



# **Biosecurity and quarantine arrangements**

Senate Inquiry – August 2010

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# 1 Summary

The Cooperative Research Centre for National Plant Biosecurity (CRCNPB) started operating in November 2005 in recognition of the need to strengthen the plant biosecurity scientific capacity of Australia. The CRCNPB coordinates plant biosecurity research across all Australian states and territories and has an extensive collaborative network of researchers and educators from 24 participating organisations representing industry, universities, state and Australian governments.

A key strength of the CRCNPB is the involvement of its participants who are, in many cases, end-users of research results. This ensures maximum benefit and impact in the delivery of project outputs, development of new products and services and capture of intellectual property.

The CRCNPB aims to provide leadership in the development, execution and delivery of plant biosecurity research to safeguard Australia's plant industries and in turn:

- ensure food security for Australian consumers, and
- maintain and improve market access for agricultural exporters.

The CRCNPB was established and is supported under the Australian Government's CRC Program and its current term is due for completion on 30 June 2012. A recent independent review of the CRCNPB found that *'The CRC is the only organisation providing a coherent, comprehensive national approach to plant biosecurity research in Australia'*. With the support of existing and new participants, the CRCNPB has recently submitted a bid to the CRC Program to fund its plant biosecurity R&D activities for an additional eight years. Many of the proposed R&D activities complement recommendations made in the 2008 Beale Review.

Recognising biosecurity as a critical issue to Australia and, in particular, to its plant industries the CRCNPB welcomes the opportunity to respond to the Senate Inquiry into Australia's quarantine and biosecurity arrangements.

## 2 Terms of Reference

### 2.1 The adequacy of current biosecurity and quarantine arrangements, including resourcing

Australia's biosecurity system is complex. The management of plant biosecurity in Australia by regulators and industry involves many levels of legislation, implemented through numerous regulatory bodies with oversight from various state and federal agencies. Resources are limited, meaning that regulators and industry for the most part function in isolation from research in the field until, as is often the case, their paths cross at the point of a harmful plant pest incursion or market access issue. At that point there is no time for regulators to explain the intricacies of biosecurity laws, nor for researchers to develop a quick-fix solution to the problem.

Currently, Australia is facing a shortage of skills in many of the underpinning disciplines for quarantine and biosecurity. The current capability in many areas such as bacteriology, nematology, aphid and mite taxonomy, plant disease epidemiology and surveillance science is very limited.

The CRCNPB is working to address these scientific skill gaps by providing trained graduates and advanced training for individuals already working in the field, however, the issue of long-term employment needs to be addressed. Without the definition of a clear career structure within the existing biosecurity organisations it will not be possible to significantly change the current limitation in skill sets. This point made, it is unlikely that Australia or any other developed country will return to a position where it has a large resource of trained experts in specific disciplines. It is for this reason that the CRCNPB has devoted resources to the development of new tools and technologies, such as the Plant Biosecurity Toolbox, which will better equip current and future scientific and technical personnel to extend and act upon their knowledge of plant pests.

An example of tools developed is the remote microscope network in which the CRCNPB has invested, heavily. This project was initially carried out in parallel with an Australian Quarantine and Inspection Services (AQIS) funded activity to establish a remote digital diagnostic network. While the parallel activities were coordinated, to avoid duplication, it is hoped that a single network will be operational in the near future that utilises the total diagnostic capacity in Australia. Through the provision of a triage system the capacity to undertake diagnosis will be enhanced. Australia does not have the skills base to support two such networks and the combining of the two activities is necessary. If added confidentiality is required for AQIS-labelled samples then this can easily be accommodated through the triage system.

Within Australia there are more than 30 camera-connected microscopes linked to a public internet-based image library to meet Australia's biosecurity challenges. Connections include remote districts such as Kununurra in Western Australia, which would otherwise have limited access to the expertise required to identify new plant pests and diseases.

The same digital diagnostic technology is being set up in East Timor, Thailand, Laos, Malaysia, Singapore and Vietnam as part of Australia's 'pre-border' surveillance and an extension of the network exists in New Zealand and is being developed with Canada and the United States.

The remote microscope network has been used to successfully identify a harmful plant pest during an incursion. In addition, to further address future resourcing issues it is being used to remotely train diagnosticians to correctly identify specific plant pests.

