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Biosecurity engagement: Proposed national action plan for community involvement in plant biosecurity

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Research by the Australian Bureau of Agricultural and Resource Economics and Sciences

CONSULTATION SUMMARY REPORT

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Foreword

Australia's favourable plant biosecurity status is worth billions of dollars as it underpins access to lucrative markets for agricultural produce, saves on-farm costs and contributes to protecting Australia's unique biodiversity.

Biosecurity tends to be seen as an issue mainly for government agencies and industry bodies and less so for the broader community. However, all Australians can contribute to maintaining Australia's biosecurity status. We can do this by complying with best biosecurity practice (for example, not taking fresh produce into pest-free areas and managing pests and diseases in backyard fruit trees) and helping address biosecurity issues (for example, reporting suspected exotic pests, weeds or diseases or becoming volunteer pest monitors).

To maintain and improve Australia's plant biosecurity status we need to strengthen engagement with the community about biosecurity issues. For community engagement to be effective we need to abide by sound engagement principles and address the broader context in which biosecurity engagement occurs. This document provides principles and practical actions relating to the broader context, such as ideas for research and capacity building and ways to strengthen institutional arrangements. It is based on input from a wide range of stakeholders across Australia, including biosecurity engagement practitioners, community group representatives, senior government and industry officials and biosecurity researchers. This work is sponsored by the Office of the Chief Plant Protection Officer in the Department of Agriculture, Fisheries and Forestry.

Paul Morris
Executive Director
January 2012

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Summary

An independent review of Australia's quarantine and biosecurity arrangements for the Australian Government (Beale et al. 2008), stresses that biosecurity is a responsibility shared between government, industry and the community. This raises the question of how the broader post-border community could play a more active role in addressing biosecurity issues and how best to gain their interest and support for biosecurity-related practices and activities.

The basis of this report is the outcomes of four futures workshops involving a wide range of stakeholders. The purpose of the workshops was to identify options for investing scarce resources and to improve strategic planning in the area of community engagement for biosecurity. It involved 'blue sky' thinking; that is, to creatively generate ideas that are not limited by current thinking or beliefs.

During the futures workshops, participants discussed strengthening biosecurity engagement from a national perspective in order to inform a proposed national action plan for plant biosecurity engagement. Participants identified things like barriers and enablers, strategies, the required capabilities and leverage points that need to be considered in this context.

The workshop outcomes were compared with current high-level biosecurity-related strategies to ensure key points and suggested ideas for action dovetail with other biosecurity initiatives. An advisory group, comprising representation from key stakeholders, also reviewed the workshop outcomes. Overall, the content of this document has been well-received by a wide range of stakeholders, but a significant amount of further work is required.

This document will form part of a proposed National Plant Biosecurity Engagement Framework being developed by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) for the Office of the Chief Plant Protection Officer in the Department of Agriculture, Fisheries and Forestry (DAFF). It contains the outcomes of a research project conducted by ABARES that could be used to inform development of a national action plan for community engagement about plant biosecurity. The Australian Government has not endorsed the content of the document.

A vision for biosecurity engagement

Workshop participants identified a number of visions for biosecurity engagement by 2020. The key themes that emerged included:

- Australians understanding that biosecurity is a shared responsibility (that is, 'knowing that as the general public we have a responsibility too')
- biosecurity means looking after Australia's biodiversity, economy and food security
- Australians having a shared understanding of their responsibilities relating to biosecurity (that is, 'as the general public we know what we can do to support biosecurity').

The eight biosecurity engagement pillars

At a most basic level the workshop outcomes highlighted three cornerstones for effective biosecurity engagement—a motivated community, a resourced community and an enabling environment. Within those cornerstones, a number of key themes—or 'strategic pillars'—necessary to support a national biosecurity engagement approach emerged.

A motivated community

Pillar 1: Raising the profile of biosecurity—because Australians don't appreciate the value of biosecurity.

Pillar 2: Engaging effectively—the need to carefully consider with whom to engage, understand stakeholders, carefully consider messages, and use appropriate tools and mechanisms for each group.

A resourced community

Pillar 3: Finding and optimising resources—the need for resources to support effective biosecurity engagement should not be underestimated. Resources could come from a range of sources and there are various ways to make more effective use of resources. Biosecurity engagement officers need to be supported through training and other professional development options. Engaging the community for surveillance could extend biosecurity resources.

Pillar 4: Making the most of technology—technology, especially internet-based, offers opportunities for biosecurity engagement. It needs to be accessible, cost-effective, user-friendly, flexible and well promoted. Scientific quality control is important.

Pillar 5: Capitalising on existing information—the need for national coordination of information, strengthening networks and linkages between stakeholders and effective communication about new and emerging pests.

An enabling environment

Pillar 6: Monitoring engagement progress—meaningful monitoring enables adaptive program management. Biosecurity engagement programs can learn from each other if the lessons learned (in terms of principles) from the successes and failures of programs are widely communicated.

Pillar 7: Enabling sound governance—the need for a more integrated approach to biosecurity, better definition of roles and responsibilities and strengthening biosecurity on the political agenda.

Pillar 8: Building and maintaining scientific capability—the need to strengthen scientific expertise, biosecurity-related research, and identification and communication of key risks and pathways.

Key ideas for action

The key ideas for action suggested in this document are:

- launching an awareness initiative to raise the profile of biosecurity among the general Australian public, which will require a business case for biosecurity that could be developed by consolidating existing information on the impact of pests, weeds and diseases
- conducting a social network analysis involving organisations carrying out biosecurity engagement activities, community groups involved in biosecurity activities, and developers of technology that could be used to support biosecurity engagement to better understand
  - how biosecurity engagement projects are currently resourced and how resourcing could be improved
  - gaps and opportunities in information flow between different groups
  - allocation and definition of roles and responsibilities relating to biosecurity engagement
- developing and implementing key performance indicators for biosecurity engagement projects
- strengthening engagement with schools, retirees and the media
- strengthening resourcing of biosecurity engagement projects by
  - investigating the merits of nationally coordinating volunteers and other community efforts for biosecurity, including looking at different models
  - developing professional development opportunities for biosecurity engagement staff
  - investigating the opportunities for commercial and international sponsorship
  - including community engagement as a key adoption tool as part of the 'biosecurity' priority under the Australian Rural Research and Development Priorities
- making better use of technology by learning from the successes and failures of current relevant technologies, and narrowing the gap between technology developers and users
- capitalising on existing information by ensuring current web-based engagement tools, such as the Australian Biosecurity Information Network (ABIN), are widely promoted through awareness initiatives and training opportunities, including for smaller community and industry groups
- strengthening the monitoring and evaluation of biosecurity engagement, both at program and national level.

Table 1 provides an overview of the key findings and ideas for action.

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops

ACHIEVING A MOTIVATED COMMUNITY

Pillar 1: Raising the profile of biosecurity

Key points	Ideas for action
Australians don't appreciate the value of biosecurity and how it affects Australia's economy, food security, environment and lifestyles. Barriers to Australians' appreciation of biosecurity issues include complacency, apathy, competing priorities and lack of understanding of the meaning of the term 'biosecurity'.	A significant body of work on the affects of biosecurity problems exists—including cost–benefit analyses of various pests, weeds and diseases—but continues to have limited reach and recognition in many communities. We need to: • consolidate existing information on the effects of pests, weeds and diseases and develop it into a business case for biosecurity, including identifying winners and losers among stakeholders • identify the key roles and responsibilities for the broader community to maintain Australia's biosecurity status • conduct market research to learn what messages would resonate best with the Australian public to gain their interest in biosecurity issues • develop and launch a biosecurity awareness initiative (based on the findings of the above three points) using a range of media, web and new technologies; use principles from 'Pillar 2: Engaging effectively' to make the initiative effective • identify ways to 'normalise' good biosecurity behaviour.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops *continued*

Pillar 2: Engaging effectively	
Key points	**Ideas for action**
Effective engagement is often undermined by a lack of time and resources to develop the underpinning knowledge needed to work with stakeholders and target groups. To engage effectively, we need to: • carefully choose with whom to engage—consider engaging existing community groups already involved in related issues; schools and retirees show potential as good target groups • understand stakeholders—their perceptions, expectations, values, current practices and knowledge, in order to tailor messages, identify what tasks groups and/or community members might be interested in and identify needs for capacity building, such as training • thoroughly consider messages—achieve simple and consistent messages and tailor messages based on the 'what's in it for me?' principle • use the most appropriate tools and mechanisms for each group—by using trusted and credible figures as biosecurity champions, for example; as well, effective engagement through the media seems to be hampered by the limited number of media spokespeople in government agencies and industry bodies • empower the community to undertake the required task—through, for example, training, resourcing and handing over responsibility and ownership for some tasks.	We need to: • develop and implement key performance indicators for biosecurity engagement projects for adoption by government agencies and industry bodies. Key performance indicators could include – carefully choosing with whom to engage – understanding stakeholders – considering messages thoroughly – using appropriate tools and mechanisms – empowering the community • continue to develop, coordinate and promote biosecurity curriculums for schools that could be integrated with curriculums for science and/or biology, and use innovative and creative delivery methods • conduct a research project to identify the opportunities for engaging with retirees about pest, weed and disease issues and use this information to develop a biosecurity engagement program targeted at retirees • conduct a research project on how the media could be more effectively engaged about pest, weed and disease issues; and promote the lessons learned among government agencies and industry bodies.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops
continued

