CRC PLANTbiosecurity

Cooperative Research Centre for National Plant Biosecurity

# Strategic Plan

## 2007 – 2012

*biosecurity built on science …*

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This document outlines strategic directions for the Cooperative Research Centre for National Plant Biosecurity for the seven-year funding period, 2005–2012, having been revised to incorporate supplementary research and education activities in 2007.

**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.

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*Professor John Lovett, Chairman*

*Plant Biosecurity is a set of measures designed to protect a crop, crops or a sub-group of crops from emergency plant pests (EPP) at national, regional and individual farm levels.*
*(Source: Plant Health Australia 2005, Emergency Plant Pest Response Deed)*

*An EPP is a known exotic plant pest; a variant form of a plant pest already established in Australia; or an entirely new serious plant pest, all of which would have an adverse economic impact at a regional and national level if established in Australia. An EPP may also be a plant pest that is being officially controlled in Australia but requires a significant emergency response to ensure that there is not a large scale epidemic of regional and national significance.*
*(Source: Plant Health Australia 2005, Emergency Plant Pest Response Deed)*

The Cooperative Research Centre for National Plant Biosecurity (CRCNPB) commenced operations in September 2005. The Centre was established in recognition of the need to strengthen the plant biosecurity scientific capacity of Australia.

Biosecurity has emerged as a major global issue. Emergency Plant Pests (EPPs) can impact on food safety, trade, market access, market development and, ultimately, the profitability and sustainability of plant industries. Thus, incursions by EPPs directly threaten the economic viability of Australia's plant industries, which have a farm gate value of over $15 billion and contribute over $10 billion to export income. Even the perception that EPPs are present in Australian produce has a rapid and negative impact on Australia's reputation as a producer of safe, quality food products. A recent example is the wrongly alleged presence of Karnal bunt in a cargo of Australian wheat exported to Pakistan early in 2004.

The ongoing supply of agricultural products to the domestic market, and the commerce associated with the entire supply chain are also at risk. For example, the cost to governments and industry of eradicating the papaya fruit fly outbreak in northern Australia in the mid-1990s has been put at $134 000 000.

The CRCNPB will play a vital role in enhancing the scientific effort to enable Australia's plant industries to pre-empt and, therefore, diminish the economic, social and environmental impact of EPPs. The activities of CRCNPB will cover the full biosecurity continuum, pre-border, border and post- border.

The CRC for National Plant Biosecurity will contribute to the Australian Biosecurity System (ABS), providing the science required to underpin the plant pest related objectives. Outcomes from the Centre will also assist in minimising the impact of possible plant-based bioterrorism.

*Dr Simon McKirdy, CEO*

*The CRCNPB addresses two goals within the Australian Government's National Research Priority of "Safeguarding Australia":*

- *Priority Goal 3: Protecting Australia from invasive diseases and pests; and*
- *Priority Goal 4: Protecting Australia from Terrorism and Crime.*

Australia is relatively free from many of the plant pests that seriously impact on agricultural industries in other countries. Australia's plant industries have a valuable competitive advantage in terms of securing market access and maintaining lower production costs through the absence of many plant pests commonly found overseas. To sustain that advantage into the future, Australia's plant industries need the support of world-class science and biosecurity technology.

Australia's agricultural industries represent approximately 135 000 farms, of which 62 000 are dependent on crop or horticultural production. Pasture species underpin most livestock activities. Overall, agriculture contributes over $15 billion to Australia's GDP. Flow-on effects across the economy increase this value three-fold and plant industries are the foundation of this significant contribution to Australia's economic prosperity. The potential losses caused by the establishment of serious emergency plant pests, such as Karnal bunt in wheat, have been estimated at more than $10 billion in total net present value terms.

The additional impacts of incursions are felt along the entire supply chain. With the reduction in rural production, the impact flows to local agribusinesses such as transport, fertilizer, seed and machinery companies and retail businesses. These impacts occur at both the regional and national level, on domestic and export marketing, and on commercial activities associated with transporting, processing and value adding. The effects of incursions involve loss of production, which is often substantial where no management strategies are in place, and loss of trade when we do not have the tools to prove that an EPP is absent from Australia. EPPs also have the potential to seriously impact on Australia's native flora and fauna.

