	Participant	Commercialisation (Perth)	New technologies and tools will provide faster, more cost-efficient and accurate diagnostics	Outputs from diagnostic projects will enhance Saturn Biotech's service provision to the plant industries.
South Australian Research and Development Institute	Participant	Biosecurity Management (South Australia)	Better preventative systems, diagnostic tests, surveillance methods, and impact management tools.	Reduced risk of incursions and improved capacity for incursion response and management.

tomorrow's biosecurity starts today...

BEST EXHIBITOR AWARD: CRC Association Conference Expo, May 2007
Awarded to CRC Plant Biosecurity for best achieving the expo's aim to "increase awareness and understanding of the relevance and benefits of scientific research through a collection of exhibits and presentations".

EDUCATION AND TRAINING

EDUCATION & TRAINING

PROGRAM LEADER :: DR KIRSTY BAYLISS

Over the past twelve months the Education and Training Program has grown dramatically. The CRC now has 14 students who have commenced their PhD studies, and another 3-4 due to commence in the first half of the next financial year, meaning that we will be halfway towards reaching our target of 32 PhD graduates. We also funded 2 Honours projects and a vacation project this year, with more expected in second semester. The CRC has formally welcomed the Queensland University of Technology and the University of Western Australia as Participants, with La Trobe University also expected to join in the coming financial year. The addition of these universities and other industry Participants to the CRC in 2007-08 has greatly expanded the Centre's opportunities for enrolments and industry-based supervision.

A number of internal and external workshops and training days have been held over the past year. Two short courses run in conjunction with the Australian Biosecurity CRC for Emerging Infectious Disease were well attended by staff and students from various organisations including the Department of Agriculture and Food (WA) and Murdoch University. We also held two Professional Development days for our postgraduate students, both focussing on communication skills, an essential part of their PhD training.

In December 2006 a Consortium of five of the CRC Participant universities were successful in their bid for a Collaborative and Structural Reform Fund grant. This will be used to develop a National Postgraduate Curriculum in Plant Biosecurity. The CRC is supporting this with additional cash and in-kind support. The Curriculum is also linked to a larger education project with Quads countries (USA, Canada, New Zealand and Australia), which gives an international focus to our Education and Training program.

In May 2007, the CRC was awarded the prize for Best Exhibitor at the CRC Association Expo, held in Perth in May 2007. The aim of the Expo was to "increase awareness and understanding of the relevance and benefits of scientific research". Our display was based on our proposed school education project and, thus, it is hoped that our Award is an early indication of the potential success of this Program. In June 2007, Ms Kirsti Burtenshaw joined the CRC as our Education Officer. Kirsti will be responsible for the development and delivery of our school activities as well as assisting in organising workshops and courses for our staff and students. The school education project has two components – one set of activities is aimed at students in years 5-10, and the other for students in lower primary. These will be officially launched in term 1, 2008.

Table 6: Education and Training Outputs and Milestones 2006-07

Output/ Milestone Number	Description	Contracted Achievement Date	Achieved	Reasons not achieved	Strategies to achieve unmet milestones
Milestone 5.1.1	Recruitment of full-time Education Officer	30/09/2006	YES	The appointment of an Education Officer has been achieved with Ms Kirsti Burtenshaw commencing in a part-time capacity in June 2007. The increase in the level of in-kind contribution for the E&T Program Leader position that was made during 2005-06 makes up this full-time commitment.	n/a
Milestone 5.1.2	Development of an Education and Training Plan	31/12/2006	YES	n/a	n/a
Milestone 5.1.3	First 16 PhD students recruited	31/12/2006	NO	On June 30 2007 the Centre had 14 students recruited for 18 approved PhD projects.	Advertising is continuing in an effort to fill the remaining available places.
Milestone 5.2.1	Commence development of short courses and vocational training (including Grain Quality Biosecurity Industry Course)	30/06/2007	YES	n/a	n/a

GLOSSARY

ACIAR	Australian Centre for International Agricultural Research
ACERA	Australian Centre of Excellence for Risk Analysis
AQIS	Australian Quarantine and Inspection Service
CDU	Charles Darwin University
CEO	Chief Executive Officer
CRC	Cooperative Research Centre
CRCNPB	CRC for National Plant Biosecurity
CSIRO	Commonwealth Scientific and Research Organization
DAFF	Department of Agriculture, Fisheries and Foresty
DAFWA	Department of Agriculture and Food, Western Australia
DEST	Department of Education, Science and Training
D&A	delivery and adoption
DNA	deoxyribonucleic acid
DPIVIC	Department of Primary Industries, Victoria
E&T	education and training
EPP	Emergency Plant Pest
EU	European Union
GRDC	Grains Research and Development Corporation
HAL	Horticulture Australia Limited
ICT	information and communications technology
IP	Intellectual property
MOU	memorandum of understanding
MU	Murdoch University
NCRIS	National Collaborative Research Infrastructure Strategy
NICTA	National ICT Australia
NSWDPI	New South Wales Department of Primary Industries
NTDPIFM	Northern Territory Department of Primary Industries, Fisheries and Mines
OCPPO	Office of the Chief Plant Protection Officer
PaDIL	Pest and Disease Image Library
PDA	personal digital assistant
PHA	Plant Health Australia Ltd
PhD	Doctor of Philosophy
QDNRW	Queensland Department of Natural Resources and Water
QDPI&F	Queensland Department of Primary Industries and Fisheries
QUADS	Quadrilateral Agreement on Plant Health (involving Australia US, Canada and New Zealand)
QUT	Queensland University of Technology
R&D	research and development
RDC	research and development corporation
RIRDC	Rural Industries Research and Development Corporation
SARDI	South Australian Research and Development Institute
SB	Saturn Biotech
SCU	Southern Cross University
SME	small to medium sized enterprise
SPHDS	Subcommittee on Plant Health Diagnostic Standards
UA	University of Adelaide
UWA	University of Western Australia

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CRC for National Plant Biosecurity

2/4 Phipps Close, Deakin ACT 2600
+61 (0)2 6163 6200
+61 (0)2 6162 1297
info@crcplantbiosecurity.com.au
crcplantbiosecurity.com.au