ACHIEVING A RESOURCED COMMUNITY

Pillar 3: Finding and optimising resources

Key points	Ideas for action
• A lack of resources was the most commonly mentioned barrier to effective biosecurity engagement. While the community sector is perceived to be making substantial resource contributions to address biosecurity issues, the overall resources needed for effective biosecurity engagement should not be underestimated. • Resources (such as funding, staff or in-kind resources) could come from government agencies and industry bodies, research and development corporations, community groups and commercial sponsorships. Use 'what's in it for me?' messages and champions to attract resources. • Lifting the profile of biosecurity on the political agenda, political influence from the public and more resource legislation (such as levies) might be ways to leverage more funding for biosecurity engagement. • More value could be obtained from existing resources by better prioritising resource use, monitoring and evaluating biosecurity engagement projects, learning from other engagement projects, capitalising on new technologies and innovations (such as remote diagnostics and crowd sourcing), forming partnerships, cutting red tape and handing over tasks to community members. Engaging the community for surveillance was highlighted as a way to extend resources. • Benefit is seen in professional development for biosecurity officers engaging with the community through mentoring programs and involvement in extension networks. Some biosecurity officers who interact with the community might need engagement training to underpin culture change from a compliance-based to a partnership-oriented approach.	• Conduct stakeholder analysis and social network analysis of groups and organisations involved in community engagement for biosecurity purposes and where there are opportunities for stakeholder groups to be more involved. Include how projects are currently resourced and how they could be improved. • Identify the value of, and potential options for, national coordination of volunteer and other community efforts in biosecurity. For example, review existing models of a centralised national facilitator position or decentralised regional facilitator positions as well as other overarching support mechanisms. • Develop professional development opportunities for biosecurity and community engagement officers; these could include courses on engagement, mentoring and memberships with extension networks. • Investigate the opportunities for commercial and international sponsorships to support biosecurity engagement. • Include community engagement as a key adoption tool as part of the 'biosecurity' priority under Australian Rural Research and Development Priorities. • Review roles that community members could play to make better use of biosecurity resources, such as crowd sourcing and other forms of volunteering. Include requirements and considerations for each role.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops *continued*

Pillar 4: Making the most of technology

Key points	Ideas for action
• Technology offers great potential to underpin biosecurity engagement, especially web-based technologies. Significant technological capabilities already exist and new ones, which could be used with biosecurity engagement, are emerging rapidly. • Benefits of technology include more opportunities for two-way information flow, fast dissemination of messages, service delivery (such as training), 'having a voice' and reporting suspect organisms. • For technology to be used to its full potential, it needs to be accessible. This means potential user groups need to be aware of it and know how to use it. It needs to be cost-effective, user-friendly and preferably flexible so it can be adjusted to suit a particular group's needs. • More links and partnerships need to be forged between developers of new technologies and potential users. As well, more awareness initiatives and training opportunities need to be targeted at community groups and agencies involved in biosecurity engagement. • Technology needs to be backed-up by scientific experts (for example, to ensure quality control for remote diagnostics).	• Review the successes and failures of current technologies to suggest areas for improvement and cost-savings. • Encourage links and partnerships between technology developers and potential users. For example, develop a website (as part of the Australian Biosecurity Information Network (ABIN)) where technology developers can showcase their projects and call for groups to road-test their products and community groups can post their needs for certain technologies. • Employ a national biosecurity knowledge broker to connect people and information and foster two-way learning. • Any government or industry funding for developing new biosecurity-related technologies requires that developers test new technologies with potential users.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops *continued*

Pillar 5: Capitalising on existing information

Key points	Ideas for action
It is important that existing information about pests, weeds and diseases is accessible by being widely available and comprehensible. To aid this process we need to strengthen: • The national coordination of information—i.e. a web-based central database or 'one stop shop' for biosecurity information. It is important that such a venture be underpinned by shared government–industry ownership, commercial opportunities to attract resources and an awareness initiative to encourage use. Information should be in a format that is transferable and user-friendly and it should be regularly maintained and updated. It could also link with other key biosecurity websites as well as the new media. • Networks and linkages between key players, such as biosecurity research organisations, industry and government agencies, developers of biosecurity-related technology and the wider community. • Effective communication about new and emerging pests by presenting information in a useable format (such as a best practice guide for industry or response plans), collaborating closely with industry, making information accessible on the internet, addressing the perception that a government safety net will always be there, capitalising on new technologies, and offering community training to identify and report risks.	• Identify gaps and opportunities in the flow of biosecurity information as part of the social network analysis proposed in Pillar 3: Finding and optimising resources. Prioritise the opportunities and address them accordingly. • Ensure key biosecurity engagement tools are widely promoted to potential users. For example, the ABIN awareness initiative, which focuses mainly on government agencies and industry bodies, could be extended to include community groups to increase awareness and uptake of the opportunities that ABIN offers • Identify and address community training needs to make best use of online tools such as ABIN, PaDIL, Bowerbird, Atlas of Living Australia and other similar tools.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops *continued*

ACHIEVING AN ENABLING ENVIRONMENT

Pillar 6: Monitoring engagement progress

Key points	Ideas for action
• Monitoring and evaluation activities are important to ensure adaptive program management by enabling quick responses to new issues and opportunities as they arise. Biosecurity engagement programs could benefit greatly by learning from each other. • Broader 'on-track' signals for biosecurity engagement include: – increased stakeholder awareness of, and interest in, biosecurity issues – people are doing 'the right thing' – community takes initiative – better biosecurity outcomes. • Broader 'off-track' signals for biosecurity engagement include: – community continues to lack awareness of, and interest in, biosecurity issues – people are not doing the 'right thing' – government agencies and industry bodies are not successfully engaging with the community – undesired biosecurity outcomes.	• Develop practical, time-efficient monitoring and evaluation guidelines for biosecurity engagement programs that are not too onerous. • Apply the monitoring and evaluation guidelines as a condition for funding biosecurity engagement programs that have a duration of two years and longer. • Develop a national monitoring and evaluation program for biosecurity engagement.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops
continued

Pillar 7: Enabling sound governance

Key points	Ideas for action
• Incoherent legislation, lack of political will, changing governments resulting in changing priorities, 'red tape' and political process were identified as barriers to effective biosecurity engagement. • It is important that biosecurity is strengthened on the political agenda; for example, by strengthening communication between academic, policy and other stakeholders. • Better define and communicate roles, accountability, duty of care and individual responsibility to all biosecurity stakeholders, including the broader community. • The environmental and aquatic sector, local councils, the tourism and transport industries, peri-urban and culturally and linguistically diverse communities could be more engaged in addressing biosecurity issues. Farmers and industry bodies could make a significant contribution to community engagement efforts at a regional level.	• Conduct a review of how biosecurity engagement projects could be best managed and conducted, including ways to cut 'red tape' and how to operate in a changing political environment. • Use the social network analysis proposed in Pillar 3: Finding and optimising resources to identify possible improvements to the allocation and definition of roles and responsibilities with special emphasis on the broader community. Identify how roles and responsibilities could be best communicated. • Highlight to biosecurity policy areas the need to further recommendations of the Beale review, relating to political will and community involvement to address biosecurity issues.

Continued

Table 1 Key points and ideas for developing a national action plan for plant biosecurity engagement, based on outcomes from four futures workshops *continued*

Pillar 8: Building and maintaining scientific capability	
Key points	**Ideas for action**
In order to build and maintain Australia's scientific biosecurity capacity, there is a need to strengthen: • Scientific expertise, including the biosecurity skill base, by attracting new entrants to the field and maintaining existing ones. Succession planning must be strengthened urgently. • Research to – better understand the epidemiology, biology, ecology and management of certain pest species in an Australian context – make better use of new technologies and engagement strategies – better articulate the 'avoided losses' as a result of controlling biosecurity threats, – be able to address knowledge gaps in key biosecurity risks and pathways. • Research links with industry and community needs and the policymaking process. The research and development prioritisation needs open, consultative, transparent and independent expert scientific advice. • Identification and communication of key risks and pathways, including the need for effective risk analysis is increasing because of the increasing movement of goods and people. A well-developed value set is necessary to prioritise and plan responses for biosecurity risks and incursions. Effective communication about key risks and pathways is important to enable relevant groups to respond appropriately.	• Launch a marketing initiative to promote biosecurity-related career opportunities. • Review how key risks and pathways are currently being communicated to important groups and identify how engagement with these groups and the broader community could be improved. • Make evaluation a mandatory component of incursion responses. Make the principles of the lessons learned publicly available so programs can learn from each other.

Chapter 01

Introduction

Australia is internationally known for its 'clean, green' status due to the absence of many pests, weeds and diseases found elsewhere in the world. For plant production, this status enables access to lucrative export markets and reduces the need for chemical and other costly control measures, which directly affect the profitability and sustainability of plant industries.

Plant biosecurity in Australia tends to be thought of as the domain of governments and industry agencies, with its importance less recognised among the broader community. Over the past few decades, governments at federal, state and local levels, and industry, have made substantial investments in biosecurity in terms of developing policy, standards, delivery systems and services to address pest, weed and disease issues.

It is now commonly recognised in high-level biosecurity-related documentation (including the Beale review, the draft National Plant Biosecurity Strategy and the Inter-Governmental Agreement on Biosecurity) that biosecurity is a shared responsibility between government, industry and the community. Figure 1 provides an overview of Australia's biosecurity continuum. The blue shading indicates the areas that need community support to address biosecurity issues. This raises the question of how the broader post-border community could play a more active role in biosecurity activities, particularly in surveillance, detection and reporting.

This document contains the outcomes of a research project conducted by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) as part of the Engaging in Biosecurity project to provide information for a national approach to community engagement for plant biosecurity. It could be used to inform development of a national action plan for post-border community engagement in plant biosecurity. It comprises a synthesis of four futures workshops that focused on building visions and identifying strategies for community engagement in plant biosecurity. Workshop outcomes were compared with existing biosecurity strategies and reviews to ensure ideas for action dovetail with existing strategies and planned actions.

1.1 Engaging in Biosecurity project

The project (May 2008 to June 2011) investigated how the community could be best engaged in addressing biosecurity issues and developed a proposed National Plant Biosecurity Engagement Framework.

The project was funded by the Australian Government and administered by the Office of the Chief Plant Protection Officer in the Department of Agriculture, Fisheries and Forestry (DAFF). ABARES was contracted to carry out the project. The project has continuing support and input from key horticulture bodies and state governments. Oversight of the project has been through the Engaging in Biosecurity Reference Group, which comprised representatives of Horticulture Australia Limited, Plant Health Australia and the Cooperative Research Centre for Plant Biosecurity. At the time of publication, the outcomes within the document had not been endorsed by the Australian Government and consultation with stakeholders was continuing about how best to progress the work.