In addressing plant biosecurity issues, Australia needs to comply with its international obligations. These derive from the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures and other World Trade Organization Agreements, and specific international guidelines and standards under the International Plant Protection Convention.

Australia has a relatively well-developed plant biosecurity system, but it is still highly vulnerable to serious emergency plant pest incursions. The review of Australian quarantine in 1996 (Nairn et al. 1996) noted that a strong scientific capacity is central to the development of sound strategies for preparedness and response to plant pest incursions. Australian government and industry responded to this review by forming Plant Health Australia Ltd (PHA) in 2000. PHA is a collaborative company that enhances national policy development, and coordinates, implements and brokers biosecurity activities. PHA is actively developing a National Plant Health Strategy. A national plant health strategy will maintain and enhance food safety, trade and market access and profitability and sustainability of Australia's plant sector.

The Australian Government, state and territory governments, industry and other key stakeholders are describing and reviewing the Australian Biosecurity System (ABS) with a view to further improvements and integration. The development of a consistent national framework of policy and processes within which to approach national biosecurity issues is of major importance. Primary Industries Ministerial Council commenced development of an ABS to address the broader, longer-term biosecurity issues with regard to terrestrial animal pests and diseases, terrestrial plant pests and diseases, aquatic animal pests and diseases

and terrestrial and aquatic weeds. The ABS will assist in identifying gaps in biosecurity arrangements so that we can strengthen our approaches, minimise pest, weed and disease impacts and demonstrate, nationally and internationally, Australia's commitment to biosecurity.

The ABS includes measures to:

a) prevent new pests entering and establishing in Australia;
b) ensure appropriate preparedness and response capacity which is internationally recognised and meets Australia's trading obligations and international treaties; and
c) maintain or improve the status of Australia's biosecurity system.

The ABS provides a description of the roles of the various contributors and aims to improve the efficiency of investments in the system. CRCNPB will contribute by providing the scientific research required to underpin specific plant objectives of the ABS.

All significant biosecurity research providers and end-users, as identified in the ABS, are participants of the CRC (see Figure 1). The successful fostering of effective collaboration and communication between these research providers and end-users will be critical to the success of CRCNPB.

Other countries, such as the USA, Canada and New Zealand, are also addressing similar biosecurity issues and CRCNPB will be developing close linkages with key organisations in these and other countries.

## FIGURE 1: CRCNPB IN THE AUSTRALIAN BIOSECURITY SYSTEM

| Human | Environmental | | | Commercial | | |
|---|---|---|---|---|---|---|
| Human Health | Native Flora and Fauna | National Waterways | Invasive Species | Animal Health | Plant Health | Aquatic Health |

| Australian Government | States and Territories | Plant Industries | Other Stakeholders |
|---|---|---|---|
| Plant Health Australia | | | |

**CRC for National Plant Biosecurity**

*knowledge to underpin plant health strategy*

**AUSTRALIAN BIOSECURITY SYSTEM**

*…a shared responsibility of government, industry and the community*

**NATIONAL BIOLOGICAL ASSETS**

**NATIONAL PLANT HEALTH STRATEGY**

**PLANT BIOSECURITY SCIENCE, EDUCATION AND TECHNOLOGY**

The five CRCNPB science and technology programs address two Australian Biosecurity System objectives, specifically:

1) preparedness for and prevention of establishment of nationally significant target organisms; and
2) early intervention to detect incursions and determine whether to eradicate, contain and control, or take no further action.

The science undertaken by CRCNPB is innovative and adheres to the ABS requirements of:

- focussing on agreed national priorities for biosecurity;
- providing a collaborative approach to national research and development priorities that extends across jurisdictions, sectors and institutions;
- providing long-term approaches that mitigate the risk from, and impact of, agreed national priority target organisms; and
- identifying critical biosecurity issues for risk management including science, social research and economics.