In current quarantine and biosecurity arrangements, monitoring at the border is the primary focus but there is a general lack of immediate post border surveillance to identify breaches in the system. Monitoring of this area would provide a much greater capacity to review and modify the current system as gaps are identified.

Quarantine responsibilities need to be expanded to cover the immediate post border area and stronger linkages need to be developed between AQIS and the relevant state/territory agency to ensure appropriate action can be taken in a timely manner. The Australian Government only has a limited role in post-border surveillance and this is largely through the national fruit fly trapping grid and the Northern Australian Quarantine Strategy program. The Office of the Chief Plant Protection Officer (OCPPO) coordinates a national surveillance reference group which has enabled structure to be built into current surveillance activities but the priority given is still low. The major effort in this area is passive rather than active surveillance.

Additionally, while current quarantine arrangements show considerable investment into resourcing airport screening activities which are very visible to the general public, the risks from imported cargo (containers) and post-entry quarantine do not seem to be adequately appreciated. Increased research and resourcing is required to investigate how many of the threats can be managed off-shore prior to the shipment or movement of material and/or people.

Currently, if an importer decides to have a product treated or destroyed following detection of a possible quarantinable pest there is no further diagnosis undertaken of the pest detected as the cost must be recovered from the importer, who is usually not interested in paying for this service. Identification of the pest detected to species level and sometimes to sub species level provides the Australian quarantine and biosecurity system with valuable data that can be used to assist in risk assessment and aids in evaluation of the current system. Operational scientists within AQIS have in the past (pre-2003) dedicated significant time to identifying pests detected, however, very few definitive identifications are now undertaken due to the costs involved.

The operational scientists have provided significant benefit to the delivery of public good outcomes in the past and strong consideration should be given to re-utilising this important resource in collecting the required data. Quarantine and biosecurity must be underpinned by science and it is imperative that governments maintain a strong operational scientist group.

## 2.2 Projected demand and resourcing requirements

Humanity has created ideal conditions to accelerate the spread of plant pests around the globe. Ever-increasing trade, travel and tourism have escalated the threat to industry, the environment and to communities from plant pest incursions.

Existing strategies to identify and manage pathways for pest entry have had a narrow focus on the biology of specific pests rather than the whole pathway involving pre-border, border and post-border activities. To strengthen biosecurity preparedness now and into the future, more scientific resources are needed to identify trade, travel and tourism pathways which increase the risk of plant pest incursions and then to develop subsequent strategies for where to place surveillance and intervention.

Biosecurity diagnostic, surveillance and eradication tools and the people that use them are critical components of Australia's biosecurity system. Without these tools and their ongoing improvement the biosecurity system cannot function effectively to mitigate risk to food supply, trade and subsequent prosperity of farming industries and communities. Existing diagnostic, surveillance and eradication initiatives have not proven to be fully effective in meeting end-user needs. They do not cover the full spectrum of pest species, production systems or the biosecurity complexity associated with globalisation. Investment in scientific resources needs to be made to strengthen Australia's existing diagnostic and surveillance tools and develop strategies to efficiently and more effectively manage and eradicate plant biosecurity threats.

The growth in global trade means greater research and resourcing is required to investigate how many of the threats can be managed off-shore prior to the shipment or movement of material and/or people. There also needs to be an increase in resources to screen imported material when it arrives in the country.

Globalisation and environmental changes will continue to pose challenges to Australia's biosecurity system as the behaviour of plant pests is altered in response to these changes. Accordingly, increased resources need to be deployed to research the affects of climate change on agricultural plant industries, and to develop subsequent strategies which respond and adapt to this changing environment. In a recent report (28 July 2010) to Tasmania's Primary Industry Minister, the Primary Industry Biosecurity Action Alliance recommended that government undertake R&D activities to identify, prioritise and respond to potential biosecurity threats as a result of the changing climate.

Australia's agricultural plant industries contribute more to the economy than livestock industries; however government biosecurity investment is skewed towards animals. The zoonotic link is an obvious reason to invest greater resources into the animal sector; however, there is no evidence that a review has been completed to ensure the appropriate balance has been achieved between the plant and animal sectors. As an example, a review completed by the Victorian Auditor General in 2004 found that the total quarantine/biosecurity investment in the state of Victoria for animals was five times higher than that for plants even though both contributed equally to the Victorian economy.