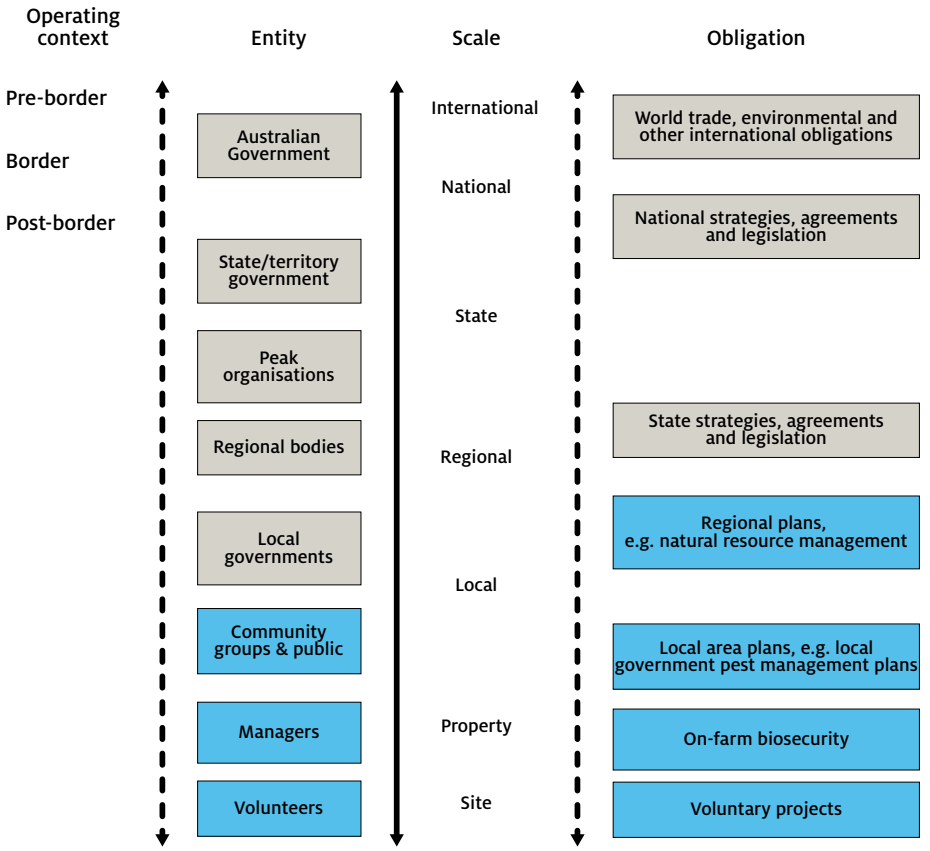
1.2 Proposed National Plant Biosecurity Engagement Framework

The aim of the framework is to provide inspiration, guidance and support in relation to involving communities in addressing pest, weed and disease issues. The framework comprises:

- The basis for a vision and action plan (the focus of this document) based on input from multiple stakeholders who attended one of the futures workshops held in key locations across Australia.
- Best recommended practices, which are provided through the *Biosecurity Engagement Guidelines: Principles and practical advice for involving communities* and *How to develop an engagement strategy including a monitoring and evaluation component* developed from the lessons learned from six existing biosecurity engagement projects and by conducting four biosecurity engagement trials. The guidelines are available at www.abares.gov.au.
- Tools and mechanisms involving information sheets and checklists developed from the lessons learned from six existing biosecurity engagement projects and by conducting four biosecurity engagement trials.

The framework has links with the Intergovernmental Agreement on Biosecurity that is overseen by the National Biosecurity Committee. The framework will be considered by the Intergovernmental Agreement on Biosecurity Schedule 6 National Engagement and Communication Framework Working Group.

FIGURE 1 The biosecurity continuum in Australia



Source: Adapted from Qld DPIF n.d., Queensland Biosecurity, Queensland Government Department of Primary Industries and Fisheries, Brisbane.

1.3 The futures workshops

The Engaging in Biosecurity project used a series of four 'futures thinking' workshops to obtain wide stakeholder input into developing the basis of a vision and action plan component of the National Plant Biosecurity Engagement Framework. The purpose of the workshops was to identify options for investing scarce resources and to improve strategic planning in the area of community engagement for biosecurity. It involved 'blue sky' thinking; that is, to creatively generate ideas that are not limited by current thinking or beliefs. The workshops were one-day events held in Canberra (25 November 2010), Melbourne (17 February 2011), Perth (10 March 2011) and Cairns (24 March 2011).

Workshops involved a wide range of stakeholders. In consultation with the project's Reference Group it was decided to invite influential representatives from state and federal government agencies and industry bodies to generate support for biosecurity engagement, and people active in biosecurity engagement at grassroots level, such as engagement practitioners, community group representatives and farmers, to provide 'reality checks'. Seventy delegates participated in the futures workshops.

A skilled futurist facilitator guided the workshops. Slight changes were made between each workshop, but overall they were used to identify:

- vision statements for biosecurity engagement by 2020
- barriers and enablers
- key strategic issues for biosecurity engagement
- specific actions to achieve the visions
- capabilities required for the actions, including what is available or where leverage points could be found
- leverage points
- indicators of improvement and degeneration (on-track and off-track signals) to monitor the progress of biosecurity engagement.

Participants worked in small groups and groups rotated between the various vision statements and key strategic issues in order to get responses from all participants to the ideas of fellow participants. Groups recorded their ideas on butcher's paper, which was used to write a report for each workshop. Workshop reports were distributed to participants for comment and feedback.

1.4 This document

This document is a synthesis of the futures workshops outcomes. The points participants raised during the workshops were analysed. The first version of the discussion document was released in May 2008 for comment from workshop attendees and other interested parties.

The first version was updated based on:

- feedback from workshop participants
- comparison between the discussion document and existing biosecurity strategies and reviews to ensure key points and ideas for action in the discussion document complement and dovetail with actions and recommendation outlined in these documents; and to fill gaps in the discussion document. Key high-level strategies and reviews considered include
  - National Plant Biosecurity Strategy
  - National Fruit Fly Strategy: Implementation Action Plan
  - Beale review
  - Australian Weed Strategy
- feedback from an advisory group.

A number of stakeholders were invited to form an advisory group to help refine the discussion document and identify options for its best use. The advisory group included representatives from Animal Health Australia, DAFF Caring for our Country, DAFF Communications, the Western Australian Department of Agriculture and Food, Horticulture Australia Limited, Plant Health Australia and the Victorian Department of Primary Industries. The advisory group met on 14 July 2011 and its main suggestions are summarised in section 1.5.

The suggested ideas for actions are based on the outcomes of the futures workshops. They were a combination of strategic actions suggested by workshop participants and the project team's ideas on how key workshop outcomes could be addressed. A few ideas were adjusted in response to recommendations from the advisory group and to better align with some of the key biosecurity strategies and reviews.

In this document, 'the broader community' is an inclusive term referring to community groups, 'backyarders', landholders, schools, peri-urban dwellers, travellers and many more groups and individuals who could contribute to maintaining or improving the local and regional biosecurity status. The term 'engagement' refers to a continuum of community participation ranging from passive receipt of information, consultation, involvement and partnerships, through to self-empowered communities that initiate actions independent of external agents. Ultimately, the aim of engagement activities is to capture community attention, engender ownership of an issue, and promote local responsibility for decision-making, with ongoing commitment and resourcing from external agents where necessary. The Engaging in Biosecurity project findings show much is to be gained from two-way engagement that involves social enablers, such as trust, relationships, communication and responsiveness.

1.5 Potential next steps for this document

The advisory group commended this document as a valuable first step toward a national action plan for biosecurity engagement, with the caveat that more work is needed. They suggested:

- **Finding more evidence, including gaining a better understanding of the current situation;** for example, a survey might be needed to determine the awareness level among the general public of biosecurity.
- **Prioritising key points and proposed activities** in terms of
  - What in the discussion document is a requirement and what is optional?
  - Which activities could be done straightaway (quick gains) and which need further research or stakeholder consideration before they could be implemented?
  - What is the estimated cost of proposed actions?
  - What is the cost and benefits of engaging with different groups? For example, how would you know which community group would provide the greatest return on investment? What risks and opportunities do certain groups present?
- **Identifying ways to better integrate pre and post-border community engagement about biosecurity;** members of the public do not think in terms of pre and post-border. There might be a need to use a similar platform for messages, especially at a broader level, to raise awareness about biosecurity issues.
- **Unpacking or clarifying some terminology used in the document,** the futures workshops did not focus on defining certain concepts, such as 'grey nomad' or 'peri-urban'.
- **Defining roles and responsibilities** by identifying the 'who' and 'when' of different parts of the document. This needs to happen in consultation with stakeholders.
- **Drawing in other sectors,** such as the animal and environmental sectors. Identify which parts of this document are applicable to plants only and which parts would apply to all sectors.
- **Developing a national biosecurity engagement network** to connect the different players and stakeholders in the biosecurity engagement sphere.

The advisory group suggested strengthened engagement with certain groups in order to progress the work. The groups are:

- The Intergovernmental Agreement on Biosecurity National Engagement and Communications Working Group. The working group provides a good avenue to take this work further but other ways to get more leverage need to be identified. It might be the role of the working group to analyse the document; to provide the necessary evidence base and to prioritise the proposed ideas for action. It might be appropriate for the working group to take carriage of the document. Even though the working group's scope is broader, this document would provide a good starting point for some parts of its work. Some suggestion was made that the working group's focus on community engagement for biosecurity purposes could be strengthened.
- The National Biosecurity Committee. Any roles or responsibilities assigned to the committee must be well considered. The committee will need to know that different parts of this document relate to different groups and what the next proposed/planned steps are for this work.
- Research and development corporations. Biosecurity Engagement Guidelines (similar to Pillar 2 in the discussion document) provide a valuable tool for research and development corporations to use as a checklist for community engagement projects. It could be a way to protect the investor and provide a framework for the investee.

Chapter 02

Futures workshops outcomes

The remainder of this document is a synthesis of the outcomes from the Engaging in Biosecurity futures workshops.

2.1 Visions

At the start of each workshop, participants were asked to provide a vision for biosecurity engagement by 2020. A wide range of visions was obtained and these were analysed based on key themes covered in each. An overview of how often the main themes were mentioned is as follows:

- shared responsibility (11 groups)
- biodiversity (six groups)
- economy (five groups)
- food security (four groups)
- shared understanding (… of their responsibilities relating to biosecurity) (four groups)
- protecting communities (three groups)
- sustainability (three groups)
- commitment (two groups)
- environment (two groups).