The Governments of Australia and the majority of plant industries, through their membership of Plant Health Australia, have identified critical gaps in the scientific capacity of Australia's plant health system. These gaps have been further emphasised through the description of the Australian Biosecurity System.

An opportunity analysis of these critical gaps led to the development of CRCNPB's strategic focus. An analysis of existing plant biosecurity activities overseas was also used in the development of this focus. This analysis found that there are critical areas of research required across the full continuum of plant biosecurity (preparedness and prevention, diagnostics, surveillance, impact management). In July 2007 an additional critical research area was added (Post-Harvest Integrity). In addition, improving Australia's future capacity to manage risk and response to threats will be best achieved by enhancing the quality and quantity of education and training available to industry, undergraduate and postgraduate students, and by stimulating the adoption of biosecurity technology through commercialisation and dissemination of information.

CRCNPB's plan is, therefore, arranged in seven programs that reflect this analysis. CRCNPB's focus combines the needs identified by the plant industries with the scientific areas where the Centre has the greatest capacity or potential to add value to Australia's biosecurity system. CRCNPB will continue to analyse the critical gaps in Australia's plant biosecurity scientific capacity to ensure that it is focused on the most appropriate priorities.

The project selection process has three phases:

**1) Preliminary Proposal**

Preliminary project proposals are developed by Project Proposers and are submitted to the relevant Program Leader. Proposals are sought in January and July of each year. The Program Leader will provide the science leadership to ensure the proposed project meets the required criteria. After initial review by the Program Leader, the proposal is forwarded to the CEO/Science Program Coordinator for consideration. If considered suitable, the project progresses to Phase 2.

**2) Project Proposal**

In consultation with the Project Proposer, through the Program Leader, a Project Proposal is developed and forwarded to the Science Committee for consideration. The Science Committee, while taking into account the need for Participants to meet their obligations under clause 5.1 of the Commonwealth Agreement, will select projects on the basis of their scientific merit and potential benefit to plant biosecurity.

Specifically, new CRCNPB projects will be evaluated on their capacity and ability to achieve:

a) CRCNPB's objectives;

b) project leadership (science, vision and quality);

c) quality of science (innovative research which creates new technologies, products and tools that are cost-effective, user-friendly and conform to compliance and policy standards);

d) potential outcomes (engagement of science leaders, stakeholders and users in technology development; pathways to validated products and tools which enhance biosecurity, improve market access, reduce risk and costs; processes which identify and capture IP; training programs which ensure adoption of tools/products by users);

e) identification of end-users of outputs; and

f) collaboration between research organisations.

**3) Project Selection**

The CRCNPB Science Committee assesses all new and continuing projects and makes recommendations to the Board for their consideration (see Company Profile). Resource allocation is based on the priority given to the five science and technology programs. The CRCNPB Board is responsible for determining the projects that are to be undertaken.

The Science Committee, along with science peers, reviews progress towards milestones and outputs from each project. Researchers are required to specify measurable outputs within projects and provide annual progress reports against these agreed outputs. Progress of all projects will be reviewed with a major review at least once every three years. Recommendations arising from the annual reviews are reported to the Board.

Advice about existing and emerging issues, as well as feedback on research progress, is also provided by the Participants Committee.

The CRCNPB has participants from most states and territories of Australia and involves a majority of plant biosecurity specialists in the country. One of the strengths of the CRCNPB is that all the end-user groups (industry, state and Australian governments) are involved, ensuring maximum potential for delivery of project outputs. Most of the peak plant industry bodies are already members of PHA, a core participant in the CRCNPB. The grains, horticulture and rural industries RDCs together with Australia's major grain companies are also participants.

The CRCNPB research programs are focused on innovative R&D, in key areas that will deliver benefits across commodity groups. These programs will also introduce new technologies that will meet Australia's plant biosecurity needs within the shortest possible time-frame and will provide long-term benefits.

