

**Excerpt from PBCRC Submission**  
**Program 1 Early Warning**

**Output 1.01**

Activities include: research to identify points of biosecurity vulnerability and opportunities for the management of pest risks; the development of preparedness and adaptation strategies to manage the plant biosecurity consequences associated with global change and the development of models for the prediction of pest movement and impact across different host species, different pests species and different environments.

**Timeline of key milestones**

**End FY1:** At least one workshop held with biosecurity stakeholders to guide project design and direction.

**End FY2:** Review of at least three case studies, existing tools and literature on emerging pest threats completed.

**End FY3:** Trade, transport and natural pest spread pathways prioritised through vulnerability analyses.

**End FY4:** Development of pest threat tools that integrate information on biology and global change to predict the likelihood of pest entry, establishment and spread.

**End FY5:** Pest threats tools and techniques tested with key government and industry end-users.

**End FY6:** At least two training workshops completed and manuals/support tools deployed with end-users. All PhD theses submitted. At least 7 peer reviews publications submitted.

**Output 1.02**

Development of economic modelling tools to evaluate benefits and costs of different biosecurity strategies and completion of biosecurity decision-making support tools and techniques that allow the evaluation of different biosecurity options at enterprise, regional, state and national level.

**Timeline of key milestones**

**End FY3:** Model of decision-making processes developed.

**End FY4:** Methodology for benefit- cost analysis of biosecurity management options developed.

**End FY5:** Prototype biosecurity decision support tools developed and tested with key industry, policy makers and communities.

**End FY6:** Final biosecurity decision support tools incorporating output 1.01 developed. Training workshops completed and manuals/support tools deployed with end-users. All PhD theses submitted. At least 7 peer reviews publications submitted.

**Excerpt from PBCRC Submission**  
**Program 2 Surveillance, diagnostics and response**

**Output 2.01**

Research and development into better plant pest detection and monitoring tools and techniques including evaluation of different surveillance systems and strategies; development of fungal spore monitoring methodologies; development of improved insect trapping methods.

**Timeline of key milestones**

**End FY1:** Workshop held with national Surveillance Reference Group (SRG) to finalise research design. A critical analysis of existing surveillance systems in grains and horticulture completed.

**End FY2:** Preliminary evaluation of female fruit fly lures completed.

**End FY3:** Final design of the UAV spore trapping system based on CRCNPB prototype produced after further field testing

**End FY4:** Prototype tools and techniques, including digital field based devices developed. Surveillance strategies for grains, horticulture and viticulture based on Bayesian and other statistical techniques developed and evaluated in the grain industry.

**End FY5:** Field trials on chemo-sensor technology completed and results published. Field testing of prototype tools and techniques with end-users.

**End FY6:** Female fruit fly lure developed and results published. Surveillance training modules completed and accredited. Manuals/ support tools deployed with end-users. All PhD theses and least 8 peer reviewed publications submitted.

**Output 2.02**

Research to produce critical biological data to support the development of diagnostic tools; research to develop generic diagnostic tools that enables differentiation to organism level from samples taken at the border and in post entry quarantine stations (PEQ); research into the application of remote automated techniques for diagnostics. Enhancement of the remote microscope network.

**Timeline of key milestones**

**End FY1:** Agreement reached with the national Sub-Committee for Plant Health Diagnostics (SPHDS) on key diagnostic research priorities.

**End FY2:** Evaluation of the potential for the National Broadband Network (NBN) to improve remote surveillance and diagnostics. Deployment of at least six additional remote microscopes in regional Australia and near neighbours.

**End FY3:** Research necessary for producing critical biological data for the diagnosis of at least 2 key pests completed.

**End FY4:** Deployment of at least six additional remote microscopes in Australia's near neighbours. Development of at least four new diagnostic tests completed.

**End FY5:** Submission of at least 4 diagnostic protocols for national validation. Vocational and Educational and Training (VET) modules on diagnostics completed and national accreditation process commenced.

**End FY6:** Training workshops completed and manuals/ support tools deployed with end-users. All PhD theses submitted and international internships completed. At least 5 peer reviewed publications submitted.

## **Excerpt from PBCRC Submission**

### **Output 2.03**

Review of worldwide eradication and response strategies research optimum lower impact eradication strategies; and develop general models and statistical techniques that can be used to design and monitor progress of eradication programs.

#### **Timeline of key milestones**

**End FY1:** Analysis of case studies of past incursions to refine our understanding of the key factors leading to the success or failure of plant pest response action completed.

**End FY2:** Evaluation of potential tools and strategies for eradication of pests in broad acre agriculture including the application of CRCNPB techniques to new host-pathogen combinations.

**End FY3:** Eradication end-point model developed. Field testing of eradication techniques.

**End FY4:** Prototype eradication and management tools and strategies developed for validation with international partners where relevant pests are present.