2.2 Realistic outcomes from community engagement

In some workshops, participants were asked to identify realistic expectations of community engagement for biosecurity purposes. The three main themes that emerged were increased harmonisation between stakeholders, community becomes better equipped to deal with biosecurity issues, and increased acceptance of responsibility by the community.

Increased harmonisation between stakeholders

Participants' comments suggested a need for different biosecurity stakeholders to work more closely together and to align their thinking better.

Points raised included 'shared values', 'shared responsibility', 'cooperation', 'increased industry involvement', 'biosecurity is not code for government', 'consensus action regarding biosecurity' and 'stop the blame game'.

Community becomes better equipped to deal with biosecurity issues

Participants' comments suggested a need for the community to take greater interest in biosecurity issues. There could be more opportunities for community members to become more knowledgeable about, and build the capacity to address, biosecurity issues.

Points raised included 'capacity building', 'awareness of them', 'increased knowledge', 'to be aware and if they see something to report it', 'genuine interest from different groups—must be sectors with real interest', and 'to care about and acknowledge biodiversity; to learn more about it'.

Increased acceptance of responsibility by the community

Participants' comments suggested a need for the community to start accepting it has a role to play in addressing biosecurity issues and to start acting accordingly.

Points raised included 'for people to be responsible', 'to police themselves—identify appropriate levels of behaviour and implement them—self-regulation' and 'community will put pressure on government agencies and industry bodies'.

Another comment was that despite sound biosecurity engagement efforts, noncompliance should still be expected and that antagonism will probably always come from some areas. Hence, a 'stick approach' will, to some extent, always be needed.

2.3 Key strategic issues

Participants in each workshop were asked to identify and prioritise strategic issues that affect biosecurity engagement. An overview of the main strategic issues identified in the workshops is organised according to key themes.

Engagement process

- expectations of different stakeholders
- selling the value of not having pests and diseases
- perceptions of biosecurity
- engaging the media
- how to involve everyone.

Resources

- resources, including funding, knowledge, staff, scientific capacity (linked to succession planning)
- competing priorities
- capacity and capability underpinning biosecurity
- technology, including emerging technologies.

Biosecurity risks

- increased movement of goods (including increasing trade) and people
- identifying key risks and pathways
- new and emerging pests.

Contextual issues

- food production and security
- demographic issues (rural Australia).

Governance

- political will and choices
- legitimacy of government/government capabilities
- coordinated approach
- 'silos'.

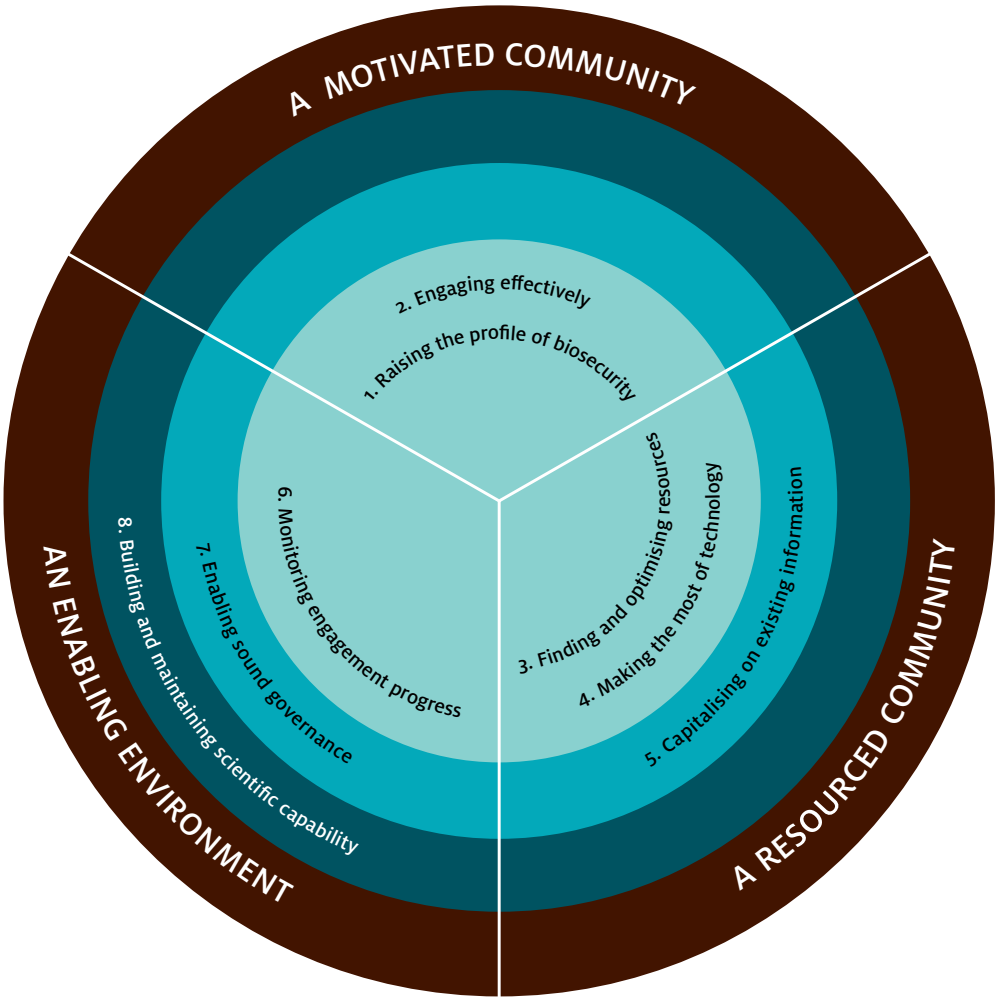
2.4 Key themes of biosecurity engagement

Several key themes emerged from analysing the documented workshop outcomes. These themes have been categorised into eight strategic pillars necessary to support a national biosecurity engagement approach. The eight pillars were re-categorised under three broader headings or 'cornerstones' (used as headings for chapters 3 to 5) that underpin effective community engagement for biosecurity purposes.

- **A motivated community**
  - Raising the profile of biosecurity
  - Engaging effectively
- **A resourced community**
  - Finding and optimising resources
  - Making the most of technology
  - Capitalising on existing information
- **An enabling environment**
  - Monitoring engagement progress
  - Enabling sound governance
  - Building and maintaining scientific capability

Some pillars relate directly to biosecurity engagement and others represent broader biosecurity themes that have a significant effect on biosecurity engagement. Broader themes would be harder to address or influence solely from a biosecurity engagement perspective than would narrower themes. Figure 2 presents an overview of the cornerstones and the pillars for sound biosecurity engagement. Those in the inner circle relate directly to biosecurity engagement, while those in the middle and outer circles represent broader issues.

FIGURE 2 Relationship between key themes (pillars) and biosecurity engagement



Chapter 03

A motivated community

At a fundamental level, for community groups to play an active role in biosecurity they need to be motivated to address pest, weed and disease issues. Two key themes relate to encouraging and inspiring the community to become and remain involved: to raise the profile of biosecurity among the general public and to engage effectively.

3.1 Pillar 1: Raising the profile of biosecurity

A strong theme running through all futures workshops was that of raising the profile of biosecurity by improving communication at all levels.

Many workshop participants said Australians do not appreciate the value of biosecurity in maintaining their way of life. Complacency and apathy, a lack of will, and competing priorities for public interest were identified as barriers to effective engagement.

The general community needs to be empowered with knowledge about the effect of pests, weeds and diseases. In general, the community does not see plant biosecurity as a 'cool' issue, nor is the term 'biosecurity' well-recognised.

Education about the meaning of biosecurity might help increase awareness, or more recognisable alternatives, such as 'pest and disease threats', could be used. It is important to attract and effectively educate people from all spheres of life; not only the community, but also politicians and policymakers, the media, the research community and industry.

Providing more education opportunities for Australians was identified as an enabler to achieving effective community engagement about biosecurity. For example, many Australians do not have a good understanding of the broader context of food production, but expanded community education in this area might increase receptiveness to biosecurity measures.

Some workshop participants felt there is not enough publicity about biosecurity issues. A community awareness campaign to highlight the importance of biosecurity and influence public perception about biosecurity was identified as a leverage point through which to engage the community.

Key areas participants identified as needing improved understanding were:

- the benefits of biosecurity
- the importance (in terms of market access and maintaining biodiversity) of keeping pests, weeds and diseases out of Australia
- the consequences of pest, weed and disease outbreaks for Australia's economy, food security, sustainability, environment, biodiversity and lifestyle.

Participants thought it would also be valuable to inform the general public about the financial savings made by the work of bodies such as the then Australian Quarantine and Inspection Service.

Lack of quantitative and qualitative data on the benefits of biosecurity was identified as a barrier to increasing its profile. Participants suggested conducting an impact assessment of biosecurity incursions and a cost–benefit analysis of excluding pests, weeds and diseases. Participants felt this would help make a business case for biosecurity, identifying winners and losers among stakeholders, and developing key messages for all stakeholders, including the general public. Capabilities needed for this include environmental accounting and economic skills. Some participants indicated that, overall, the area of environmental accounting is underdeveloped.

Information about the impact of pests, weeds and diseases should be made available through the media, web campaigns and use of new technology. The media could include existing scenarios or explain what could have happened in terms of financial, ecological and other losses if a certain pest was not detected. Participants also suggested that a public awareness campaign could include general advertising, information kits and educational television. Some workshop participants suggested developing a story and argument (perhaps based on impact assessments) or an 'imagine' campaign about what the world would be like with or without a certain pest.

Some participants pointed out that such an initiative would need collaboration with industry bodies, government, universities and education institutions and would need to be underpinned by a well-considered communication strategy. As biosecurity awareness initiatives are already happening in some states it is important to ensure efforts are integrated and duplication is avoided.

Other participants thought it important to do market research about what messages would resonate best with the community to gain their interest in biosecurity issues.

Creating a culture of support for biosecurity by 'normalising' and providing incentives for good biosecurity behaviour was identified as a key strategy to achieve effective engagement about biosecurity issues. Some participants pointed out that good biosecurity practice should be made 'contemporary', in the same way as occupational health and safety has been. Ideally good biosecurity behaviour should be the norm, with people encouraged by incentives to 'do the right thing'. Suggestions to achieve this included:

- encouraging adoption of biosecurity into codes of practice and corporate social responsibility
- large organisations offering biosecurity-related training or including biosecurity information on their intranets
- embedding biosecurity in popular culture through television shows such as *Border Security* are having a significant effect on the public's appreciation of biosecurity issues.