The emphasis on delivery of outputs from CRCNPB projects and programs is reflected in a requirement to identify end-users of project outputs in order to facilitate translation into plant biosecurity outcomes.

The CRCNPB has a strong commitment to the training of high quality Honours and PhD students and postdoctoral scientists to provide the nucleus of Australia's future plant biosecurity capacity. The CRCNPB is aiming to support up to 32 PhD students over its lifetime. CRCNPB will also provide vocational training for scientists and other disciplines already working in the plant biosecurity field to enhance the core capacity of Australia.

The CRCNPB will support the development of the curriculum for multidisciplinary Plant Biosecurity courses focused at university undergraduate and postgraduate levels. The CRC will also provide opportunities for Participants to improve their knowledge and skills through scientific exchanges, conferences and other courses.

The CRCNPB will raise awareness of biosecurity issues at the industry, community, and secondary and primary school levels, employing innovative means of communication.

The CRC for National Plant Biosecurity will pursue all opportunities for collaboration and communication between Participants in order to capture the benefits and synergies that can accelerate progress in plant biosecurity science and technology. This collaboration and communication between organisations will ensure the most effective use of the limited resources and existing expertise in the many disciplines that contribute to plant biosecurity. The CRC will develop novel technologies, and rapidly, and efficiently, coordinate the transfer of tools, knowledge and technology to end-users (agribusiness, producers, and the Australian and state governments) to pre-empt and diminish the economic and environmental impact of emergency plant pests across Australia.

Participants have agreed to assess whether and by what means and in what form the collaboration and communication links developed during the 7-year term of the CRCNPB should be extended. This assessment will take place no later than the sixth year of the CRCNPB.

The CRC aims to involve new Participants, including additional industry organisations, and develop new effective international linkages as required to ensure that Australia has access to the world's most advanced technologies and intellectual property.

Given the wide range of disciplines involved in plant biosecurity, the CRCNPB will develop close linkages with several cognate CRCs, including the Australian Biosecurity CRC for Emerging Infectious Disease, CRC for Australian Weed Management, and Invasive Animals CRC. In addition, CRCNPB will also have linkage with all plant industry related CRCs. To meet its objectives, CRCNPB will source scientific and educational skills and capabilities from non-participant organisations and individual researchers, on a contract basis if required.

An overview of CRCNPB's seven programs is provided below. The programs fall into three categories:

a) science and technology;
b) education and training; and
c) commercialisation and utilisation (delivery and adoption).

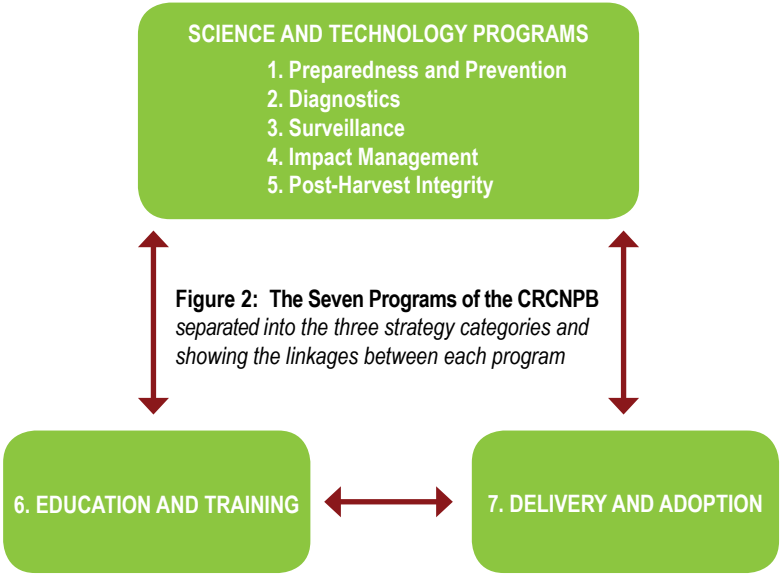



**Figure 2: The Seven Programs of the CRCNPB** *separated into the three strategy categories and showing the linkages between each program*

**Program 1: Performance Indicators**

- The number of biological systems used to validate risk assessment models based on complex systems theory/economic modelling and incorporating the influence of climate change.
- The number of pest groupings, based on invasive characteristics, for which advanced research has been completed on the biology and epidemiology in order to better manage priority Emergency Plant Pests.