The Australian Government currently deploys significant funds to the operation and maintenance of the Australian Animal Health Laboratories in Geelong. The facility website states that '*The Australian Animal Health Laboratory (AAHL) plays a vital role in maintaining the health of Australia's livestock, aquaculture species and wildlife*'. While this large investment is made by the Australian government into AAHL there is no equivalent investment in infrastructure in the plant sector. The responsibility for these services rests with state agencies. This is something that needs to be reviewed when looking at resourcing requirements for the future of Australia's quarantine and biosecurity arrangements.

While there is a definite demand for resourcing in Australia's quarantine and biosecurity arrangements, it is difficult to exactly determine the projected demand given the significant decreases in agriculture funding occurring in state government agencies.

### **2.3 Progress in implementation of the 'Beale Review' recommendations and their place in meeting projected biosecurity demand and resourcing**

The Beale Review made 84 recommendations in its 2008 report to the Minister for Agriculture, Fisheries and Forestry. These recommendations were accepted, in principle, by the Australian Government. The CRCNPB is aware that some of the recommendations have been addressed, including the integration of many of the previous quarantine and biosecurity services into a streamlined operating structure the Biosecurity Services Group. The CRCNPB also realises that implementing recommendations from a review of this extent can often be a very time consuming and resource heavy process. For the purposes of this submission the CRCNPB has singled out recommendations where there is a particular link to plant biosecurity scientific research and development.

- 9 *A National Agreement on Biosecurity, to underpin a partnership approach between the Commonwealth and the states and territories on biosecurity, should provide for:*
- e) *joint decisions on national priorities for investment by jurisdictions, including in monitoring and surveillance (including identifying national priority exotic pests and diseases for Commonwealth investment), research and development and biosecurity infrastructure*

This is a very important recommendation as biosecurity is a national issue and a national approach and agreement would help facilitate better biosecurity management. Through the CRCNPB, many plant biosecurity research and development activities have a national approach as its participants involve state government agencies as well as the Commonwealth. A national agreement on biosecurity would help drive strategic direction for future R&D activities.

29 To enhance communications effectiveness:

- a) messages promoting Australia's biosecurity should cover the biosecurity continuum;
- b) new communication options, including those available on the Internet, should be employed by the National Biosecurity Authority; and
- c) particular efforts should be made in collaboration with the states and territories, local governments, community and business groups to inform peri-urban farmers, including from non-English speaking backgrounds, of Australia's biosecurity policies and to engage them in monitoring, surveillance and response strategies.

The CRCNPB supports this recommendation. Again, as biosecurity is a national issue, a nationally-coordinated approach needs to be made to ensure messages about biosecurity are consistent and clear. The CRCNPB has invested in social science research into communicating biosecurity messages to various audiences (including Indigenous Australians) using a number of channels. Our research shows that different target groups require different methods of communication and engagement to ensure biosecurity messages are understood.

45 *The National Biosecurity Authority, in consultation with relevant stakeholders and the Biosecurity Advisory Council, should develop a list of national priority exotic pests and diseases, with their respective pathways, on the basis of the likelihood of incursion and the consequences for businesses, human health and the environment. This list should be used to prioritise the review and development of comprehensive biosecurity risk management plans across the biosecurity continuum.*

The CRCNPB supports this recommendation. However the development of a biosecurity risk management plan needs to ensure an effective R&D strategy is aligned with it.

49 *The National Biosecurity Authority should work with other countries and the states and territories to share pest and disease intelligence and consider working together with trading partner countries on issues such as regionalisation and compartmentalisation assessments and systems assurance.*

50 *The National Biosecurity Authority should establish an intelligence gathering and assessments group to monitor animal and plant pest and disease status internationally, with a particular focus on the region and our trading partners.*

52 *The National Biosecurity Authority should undertake a continuing program of analysis of risk pathways using data collected from pre-border intelligence and border inspections at control points along the continuum. The results of this analysis should be used to update risk management strategies and measures.*

The CRCNPB supports these three recommendations and recognises the importance of international collaboration as many of Australia's most serious plant biosecurity threats exist in other countries. The CRCNPB uses the remote microscope network to gather intelligence on emerging pests and diseases from other countries. However, further research needs to be undertaken to ensure Australia has the most appropriate tools to undertake this intelligence gathering and analysis of the data collected.