As well as raising the profile of biosecurity with the general community, it is vital to strengthen the position of biosecurity on the political agenda and to increase the importance of biosecurity for stakeholders such as the Chief Scientist of Australia, heads of government departments, and senior managers in industry bodies (see the section 'Strengthening biosecurity on the political agenda').

Box 1 Pillar 1: Raising the profile of biosecurity

Australians do not appreciate the value of biosecurity and how it affects Australia's economy, food security, environment and lifestyles. Barriers to Australians' appreciation of biosecurity include complacency, apathy, competing priorities and lack of understanding of the meaning of the term 'biosecurity'. Biosecurity awareness initiatives are already happening in some states so it is important that efforts are integrated and duplication is avoided.

Ideas for action

A significant body of work on the impacts of biosecurity problems exists, including cost–benefit analyses of various pests, weeds and diseases, but has limited reach and recognition in many communities. There is a need to:

- consolidate existing information on impacts of pests, weeds and diseases and develop a business case for biosecurity, including identifying winners and losers among stakeholders
- identify key roles and responsibilities for the broader community to maintain Australia's biosecurity status
- conduct market research to better understand what messages would resonate best with most of the Australian public to gain their interest in biosecurity issues
- develop and launch a biosecurity awareness initiative (based on the findings of the above three bullets) using a range of media, web and new technologies; ensure the initiative is effective by using the principles from Pillar 2: Engaging effectively.
- identify ways to 'normalise' good biosecurity behaviour.

3.2 Pillar 2: Engaging effectively

A biosecurity engagement gap analysis (Kruger et al. 2009) publicised as part of the Engaging in Biosecurity project in 2009 identified that most engagement with the community is based on a top-down approach. Most biosecurity-related engagement is instigated by government-based primary industry agencies, followed by national and state based industry bodies, and only a few by local or regional industry or community groups.

The primary focus of most existing programs is providing information through the internet or brochures, pamphlets or fact sheets; clearly a heavy reliance on a one-way, one-size-fits-all approach. At both the state and national levels, programs focus on making information available, but not providing support for interpretation, relevance or implementation of this information. Opportunities for face-to-face interaction are usually limited.

This approach places heavy reliance on self-motivated individuals or groups seeking information about biosecurity. In an increasingly time-constrained world, individuals' capacity to access, interpret and apply this valuable information may be limited.

Further, as people have different learning styles and levels of literacy it is unknown how accessible this information really is, especially for Indigenous and culturally and linguistically diverse populations. Information should be tailored to the needs of individual industries or community groups.

The 2009 gap analysis pointed out that a shift from communication programs to participatory programs, which have the potential to be longer-term and self-sustaining, could improve impact and effectiveness. Much could be gained from two-way engagement that involves social enablers such as trust, relationships, two-way communication and responsiveness.

Workshop participants pointed out that effective biosecurity engagement is thwarted by complacency, apathy and community members already experiencing information overload. It is therefore important that planning of every engagement program considers and develops realistic expectations of community engagement for biosecurity purposes.

For engagement to be successful it must be well-considered and planned, but also incorporate a high level of flexibility to respond to opportunities and issues as they arise. Some workshop participants suggested using interdisciplinary teams of communicators, including educators, extension agents and science communicators, to develop an engagement strategy.

Choosing with whom to engage

Some workshop participants suggested that focusing resources and support on key target groups is a good investment for biosecurity. Key target groups include those already involved in environment and land management, school children and retirees.

Groups already involved in environment and land management

Engagement activities can harness goodwill and motivation in existing groups; for example, regional natural resource management groups, catchment and Landcare groups, and local government environmental, weed and feral animal management teams.

The 2009 gap analysis also found that existing activities could be used as conduits to communicate biosecurity. For example, people going on-farm, such as natural resource management professionals, could be educated and trained in basic surveillance and pest and disease recognition. Professionals, like integrated pest management specialists, could also be engaged to increase resources on the ground and broaden the biosecurity surveillance network.

School children

Engaging with school children about pests, weeds and diseases has two main advantages; that of educating the next generation and educating adults, as children often pass messages on to parents.

Some workshop participants pointed out that biosecurity-related activities are already happening in several schools, but that working with schools is a capability that could be further developed or strengthened. It was suggested that biosecurity should be built into the curriculum by 'tagging it onto' other relevant information, such as where there are school gardens, through health messaging ('three fruit/five vegetable'), lessons about food quality and by developing packages for teachers.

Some participants suggested engaging children in finding suspect organisms and sending them to specified authorities for identification. Providing feedback on what they found would be important to maintaining their interest and involvement. Prizes could also be offered as a further incentive for children to participate.

Retirees

Continuing some form of work into retirement is often regarded as a life-prolonging pursuit that gives structure, stimulation, satisfaction and a social group to which to belong.

Several workshop participants referred to greater engagement of older people through, for example the 'grey army' (see www.greyarmy.com.au) and 'grey nomads'. Some workshop participants foresaw an increase in grey nomads over the next 10 or 20 years, and therefore more people who might be available to volunteer for biosecurity-related work, such as surveillance.

Understanding stakeholders

Conducting market research to understand the expectations of diverse stakeholder and community groups, and their perceptions of biosecurity, was identified as a key strategic issue in the context of a national action plan for biosecurity engagement.

Knowing how to involve different groups in biosecurity activities and how to be responsive to their needs can be challenging. For example, farmers represent a heterogeneous stakeholder group; they could be part of corporate farms, commercial family farms or hobby farms. It is fundamental to gain insight into the status of different groups and subgroups by understanding their perceptions, expectations, values, current practices, knowledge and capabilities. These factors play a key role in how any group or individual receives new information and messages. It is also important to understand current behaviour that could either aggravate or alleviate biosecurity risks.

Understanding stakeholders would help identify the best ways in which different groups or individuals could be involved in addressing biosecurity issues, such as through teaching, talks, championing or pest monitoring. Workshop participants stressed the importance of testing ideas with the community groups and/or individuals concerned.

It is also important to identify any capacity building or training needs. For example, it might be necessary to train the people answering calls to a hotline to enable them to action calls appropriately and in a timely fashion. Likewise, community groups might need training to help them carry out the desired activity or actions (see the section 'Empowering the community').

Social network analysis is a useful tool through which to understand how different stakeholder groups interact and where synergies exist. It could also make effective use of current stakeholder networks.

In some futures workshops, groups identified ways through which stakeholder analysis and social network analysis could be conducted. These included:

- focus groups and interviews to test attitudes and calibrate thinking
- social media monitoring
- discourse analysis.

Reaching stakeholders and target audiences

Current biosecurity engagement tends to be non-targeted and based on a one-size-fits-all approach, whereas different messages and communication channels or tools would work better with different community and stakeholder groups. Terminology often causes confusion as different groups adopt different terms or meanings.

A hindrance to penetration of biosecurity messages is that many people already experience information overload. It is important, therefore, to ensure messages are tailored for the intended audience, and the right tools and people are used to communicate with target groups, specifically through a process and/or people they trust. Trust is a key component in winning support.

Messages

To effectively convince and attract people, biosecurity messages need to be framed in a way that is meaningful to them; the 'What's in it for me?' principle. Understanding community groups will ensure messages can be tailored to normalise or provide incentives for good biosecurity practices by explaining to people what they have to lose. Some workshop participants identified this as a point of leverage. Information and messages also need to be translated into the kind of language and terminology each group uses.

In some workshops, participants were asked to provide key, general biosecurity messages. Market research is required to find out what messages would be most appropriate for which groups. The sorts of messages suggested were:

- to know what biosecurity means (some workshop participants felt the term 'biosecurity' was so badly understood by the general community that it is best to not use it)
- explain why biosecurity is important, by explaining what is at stake
- biosecurity is a trans and future-generational issue
- it is everyone's responsibility; biosecurity is not just another 'government' task
- everyone can do something to help; community contributions are important and will make a difference
- tag biosecurity onto messages about quality, availability and price of food
- biosecurity is the only way to protect our way of life; it is important for our way of life; say goodbye to the lucky country if biosecurity is not sustained
- relate messages to the integrity and sustainability of the natural environment
- repairing damage that has been done over past centuries
- biosecurity is bigger than plants; without plants, animals will have nothing to eat
- point out where to find more information.

Several workshop participants commented on the importance of achieving simple consistent messages. Some pointed out that it is important to keep key messages short and sharp to minimise information overload. To effectively engage the community, including farmers, it is important to prevent confusion by sending consistent messages about biosecurity. A wide range of players, including the media, government, industry and non-government agencies communicate with the Australian public about pests, weeds and diseases, thereby increasing the likelihood of conflicting or inconsistent messages. To overcome this problem, some workshop participants suggested:

- scanning and listing current messages across plant biosecurity, including sources of messages
- seeking acceptance of priority messages from stakeholders
- consistently inserting priority messages into communications.

Tools and channels

Having a better understanding of stakeholders would help identify appropriate communication channels. There are some great success stories of 'shed meetings' used to engage farmers, as they provide an environment where farmers feel comfortable. Likewise, to reach younger generations, social media might be the best communication tool. Some workshop participants further suggested hands-on approaches, such as 'orchard walks', as a way to demonstrate pest and disease monitoring to community groups.

Some participants pointed out that farmers and industry bodies might often be best placed to communicate with the community about pests that threaten their industry as they understand, first-hand, the threat of pests and diseases. Workshop participants discussed two other key communication channels: champions and the media.

Champions

A champion is defined as someone who could act as an ambassador for a cause and has the ability to encourage and inspire others to make changes. Champions normally have credibility within 'their' group, understand the group's cultural issues and know how to address these, and can 'translate' information into the appropriate language for the group involved.

Champions were identified as enablers of effective engagement about biosecurity. They have proven valuable at all levels, including within community groups, funding organisations and bodies, government agencies and industry bodies. Advocates and lobbyists are types of champions who can gain policymakers' attention and interest to, for example, ensure continued funding of a program.

Within community groups, champions could be vital to motivating community members to accept some responsibility in dealing with certain pests, weeds and diseases. For example, in the Weed Watchers program, local weed managers acting as champions were a great success.

Champions can come from a wide range of groups such as industry and community leaders (both formal and informal) and media personalities. What is important is that they are regarded as highly credible within the group they need to reach.