### Goal

Decreased incidence and impact of harmful emergency plant pest incursions through contributing to the development of systems, based on risk-weighted, science-based decision making.

### Strategic Objective

To undertake research that will fill critical gaps in the knowledge of the ecology and epidemiology of emergency plant pests to underpin decision making in biosecurity.

### Actions

- Develop knowledge to underpin risk analysis decisions on entry, establishment and spread for emergency plant pests.
- Develop new risk assessment models for biosecurity.
- Devise more efficient and effective responses to emergency plant pests through better understanding of their biology and epidemiology.

### Benefits

- Increased level of preparedness for potential emergency plant pest incursions.
- Improved capacity to prioritise and identify the highest threat emergency plant pests.
- Increased preparedness for effect of global climate change on potential emergency plant pests.

**Program 2: Performance Indicators**

- The number of comprehensive diagnostic data sets for emergency pests and pathogens submitted to accessible, national and international databases.
- The effective delivery and validation of a suite of new diagnostic technology, novel tools and innovative enabling technology.

## Goal

A world-class biosecurity capability for early identification of emergency plant pest incursions in Australia through provision of data, expertise and diagnostic technology that is accurate, sensitive, reliable and cost-effective.

## Strategic Objective

To undertake research that will provide rapid identification of emergency plant pests in order to decrease the cost of eradication and impacts through rapid response.

## Actions

- Develop and validate comprehensive diagnostic and taxonomic reference data and link to national and international reference collections and databases.
- Develop new, robust, cost-effective diagnostic tools for accurate identification of emergency plant pests.
- Develop innovative high-throughput technology to underpin large-scale surveillance and early detection of emergency plant pest incursions.
- Develop high speed and ready access to best available diagnostic services, protocols and expertise.

## Benefits

- Greater ability to identify EPPs anywhere in Australia using distance diagnostics.
- More readily accessible data on emergency plant pests.
- Enhanced level of diagnostic skill available for plant biosecurity.
- Cost-effective, robust and reliable diagnostic technologies available for plant biosecurity.
- Enhancement of the national diagnostic network.
- Maintenance of market access.

### Program 3: Performance Indicators

- The successful evaluation of hand-held tablet and pocket PC sample devices and other relevant technologies and remote sensing for more effective emergency plant pest surveillance.
- The number of auto-reporting traps and sampling systems, and generic precision surveillance simulation tools developed to enhance emergency plant pest surveillance.
- The effectiveness of national standards and methodologies developed for recruiting and training surveillance staff.

### Goal

A more effective national surveillance system based on scientifically sound sampling tools and survey methodologies.

### Strategic Objective

To undertake research that will develop technically sound sample/survey methodologies and systems to enhance the ability to capture a wide range of plant health information in an accurate and cost-effective manner both domestically and internationally.

### Actions

- Develop technically sound and cost-effective surveillance procedures.
- Develop surveillance procedures that are linked to information databases, GIS datasets and other technologies.
- Develop surveillance technologies that capture all the relevant survey data required to accurately define Australia's plant health status, including confirmation of pest-free areas, and detect emergency plant pests.

### Benefits

- Optimum placement of traps for surveillance.
- More effective remote trapping technologies for detecting EPPs.
- Improved surveillance through better training of staff and use of hand-held data acquisition technology.
- Earlier detection of EPP incursions through use of remote sensing technologies.

**Program 4: Performance Indicators**

- The development, validation and use of a predictive simulation system incorporating biological, geographical, social and economic factors.
- The effectiveness of improved non-chemical dis-infestation technologies.
- The number of non-destructive strategies for control/containment evaluated.

### Goal

Reduced economic and social impact from incursions of emergency plant pests through new control, risk mitigation and recovery strategies.