53 *The National Biosecurity Authority should develop and maintain, in consultation with the states and territories and business organisations, a comprehensive post-border monitoring and surveillance program for national priority exotic pests and diseases, which should include:*

- a) an enhanced Northern Australia Quarantine Strategy that extends beyond the current 20km zone to provide coverage for at-risk areas around international airports, seaports and vulnerable areas of Australia's coastline;*
- b) existing and additional port surveillance activities;*
- c) the Commonwealth's responsibility for investigating suspected post-border detections of pests and diseases in imports;*
- d) strategic surveillance to support Australia's pest and disease free export claim and the conduct of Biosecurity Import Risk Analyses*

The CRCNPB supports this recommendation, recognising that comprehensive post-border monitoring and surveillance is essential if Australia is to maintain its reputation in the global market for exporting produce which is free from pests and diseases.

56 *The National Biosecurity Authority should work with state and territory agencies, professional associations and higher education providers to develop a general biosecurity course to be incorporated in health, environmental, marine biology, veterinary and agriculture science curricula. All staff employed in the National Biosecurity Authority should be taught an appropriate adaptation of the general biosecurity course upon commencement of their employment in the agency.*

The CRCNPB supports this recommendation and has recognised education is essential for staff who work in the biosecurity field. The CRCNPB invested significant in-kind resources through its university participants to establish a postgraduate curriculum in plant biosecurity. In 2010, the CRCNPB curriculum project took its first enrolments in the course. The project received the majority of its monetary support from the federal government Department of Education, Employment and Workplace Relations through a Collaborative and Structural Reform Grant. It also received significant in-kind support through the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF).

The aim of the course is to provide education of various elements of plant biosecurity to people working in the biosecurity field, who may not necessarily have learned about these subjects in their undergraduate studies. To date, all enrolled students have come from the DAFF, Department of Primary Industries, Victoria and the Department of Food and Agriculture, Western Australia.

57 *The National Biosecurity Authority should develop national research priorities, including for new technologies to better address biosecurity risk, and should work with research bodies to coordinate the research effort towards those priorities.*

Most of the CRCNPB's current research projects fall under the national research priority of '**Safeguarding Australia from invasive diseases and pests**'. Using this as an overarching priority, the CRCNPB would welcome the opportunity to work with the National Biosecurity Authority to coordinate research efforts under a strategic national R&D framework. The CRCNPB's current research projects were developed by end-users, including state and federal government and industries, to target key biosecurity issues which could threaten Australia's trade and market access.

58 *The National Biosecurity Authority should ensure Australia has the laboratory capability and capacity to manage exotic pest and disease incursions of national significance. The Panel recommends that the Authority, working with the states and territories, should improve the quality and use of state and territory laboratories to support national biosecurity priorities.*



As stated earlier in this submission, there is a significant investment in animal health laboratories through the facility at CSIRO's AAHL. There is no equivalent investment in infrastructure in the plant sector, and the CRCNPB sees the implementation of this recommendation as a critical element to enhancing Australia's plant biosecurity system. In using the existing laboratories in states and territories it is essential that a formal national network is established to utilise resources in the most effective way.

## 2.4 Any related matters

Australia's biosecurity system is complex. The management of plant biosecurity in Australia by regulators and industry involves many levels of legislation, implemented through numerous regulatory bodies with oversight from various state and federal agencies. A lack of resources means that regulators and industry, for the most part, are isolated from research in the field until, as is often the case, their paths cross at the point of an emergency pest incursion or market access issue. At that point, there is no time for regulators to explain the intricacies of biosecurity laws, nor for researchers to develop a quick-fix solution to the problem.

Research into plant biosecurity is wide-ranging and aims to address long-term, broad scientific, agricultural and economic problems across a number of disciplinary and research environments. Technology 'solutions' to plant biosecurity problems, once produced, do not always meet the 'real world' requirements of regulatory bodies and industry that must be met if they are to be put into practice. There is a strong need for much greater interaction between the regulatory, research and industry sectors in defining, developing and delivering quarantine and biosecurity research activities. Adequate resourcing, currently lacking, will be essential to realising the benefits of closer interaction between the sectors.

In fulfilling its role the CRCNPB is aiming to promote a better understanding of the different needs and roles of regulators, industry and researchers through collaborative projects, workshops and other communication activities. The CRCNPB actively facilitates engagement between researchers and the end-users of research, ensuring that research outcomes are delivered and adopted and, in turn, translate into new and improved policy and practice.