Using champions was seen as a leverage point to effectively engage with the community about biosecurity issues. Sometimes champions occur spontaneously if someone is passionate about a cause. However, it is often necessary to be deliberate about putting champions in place for community engagement programs by:

- developing the planning/implementation model, including methods of recruitment
- setting the profiles for champions
- inviting potential champions
- establishing a group/program/committee to run the champion 'scheme'
- identifying and planning/budgeting for rewards
- providing training opportunities for champions, as required.

Media

The media usually forms a key part of biosecurity engagement projects because it reaches a diverse audience. Some workshop participants pointed out the importance of getting the most out of the media by employing experts in the area, such as media consultants.

Effective engagement with the media is crucial, especially to work with them and not against them. For example, some workshop participants said government agencies are overly risk-averse, with the practice of allowing only a limited number of media spokespeople. Workshop participants were of the opinion that this hampers timely dissemination of new information. They thought more people could be trained to be local spokespeople. Protocols need to be in place to empower informed people to speak to the media about pest, weed and disease issues.

It is important to establish good risk management processes without hindering the ability to quickly disseminate new information. Some workshop participants suggested that better ways to deal with the media could be identified by establishing research projects to investigate this issue. This could include:

- conducting focus groups with key stakeholders, such as current spokespeople, managers from communications sections, local biosecurity officers and local industry group representatives
- researching alternatives by, for example, looking at how government agencies and industry bodies in other countries use the media.

These ideas could then be tested in Australia. If alternatives are found suitable, it is important to demonstrate their cost-effectiveness to encourage adoption.

Media capacity needs to be assessed and new social media possibilities, such as YouTube, Twitter messaging and Facebook, identified. One workshop group suggested writing a media 'jingle' on YouTube; 'Don't dodge the dodgy stuff'. Another group proposed developing compelling visions and proposed actions that could 'go viral' through social networks (see section 4.2).

Empowering the community

Workshop participants identified empowering community groups to undertake the required tasks as an enabler to effective community engagement. This could include capacity-building initiatives like:

- training opportunities
- resourcing
- increasing the local ownership of projects by giving people responsibility for discrete tasks
- being open and supportive to community groups' ideas and suggestions
- developing networks for community-based action.

Government and industry biosecurity officers therefore need to be prepared to hand over some ownership and responsibility to community members for certain tasks.

Some workshop participants pointed out a need to strengthen the capabilities of more community members to be involved by working through volunteer groups, schools and online advocacy groups.

Participants considered community groups could make a considerable contribution to biosecurity monitoring through surveillance. Some groups are already engaged in reporting pests, weeds and diseases, but more community groups and members should be equipped with the information they need to watch for new and emerging pests.

Opportunities to learn new skills could also be a strong incentive for people to become involved in biosecurity-related activities. Successful examples include Cairns Urban Landcare and the Community Pest Monitoring Network, associated with the area-wide integrated pest management in Bundaberg.

Maintaining engagement

Some workshop participants thought it important to consider how engagement would be maintained to ensure longevity of programs; for example, by maintaining a sense of 'freshness' or 'newness' to avert issue fatigue. It is important to help people feel good about what has been achieved, to remind them they are making a difference and recognise and award community achievements.

To ensure engagement activities 'hit the mark' and 'remain on track' it is important to include a monitoring and evaluation component in all biosecurity engagement programs. This would enable issues to be addressed and new opportunities embraced.

Overcoming barriers to reaching stakeholders

A barrier to many biosecurity engagement projects appears to be lack of time to develop core knowledge to carry out sound engagement practices, such as conducting a stakeholder analysis and tailoring messages. It is important that project planning allocates time and resources to better understand stakeholders.

Different interests, expectations and understanding of risk and conflict between groups could also challenge effective engagement. Conflict between stakeholders must be minimised when consensus is needed. So finding common ground between groups could be a starting point to strengthening engagement between them.

Box 2 Pillar 2: Engaging effectively

Effective engagement is often undermined by a lack of time and resources to develop the knowledge needed to work with stakeholders and target groups. To engage effectively, it is necessary to:

- carefully choose with whom to engage—consider engaging existing community groups that are involved in related issues; school children and retirees show potential as good target groups
- understand stakeholders—their perceptions, expectations, values, current practices and knowledge—to tailor messages, identify the tasks in which groups or community members might be interested and identify needs for capacity building, such as training
- thoroughly consider messages; achieve simple and consistent messages and tailor them on the 'what's in it for me?' principle
- use the most appropriate tools and mechanisms for each group; for example, by using trusted and credible figures as champions; effective media engagement seems to be hampered by the limited number of media spokespeople in government agencies and industry bodies
- empower the community to undertake the required tasks through training, resourcing and handing over responsibility and ownership.

Ideas for action

- Develop and implement key performance indicators for biosecurity engagement projects for adoption by government agencies and industry bodies.
- Continue to develop, coordinate and promote biosecurity curriculums for schools that can be integrated with science and/or biology curriculums, and use innovative and creative delivery methods.
- Conduct a research project to identify the opportunities for engaging with retirees about pests, weeds and diseases. Use this information to develop a targeted biosecurity engagement program.
- Conduct a research project on how the media could be more effectively engaged about pests, weeds and diseases. Promote the lessons learned among government agencies and industry bodies.

Chapter 04

A resourced community

To enable a motivated community to act, it needs to be resourced in terms of access to necessary funding, information, expertise, training and technology.

4.1 Pillar 3: Finding and optimising resources

A lack of funding was identified as a key barrier to achieving the vision for biosecurity engagement by 2020. Resource deficiency—mainly funding, but also staff, knowledge, training and infrastructure—was the most frequently mentioned barrier to achieving good biosecurity engagement.

It was acknowledged that there are competing priorities and competition for resources—for example, food security, biodiversity, health, education—and that 'we can't do all we would like to'. There is a need for biosecurity resources to be used in a smarter and more targeted way. A realistic approach to quarantine and border security is required. Yet biosecurity risks are increasing because of greater trade and movement of people, hence an increasing need for more biosecurity resourcing.

Some workshop participants felt that factors contributing to resourcing issues are misallocation of existing resources and a lack of political will. Resources should be used efficiently; for example, by allocating them on a priority-based system.

There could be an assumption that community engagement offers a 'cheap' way to extend biosecurity capability. Several workshop participants stressed that the resources required for effective engagement should not be underestimated. A lack of resources is significantly hampering engagement activities in many areas. Some participants pointed out that the momentum of some well-functioning community engagement programs might decrease and they are likely to cease if new funding sources are not found soon.

Some participants remarked, 'If we have the dollars … everything else follows, and we'll be able to do all this stuff'; 'Continuity is the issue when you only get start-up dollars' and 'Resourcing is the bigger umbrella issue'.

Finding resources

Lifting the profile of biosecurity in political terms is essential to attracting more government funding. Several workshop participants suggested that increased investment from government will be strongly influenced by a 'bottom up' approach. Political influence from the public drives government investment (see section 3.1).

Some workshop participants pointed to the need for resource legislation in areas such as research, engagement and implementation of best practice. They welcomed the fact that the Australian Government and many state governments have developed, or are in the process of developing, reform measures for biosecurity. Other participants said more industry funding for biosecurity was needed and suggested the Australian Government legislate for a national biosecurity levy.

To strengthen political will, some workshop participants suggested showing government that leveraging of private and alternative resources already occurs in Landcare, and catchment and natural resource management groups, and that government investment is not the sole funding source.

Suggestions for attracting funding resources were:

- through cabinet submissions, public standing committees, levies, corporate voluntary contributions and intergovernmental agreements on funding to attract federal and state funding
- explore commercial sponsorship for initiatives such as a 'Pest web' or new media applications to provide a funding mix from government agencies, industry bodies and commercial companies
- increase the number of cooperative research centres concentrating on food production, including biosecurity
- research and development corporations could focus more funding on biosecurity
- investigate opportunities through international sponsorships
- use the 'what's in it for me' messages for each stakeholder
- enlist champions to leverage funding, by using known credible personalities, advocacy and lobby groups and identifying what is needed to support them (for more about champions, see the section 'Tools and channels')
- find alternative funding sources than government; for example, natural resource management activities use sponsorships and employ Landcare groups to extend resources
- identify in-kind resources, such as existing groups interested in biosecurity, Landcare and conservation volunteers groups, gardening clubs and Indigenous communities.

Getting the most from existing resources

Workshop participants identified various ways to make better use of existing resources.

At all levels

- Identify the most productive ways to reach the desired outcomes. Outline a range of strategies and determine what would provide the greatest return on investment.
- Focus resources at and support to groups already involved in environment and land management; for example, regional natural resource management groups, catchment and Landcare groups, including local government environmental, weed and feral management teams.
- Monitor and evaluate project activities. Change or end ineffective activities to make better use of resources (see section 5.2).
- Be aware of new and emerging technologies and their application in order to explore ways to use them to deliver services more efficiently, such as online training.
- Use innovations such as 'crowd sourcing' to extend existing resources. Crowd sourcing is outsourcing tasks normally performed by an employee or contractor to an undefined, large group of people or community through an open call.

- Identify more cost-effective practices by evaluating the successes and failures of past and present projects. Specific examples that might offer valuable lessons include the Weed Watchers program and Cairns Urban Landcare.

At a national level

- All current Australian Government investments in community engagement could be mapped to gain a better understand of the current situation of community engagement for good biosecurity outcomes. Such investments could include DAFF investment (biosecurity/sustainability resources) with environmental funding (Caring for Our Country).
- Develop partnerships and strengthen relationships. Some workshop participants were keen to see creation of national natural resource management/biosecurity joint planning activities, funding and initiatives to make more efficient use of intellectual and economic resources.
- Improve the efficiency of biosecurity resources; 'de-politicise' biosecurity and reduce red tape and political process. This could be achieved by a statutory body reviewing biosecurity at the national level.
- Investigate ways in which local and regional biosecurity engagement initiatives could be supported to prevent each program 'reinventing the wheel'. There could, for example, be national facilitation and/or coordination for volunteers involved in biosecurity, and training courses for biosecurity officers.