### Strategic Objective

To undertake research that will minimise the social and economic impact of an emergency plant pest incursion through the development of management strategies.

### Actions

- Develop tools to underpin optimal response strategies, area freedom protocols and pre-emptive crop management strategies, including the capacity to evaluate and validate incursion response strategies through predictive simulation systems.
- Develop capacity to respond to new virulence in emergency plant pests.
- Develop enhanced dis-infestation technologies for both imported and exported plant produce.
- Develop scientifically validated hygiene science strategies for incursion response.
- Develop novel control/containment/recovery strategies.

### Benefits

- Improved assessment of the socio-economic impact of EPP incursions.
- Simulation tools to better manage EPP incursions.
- Identification of virulent biotypes to make better decisions for management of EPPs.
- Improved dis-infestation science to increase safe imports and exports of plant products.
- Better crop destruction technologies that reduce the unnecessary loss of crops while controlling EPPs.

**Program 5: Performance Indicators**

- Adoption of an effective phosphine resistance management program
- Provision of tactical response capability
- Adoption of at least one new pest control treatment
- Development of at least one new flexible storage technology
- Development of at least one new risk management system

## Goal

Maximise the value, integrity, and competitive advantage of Australia's post-harvest supply chain.

## Strategic objective

To undertake innovative research to develop cost-effective solutions and technologies for the post-harvest supply chain.

## Actions

- Build and maintain capability for tactical response to emerging threats to post-harvest integrity
- Maintain phosphine as a cost-effective pest control treatment by addressing resistance, safety and environmental issues
- Develop new technologies to control pests in the supply chain
- Manage the risk of potential threats to human and animal health in the supply chain
- Develop flexible storage technologies to minimise potential biosecurity threats from multi-commodity systems

## Benefits

- Maximised competitive advantage for Australia
- Better allocation of resources across geographical regions
- Enhanced safety and health for supply chain stakeholders
- Ensuring consumer food security and safety
- Nationally coordinated focus

### Program 6: Performance Indicators

- The number of graduates and postgraduates trained by the CRC with a high proportion of completions.
- The number of government and industry personnel completing vocational training in plant biosecurity.

## Goal

The awareness, knowledge and skill of industry personnel, and supply of trained scientists involved in the supply chain and import/export pathways will be enhanced through education and training.

## Strategic Objective

To undertake training of PhD candidates in plant biosecurity, to provide vocational training for people working in the plant industry and government sector, and to provide training programs for research staff and students to enhance skills, develop industry awareness, and ensure that Australia has the highest quality plant biosecurity research community.

## Actions

- To support Honours candidates and up to 32 PhD candidates.
- Provide specific training for PhD and Honours candidates in plant biosecurity, a broad understanding of the plant biosecurity industry, and certified formal training in IP management, commercialisation, and business acumen.
- Deliver short courses and vocational training for the plant biosecurity community which includes industry, neighbouring countries and technology end-users.
- To support the development a national undergraduate curriculum in plant biosecurity.
- Develop biosecurity coursework for vocational training.

## Benefits

- More scientists trained to work in the plant biosecurity industry.
- Students better trained in project and IP management.
- Vocational training of plant biosecurity community.

### Program 7: Performance Indicators

- Production of effective training manuals and workshops for outputs of all Programs.
- Effective delivery of risk assessment models to government agencies for testing and validation.
- The effective operation of an end-user advisory group.
- Effective delivery of diagnostic technologies to Australia's plant industries through commercial participants or state agencies.
- Effective delivery of new surveillance technologies and their international acceptance.
- The incorporation of surveillance and response tools in operational plans by industry and government.
- Community networking and education models available for plant biosecurity.

*The Commercialisation and Utilisation Program is the delivery and adoption plan for the CRCNPB. The Commercialisation and Utilisation name is used to maintain consistency with the Commonwealth Agreement.*

## Goal

Realisation by stakeholders of the benefits of the CRC, as the result of adoption of improved knowledge-based systems by government, universities and plant industry organisations, and commercialisation of new technologies through the private sector.