**End FY5:** Tools and strategies for eradication and or management of specific plant pests field tested with involvement of end-users and incorporated into contingency plans.

**End FY6:** Training workshop completed and manuals/support tools deployed with end-users. All PhD theses submitted and international internships completed. At least 6 peer reviewed publications submitted.

**Excerpt from PBCRC Submission**  
**Program 3 Safeguarding trade**

**Output 3.01**

Analysis, tools and techniques to assist industry and government meet market and importing countries requirements in regard to pest status of commodities; research to provide critical data sets to support the replacement of single-hit treatments with systems approaches to pest management in commodities; development of models and statistical techniques that allow the evaluation of individual pest treatments in system approaches; and research into the implications of climate change on maintaining area freedoms and areas of low pest prevalence essential for interstate and international trade.

**Timeline of key milestones**

**End FY1:** Key pest constraints to market acceptance of produce identified in consultation with industry and relevant government agencies. Key research gaps identified.

**End FY2:** Specific frameworks for the use of system approaches to manage grain storage pests and pests in export horticultural products developed.

**End FY3:** Biological research into the pest status of commodities along the value chain from production to end-use completed.

**End FY4:** Prototype tools and strategies for systems approaches to pest management in traded commodities developed and tested.

**End FY5:** Tools and techniques refined and extended to cover major grain and horticultural exports (domestic & international). Research into management of the pest impacts of climate change completed.

**End FY6:** Training workshops completed and manuals/support tools deployed with end-users. All PhD theses submitted. At least 8 peer reviewed publications submitted.

**Output 3.02**

Tools and techniques for better management of existing pests of national significance; research into the management of grain storage pests and alternative strategies to the use of phosphine; validation of eradication methods for pests in timber and other plant products to replace the use of methyl bromide and other chemicals that are being withdrawn from use; research into the tolerance of key pests to various treatments such as heat, irradiation, drying and controlled atmosphere.

**Timeline of key milestones**

**End FY1:** Workshops with key stakeholders to review work on grain storage pests from CRCNPB. Extension/training materials based on CRCNPB work on phosphine resistance management finalised. .

**End FY2:** Research project on pesticide resistance and ecology completed. Intervention points for controlling storage pests in production and transport chain and appropriate treatments identified.

**End FY3:** Field testing of CRCNPB tools and techniques for grain storage pest control completed. Extension package produced and provided to industry for use.

**End FY4:** Equipment disinfestation protocols drafted and tested with end-users.

**End FY5:** Complete research into treatments to replace key pest management chemicals likely to be no longer available. .

**End FY6:** Training workshops completed and manuals/support tools deployed with end-users. All PhD theses submitted and internships completed. At least 7 peer reviewed publications submitted.

**Excerpt from PBCRC Submission**  
**Program 4 Secure Future**

**Output 4.01**

Research into government, industry and community structures, networks and processes relevant to the engagement of stakeholders in biosecurity; development of techniques that can improve community, government and industry engagement; development of programs that both support biosecurity and provide a return to remote communities. Determination of social and behavioural elements influencing delivery of biosecurity including the role of regional communities in biosecurity.

**Timeline of key milestones**

**End FY1:** Engagement and data gathering workshops with community (including Aboriginal and Torres Strait Islander communities), government and industry.

**End FY2:** Refine and roll out CRCNPB developed i-Tracker support tool to regional indigenous communities and near neighbours. Identification of key factors impacting on plant biosecurity decision-making by community, government and industry.

**End FY3:** A general model of biosecurity engagement and decision making developed (linked with Program 1) and specific applications based on this model developed.

**End FY4:** Models and applications completed in FY3 tested, validated and refined.

**End FY5:** Deploy applications for community engagement.

**End FY6:** Training workshops completed and manuals/ support tools deployed with end-users. All PhD theses submitted and international internships completed. At least 8 peer reviewed publications submitted.

**Output 4.02**

Transition of the PBCRC knowledge, research capacity, education, training and IP to end-users, institutions and national systems to form an enduring legacy.

**Timeline of key milestones**

**End FY1:** Workshop with Plant Health Committee, CSIRO and Plant Health Australia on transition/legacy arrangements.

**End FY2:** Analysis of gaps in national plant health system completed to guide transition/legacy arrangements.

**End FY3:** On-going work with government agencies to refine transition arrangements and ensure transition arrangements are consistent with Standing Committee and Ministerial Council agendas.

**End FY4:** Workshop with State Agencies, CSIRO, Plant Health Committee and Plant Health Australia to draft MOUs for PBCRC transition/legacy.

**End FY5:** Formal MOUs with legacy organisations finalised.

**End FY6:** All arrangements for delivery of PBCRC transition/legacy (capacity, IP, networks, nodes) in place. MOUs signed.