At the local level

- Identify ways the public could be involved; for example, teaching, identifying talks, championing and monitoring. Cut red tape to ensure these activities can proceed smoothly.
- To obtain best value from local biosecurity engagement investments, it is important that local groups and/or individuals have a strong sense of ownership and carry responsibility for discrete projects. Examples include Adopt-A-Road, Neighbourhood Watch, Landcare and Green Corps.
- Extend capacity through volunteer networks. Focus community funding on 'outcomes' (not 'outputs'); that is, not the number of hectares weeded, but the number of volunteers educated and active in biosecurity. The Cairns Urban Landcare group is an example of how this could work.

Staff resources

In the context of biosecurity engagement, staff resources relate to both the skills and expertise in pests, weeds and diseases and in engagement. Ways to maintain more staff in biosecurity-related fields are covered in the section 'Scientific expertise'. The discussion here focuses on building and maintaining community engagement capacity.

It is not uncommon to have community engagement activities as a minor component of biosecurity programs. Engagement roles are often staffed by people who have a strong technical background.

Alternative thinking and culture change might be necessary

To reap the full benefits of community engagement for biosecurity, it is not only the community that needs to gain a better understanding of what constitutes effective biosecurity engagement, but also biosecurity officers in government agencies and industry bodies.

Traditionally, biosecurity officers focus on technical and operational matters and market access requirements; their dealings with the community are often compliance-based. This might need a shift in culture and attitude that is more open to working with the community, based on a good understanding of the community and engagement opportunities. Some biosecurity officers might benefit from:

- a greater appreciation for building stronger relationships and partnerships between community groups and government and industry representatives
- understanding stakeholders' attitudes, perceptions, expectations and ideas
- being open to supporting community requests and proposals for addressing pests, weeds and diseases
- embracing the new opportunities and understanding the limitations of communication tools (YouTube, Twitter, Facebook) and remote sensing technology (Google Earth, GPS tracking)
- understanding that biosecurity engagement might need more than communicating information; community members might have to be taught how to report pests using their mobile phone cameras or how to use other technology
- understanding the limitations that short-term funding cycles and other resource issues, such as high staff turnover, pose to community engagement
- having realistic expectations of community engagement; effective community engagement is often time-consuming.

Professional development for agency staff engaging with the community

Some workshop participants suggested creating an environment that would enable mentoring and fostering of new approaches, ideas and innovation. This could involve community engagement training opportunities, professional development plans (including strengthening community engagement skills), and linking engagement staff to networks such as the Australasia–Pacific Extension Network.

Engaging the community for surveillance

Engaging the community for surveillance was identified as a leverage point to extend biosecurity resources 'on the ground'. Technology developments, such as mobile phones with cameras, and the ability to upload digital images to the web provide great opportunities to capture information. This could also include use of Quick Response codes.

Engaging the community could include an awareness campaign for people to use websites such as the Australian Biosecurity Information Network, Pest and Disease Information Library, Bowerbird, Atlas of Living Australia, and the North Australian Indigenous Land and Sea Management Alliance (see section 4.2).

Such systems would need to include information exchange, which could include providing feedback to members of the public about the identity of an organism in submitted photos.

Some workshop participants argued that clear policy development and agreement between jurisdictions on how such a system might work would be necessary to ensure a consistent national system.

Box 3 Pillar 3: Finding and optimising resources

The most frequently mentioned barrier to effective biosecurity engagement was lack of resources. While the community sector is perceived to be making substantial resource contributions to address biosecurity issues, the overall resources needed for effective biosecurity engagement should not be underestimated.

Resources (funding, staff or other in-kind resources) could come from government agencies and industry bodies, research and development corporations, community groups and commercial sponsorships. There is a need to use 'what's in it for me?' messages and champions to attract resources.

Ways to increase funding for biosecurity engagement could include lifting the profile of biosecurity on the political agenda, political influence from the public and more resource legislation (such as levies).

More value could be obtained from existing resources by better prioritising resource use, monitoring and evaluating biosecurity engagement projects, learning from other engagement projects, capitalising on new technologies and innovations (such as remote diagnostics and crowd sourcing), forming partnerships, cutting red tape, and handing tasks over to community members. Engaging the community for surveillance was highlighted as a way to extend resources.

Benefit is seen in professional development for biosecurity officers engaging with the community through mentoring programs and involvement in extension networks. Some biosecurity officers who interact with the community may need engagement training to underpin a culture change from a compliance-based to a partnership-oriented approach.

Ideas for action

- Conduct stakeholder and social network analyses of groups and organisations involved in community engagement for biosecurity purposes and identify opportunities for stakeholder groups to be more involved. Include how projects are currently resourced and how that resourcing could be improved.
- Identify the value of, and potential options for, national coordination of volunteer and other community efforts in biosecurity. For example, review existing models of a centralised national facilitator position or decentralised regional facilitator positions as well as other overarching support mechanisms.
- Develop professional development opportunities for biosecurity and community engagement officers; these could include courses on engagement, mentoring and memberships with extension networks.
- Investigate the opportunities for commercial and international sponsorships to support biosecurity engagement.
- Include community engagement as a key adoption tool as part of the biosecurity priority that currently exists under the Australian Rural Research and Development Priorities.
- Review roles that community members could play to make better use of biosecurity resources, such as 'crowd sourcing' and other forms of volunteering. Include requirements and considerations for each role.

4.2 Pillar 4: Making the most of technology

Workshop participants identified existing and new technologies as enablers of biosecurity engagement. Many comments related to the opportunities the internet offers, in particular social media (YouTube, Twitter, Facebook), as well as technologies such as GPS tracking, GPS spraying and remote diagnostics.

Significant technological capabilities, including online technology and biosecurity hotlines, developed for biosecurity purposes underpin many government activities in this field. These include initiatives that help:

- share and coordinate information
- identify pests, weeds and diseases
- report pests, through such avenues as pest hotlines; the Australian Biosecurity Intelligence Network; Pests and Diseases Image Library; and the Biosecurity Surveillance, Incident, Response and Tracing software application and equivalents.

The focus should be on strengthening these capabilities and promoting awareness among community members or groups.

These initiatives could underpin remote diagnostics that could be used in concert with 'crowd sourcing' and automated screening of photographs for surveillance. Quality control for this kind of pest, weed and disease identification could be maintained by enlisting technical experts.

Other technological capabilities also exist within government, research and commercial sectors, although some participants indicated that, generally speaking, these could be strengthened.

Workshop participants pointed out that technology offers the ability and opportunity to:

- save resources
- enhance two-way information flow, information sharing and collective management
- deliver services in new ways, such as online training
- introduce alternative ways to have a voice through, for example, the new media and online advocacy groups; if designed correctly, messages could 'go viral' online, that is, they encourage people to pass them on so the number of people seeing the message grows exponentially
- quickly disseminate pest and disease alerts through, for example, mobile text messages based on postcode locations
- introduce a national biosecurity hotline (biosecurity 000)
- engage the community for surveillance through, for example, submitting photos online; some mobile phones are able to send photos with GPS coordinates.

To get the most from emerging technologies it is important to be 'tech savvy'. A wealth of pest control technology applications exist, but are not sufficiently used.

Many technologies also work best in concert with other technologies, such as GPS equipment developed to enhance precision aerial or ground spraying, or planning spray routes.

Some workshop participants discussed the need for users to test 'cutting edge' tools, such as those offered through ABIN. However, this will need funding, people willing to be involved and user skills. This was identified as a capability that could be further developed.

For technology to be used, it needs to be accessible. Several workshop participants referred to factors that are holding back technology use, including:

- potential users might not be sufficiently familiar with new technologies; for example, where to find new solutions to their problems, what opportunities exist and how to find the technologies that are right for them
- a lack of access to tools; for example, they could be too capital-intensive or too hard to use
- limited time to establish technologies
- reluctance to invest in new technologies due to limited resources; it might be necessary for groups to find investment elsewhere to help them make better use of technology; for example, by connecting with groups, organisations or businesses with the knowledge
- the lack of technology, such as communications infrastructure, in remote areas
- some government agencies block staff access to sites like YouTube and Facebook.

In order to achieve greater uptake of technology there is a need for:

- more technological expertise being available for groups addressing biosecurity issues
- awareness 'campaigns' and training opportunities in relation to technological opportunities
- more communication between technology developers and users, so developers gain insight into users' needs, and users learn about available technology
- flexible technologies that could be adjusted to meet users' needs
- stronger technological infrastructure
- more partnerships with institutions or agencies that are already employing new technologies; for example, some universities
- technologies to be user-friendly.

Box 4 Pillar 4: Making the most of technology

Technology offers great potential to underpin biosecurity engagement, especially web-based technologies. Significant technological capabilities already exist and new ones are emerging rapidly that could be used in biosecurity engagement.

Benefits of technology include more opportunities for two-way information flow; fast dissemination of messages; service delivery (such as training); and 'having a voice' and reporting suspect organisms.

For technology to be used to its full potential, it needs to be accessible. This means potential user groups need to be aware of it and know how to use it. It needs to be cost-effective, user-friendly and flexible so it can be adjusted to suit a particular group's needs.

More links and partnerships need to be forged between developers of new technologies and potential users. For example, this could be through partnerships to test new technologies. More awareness campaigns and training opportunities targeted at community groups and agencies involved in biosecurity engagement need to be launched.

Technology needs to be supported by scientific experts to ensure, for example, quality control for remote diagnostics.

Ideas for action

- Review the successes and failures of current technologies to suggest areas for improvement and cost-savings.
- Encourage links and partnerships between technology developers and potential users. For example:
  - develop a website (as part of the Australian Biosecurity Intelligence Network) where technology developers could showcase their projects and call for groups to road-test their products, and community groups could post details of their technology needs
  - employ a National Biosecurity Knowledge Broker to connect people and information and foster two-way learning.

Any government or industry funding for developing new biosecurity-related technologies should require developers to test new technologies with potential users.

4.3 Pillar 5: Capitalising on existing information

Large amounts of information exist about many pests, weeds and diseases, but are not always within reach of potential users. Existing biosecurity information needs to be widely accessible by being both widely available (easy to find) and comprehensible (written concisely in plain English so a wide range of people understand it).