## Strategic Objective

To facilitate the delivery, commercialisation and utilisation of all Program outputs to appropriate end-users in a manner that will ensure maximum adoption of new plant biosecurity technologies and skills.

## Actions

- Deliver an effective communication strategy.
- Utilise models to combine comparative risk analysis and risk assessment to predict threats.
- Deliver comprehensive, world-class diagnostics data on emergency plant pests through accessible national and international databases.
- Deliver diagnostic tests to end-users.
- Utilise a new generation of world-class and cost-effective surveillance tools and methodologies for emergency plant pests of national importance.
- Deliver tools to underpin surveillance and response.
- Establish an end-user advisory group to prioritise, monitor and advise on delivery.
- Develop strategies and protocols for community education and engagement in plant biosecurity systems.

## Benefits

- New biosecurity technologies delivered to Australia's plant industries and relevant stakeholders.
- Management manuals developed for key plant biosecurity threats.
- Training for end-users in diagnostic technologies.
- Web-based training and awareness packages developed for plant biosecurity.
- Ensure biosecurity systems are supported at community level.

The CRC for National Plant Biosecurity is a company limited by guarantee with an independent, skills-based Board of Directors. The operations of the CRC are governed by the company's Constitution, a Participants Agreement, and the CRC Commonwealth Agreement. A detailed description of the Centre's corporate governance is given below, with an overview of the company structure in Figure 3, following.

## Board of Directors

The Board is skills-based and made up of a Chair, who is independent of Participants, and six other Directors, a majority of whom are required to be independent of research providers. The Board has skills in:

a) plant industry production, industry operations and marketing;
b) plant health policy, plant health management and international trends in plant health practices;
c) strategic planning, business and financial management and economics;
d) corporate leadership and governance;
e) management of research and development;
f) education and training;
g) technology adoption; and
h) intellectual property management and commercialisation.

The Board Directors and Chair are appointed by the Members of the Company. The Directors exercise all the power of the Company that the Constitution and Corporations Act require to be exercised. The Directors will, to a reasonable and appropriate extent, consult with relevant

Participants in performing their duties. The Directors are responsible for ensuring the Company keeps written financial records in relation to the operations of the Company and must ensure that the financial records of the Company are audited in accordance with the requirements of the Corporations Act.

### Strategic Plan

A Strategic Plan for the CRC is prepared by the Directors in consultation with the Participants. The Strategic Plan is updated when required with any substantial alteration in the strategic directions requiring a Special Majority vote by the members of the Company. The Directors are required to keep the Participants informed about any significant changes to the Strategic Plan and matters that arise that may significantly affect the achievement of CRC objectives.

### Annual Operating Plan

Annual Operating Plans (AOP) are developed by the Directors in consultation with the Participants and are based on CRCNPB's Strategic Plan. An Annual Report provides a review of progress against each AOP.

### General Meetings

An Annual General Meeting will be held in the second quarter of each financial year. General Meetings will be convened in the final quarter of each financial year.

### Chief Executive Officer

The CEO is appointed by the Board to manage the CRC, and will report to the Board. The CEO will lead the Management Team and chair the Science Committee.

### Management Team

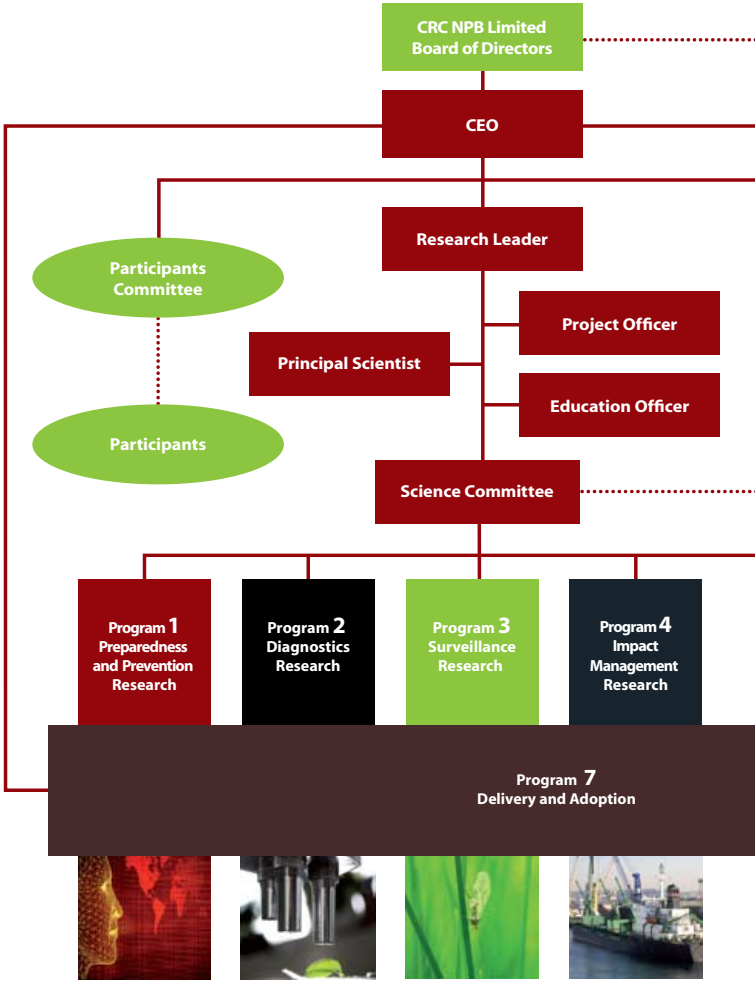
A management team with qualifications and experience in research and project management, administration, finance, education and communication will administer the policies and delegation authorities of the Board, and provide executive support to the CRCNPB.

### Science Committee

A Science Committee, comprising the CEO or nominee and the Program Leaders, will manage and deliver the science program as agreed by members. This committee is also responsible for recommending new projects to the Board (see project selection process section).

### Participants Committee

The Participants Committee is made up of representatives of each of the core Participants in the CRC. This committee monitors the progress of the Centre, including current and proposed projects, and commercialisation of Centre IP. There is a small number of Special Majority Issues and Unanimous Issues in the Participants Agreement that are determined by members and/or Participants.


CRC NPB Limited
Board of Directors
CEO
Research Leader
Participants
Committee
Project Officer
Principal Scientist
Education Officer
Participants
Science Committee
Program 1
Preparedness
and Prevention
Research
Program 2
Diagnostics
Research
Program 3
Surveillance
Research
Program 4
Impact
Management
Research
Program 7
Delivery and Adoption

# CRC FOR NATIONAL PLANT BIOSECURITY ORGANISATION CHART

* effective from March 2008

Executive Assistant

Business Manager

Company Secretary

Communications Officer

Administration Assistant

Grains Advisory Panel

Program 5 Post- Harvest Integrity Research

Program 6 Education and Training

Biosecurity built on science

The CRC for National Plant Biosecurity is a cooperative venture between the following 23 (core and supporting) Participants under the Commonwealth's Cooperative Research Centres Programme.

## Core Participants

1. Department of Agriculture and Food, Western Australia
2. Grains Research and Development Corporation
3. Department of Primary Industries, Victoria
4. New South Wales Department of Primary Industries
5. Murdoch University
6. CSIRO
7. Queensland Department of Primary Industries & Fisheries
8. Queensland University of Technology
9. Co-operative Bulk Handling Limited
10. Australian Government
11. La Trobe University
12. Saturn Biotech Limited
13. ABB Grain Ltd
14. GrainCorp Operations Ltd
15. Charles Darwin University
16. South Australian Research and Development Institute
17. Plant Health Australia Ltd

## Supporting Participants

18. University of Adelaide
19. Charles Sturt University
20. Horticulture Australia Limited
21. Northern Territory Department of Primary Industries, Fisheries and Mines
22. Southern Cross University
23. University of Western Australia

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