National coordination of information

Many workshop participants welcomed initiatives that act as a central access point for biosecurity related information—such as the Australian Biosecurity Intelligence Network; the Atlas of Living Australia; the Pests and Diseases Image Library; Biosecurity Surveillance, Incident, Response and Tracing software application and

equivalents; as well as the work conducted by the National Biosecurity Committee—and referred to them as 'valuable existing resources'. Others felt there is still a need for a central agency to play a stronger national coordination role. For example, with many agencies communicating about the same pests, consistent messages need to be sent.

Some workshop participants referred to the need for a central database or a one-stop-shop for biosecurity information, such as a 'pest web'; others mentioned the need for an information system with universal access. The technology and skills are available for this to happen through the internet and social media. It was unclear how workshop participants perceived the Australian Biosecurity Intelligence Network as meeting these needs. Nevertheless, they identified the following as important considerations for such a venture:

- establishing a business case and communication strategy to foster ownership and attract investment by different stakeholder groups, including DAFF, ABARES, state governments, Plant Health Australia and Animal Health Australia
- exploring commercial opportunities to attract resources to maintain a website so it is collaboratively funded by government, industry and advertising sponsorships
- instigating a coordinated advertising campaign to encourage use.

Features considered important for a centralised online database included:

- information being transferrable, updateable and not platform-specific; for example, information should be accessible through a range of browsers
- information being simple, user-friendly, free of jargon and easy to navigate; if information is too hard to understand or find, the website will not be used
- links to the websites of national, state and regional biosecurity agencies, including government, non-government organisations and industry agencies
- information must be regularly updated and maintained
- once established, opportunities could be explored to expand to new media, such as Twitter or YouTube.

Someone also suggested a national biosecurity hotline (such as 'biosecurity 000') instead of separate hotlines in each state, and for plant and animal biosecurity.

Improved networks and links

Scientific knowledge only becomes valuable when it reaches and is used by the right audiences. It is therefore important that Australia's scientific capacity involves strong networks and links between key players, such as biosecurity research organisations, industry and government agencies, and the wider community. For example, for an engaged community to scan for risks and incursions, fast and efficient networks are needed to report to government agencies and industry bodies.

Some workshop participants also pointed out the importance of adopting a systems approach. This might require drawing more heavily on the capabilities that exist in institutions such as universities and other educational bodies. Other workshop participants identified the need to integrate management models and skills used in the areas of business, education, research and government.

Some participants proposed a need for improved communication networks. It was suggested that reviewing how communication is currently happening between different groups to identify gaps and opportunities would strengthen the process.

Someone suggested developing a national intelligence gathering and sharing program by:

- conducting a stocktake of current intelligence gathering activities
- finding agreement on information sharing
- developing a project plan and budget for analysis and extension.

Participants suggested biosecurity-related networks and linkages could be strengthened by:

- Sharing expertise across the world and investing in 'off-shore' intelligence gathering.
- Overcoming the 'silo' mentality; biosecurity effort is split into animals and plants, but it is important to understand the interaction between humans, animals and plants in a biosecurity context.
- Strengthening information-sharing protocols and skills in government, industry and research agencies, by making information available in a concise plain English form and advising interested parties of its location.
- Fostering science and policy links through closer networks between universities and government organisations. This could include more communication with universities about the implications of pests, weeds and diseases.
- Maintaining science groups, whether they are agency or industry-based or through workplace programs.
- Strengthening community (including farmers, community groups engaged in biosecurity activities, youth groups) access to specialists, such as plant entomologists and plant pathologists through field days, offering biosecurity-related courses, and appropriate email and web-based communications with them.
- Strengthening communication between the developers and users of technology; by dealing directly with users, technology developers could ensure new technologies are user-friendly. It would also be valuable for community groups and other users to know where to find the right technology or new solutions for their biosecurity problems.
- Instituting a network of informed and skilled people to undertake effective interactive communication about new and emerging pests to identify key risks and pathways, possibly using new communication technology, such as Twitter and Facebook. This group could interact with agencies like the Earthwatch Institute; they could use a 'citizen science' approach to disseminate information through the web. Citizen science relates to projects or ongoing programs of scientific work in which individuals or networks of volunteers perform or manage tasks such as observation, measurement or computation.
- Government agencies and industry bodies encouraging and helping grassroots community groups that actively address biosecurity issues to link up with relevant individuals in government, industry and universities.
- Including biosecurity in any national food security initiatives, such as the International Organisation for Standardisation and the Hazard Analysis and Critical Control Points systems (food safety plans to include biosecurity).

Effective communication about new and emerging pests

Effective communication about new and emerging pests was identified as a key strategic issue. It is vital to communicate information about new and emerging pests to key groups to maximise the potential to prevent spread and achieve containment. Participants were of the opinion that although the necessary skills exist through extension services, the services are over-stretched. To strengthen communication about new and emerging pests they suggested:

- using information to develop a benchmark or best practice guide for industry to aid their decision-making about certain pest species (whether to control or eradicate them)
- transferring information into documentation that will require action, such as response plans; ensuring procedural documents, such as for surveillance and diagnostics, are living documents (used and adapted as necessary)
- using industry biosecurity plans and 'guard' plans (in Western Australia) to communicate new threats and pathways to industry, including farmers
- ensuring any control programs for new or potential risks are well managed and involve cooperation from industry; using trust and education rather than relying on regulation alone to obtain compliance from industry
- compiling new information and making it readily accessible through modern communications, such as the internet and social media, and ensuring it is incorporated into a knowledge/skills base on pests, such as the Pests and Diseases Image Library
- addressing the perception that government agricultural bodies will provide a 'safety net' for significant incursions as this is not necessarily the case
- being 'tech savvy' in order to capitalise on new technological opportunities, such as remote diagnostic tools
- increasing the number of community groups and members involved in reporting and other biosecurity-related activities
- using engagement technologies like citizen science (Earthwatch Institute), community 'watchdog' groups, and volunteer monitoring to disseminate new information
- providing adequate and appropriate training of the 'engaged community' in identifying risks and incursions and using tools and gadgets; for example, submitting information online.

Box 5 Pillar 5: Capitalising on existing information

It is important that information about pests, weeds and diseases is widely available and comprehensible. To this end there is a need to strengthen:

- National coordination of information—such as a web-based central database or one-stop-shop for biosecurity information. It is important that such a venture be underpinned by shared ownership between government agencies and industry bodies, commercial opportunities to attract resources and an awareness initiative to encourage usage. Information should be in a format that is transferable and user-friendly and should be regularly maintained and updated. It could also link with other biosecurity websites and the new media.
- Networks and links—between key players, such as biosecurity research organisations, industry bodies and government agencies, developers of biosecurity-related technology and the wider community.
- Effective communication about new and emerging pests—by presenting information in a usable format (such as a best practice guide for industry or response plans); collaborating closely with industry; making information accessible on the internet; addressing the perception that a government safety net will always be there; capitalising on new technologies; and offering community training to identify and report risks.

Ideas for action

- Identify gaps and opportunities in the flow of biosecurity-related information as part of the social network analysis proposed in section 4.1. Prioritise the opportunities and address them accordingly.
- Ensure wide promotion of key biosecurity engagement tools to potential users. For example, the ABIN awareness initiative, which currently focuses on government agencies and industry bodies, could be extended to include community groups to increase awareness and uptake of the opportunities ABIN offers.
- Identify and address community training needs to make best use of online tools such as the Australian Biosecurity Intelligence Network, the Pests and Diseases Image Library, Bowerbird, the Atlas of Living Australia and other similar tools.

Chapter 05

An enabling environment

An enabling environment is essential for a motivated and resourced community to effectively address biosecurity issues. For individual biosecurity engagement programs, this means knowing about new issues and opportunities as they emerge, in order to respond as soon as possible. At a broader level, it requires an enabling policy environment as well as getting the most from existing biosecurity-related information.

5.1 Pillar 6: Monitoring engagement progress

Monitoring the progress of any engagement is important so issues can be addressed quickly and to identify new opportunities. To acquire this information, feedback loops need to be built into engagement programs.

It is also important to widely communicate biosecurity engagement lessons, captured through monitoring and evaluation, between biosecurity engagement programs so they can learn from each other.

Some workshops participants were asked to identify 'on-track' signals (biosecurity engagement is working well) and 'off-track' signals (biosecurity engagement is unsuccessful) for community engagement about biosecurity in Australia. These points, which the project team classified under general headings, are listed below.

On-track signals

Increased stakeholder awareness of, and interest in, biosecurity

- people understand what biosecurity is
- biosecurity is used in general conversation
- increased positive media
- subscriptions increase for biosecurity-related publications/electronic newsgroups
- community interest in 'restoration'—alertness
- pest 'scout' numbers going up
- increased community interest in surveillance and restoration
- community empowered to do surveillance
- continuity in key stakeholder support, funding and initiation of programs

- comparison conducted about biosecurity knowledge and compliance; baseline information compared with five years later and shows positive outcomes
- national survey of community awareness of biosecurity engagement conducted
- industry and community groups engaged.

People are 'doing the right thing'

- public are involved; for example, more volunteering
- general public response increased
- increased public reporting of pests and diseases, including suspect exotics
- uptake of new protocols; for example, land regeneration
- biosecurity as part of corporate social responsibility
- self regulations
- hygiene practice uptake
- people 'dobbing in' poor practice
- increased use of fruit fly bins at airports and pest-restricted areas
- more people declaring items at airports (going through the 'red gate')
- increased hotline calls
- every farmer has an on-farm bisoecurity plan
- iPhone reporting used by community programs (Northern Australia Quarantine Strategy mentioned)
- increase in suspect samples for diagnosis submitted.

Community takes initiative

- people ask 'how can we help?'
- more engagement from public to government, for example, invitations to present at community events
- industry lobby groups have greater focus on biosecurity
- enquiries about funding programs (such as Caring for Our Country) increase
- an increased number of requests for biosecurity education packs from schools
- increase in use of new technologies; for example, the number of applications developed for and downloaded from websites like the Australian Biosecurity Intelligence Network increases.

Better biosecurity outcomes (biosecurity engagement likely to play only a contributing role)

- no new incursions
- fewer outbreaks
- more early detections
- local reductions of incursions
- decline in existing pests and diseases
- market access increases
- producer costs go down
- quality goes up
- rehabilitated habitats; for example, control of a pest can sometimes lead to improved habitats for native species.

Other

- key performance indicators for community networks
- measuring changes of farm practice; for example, weed mitigation
- world's best practice benchmarking biosecurity practices.

Off-track signals

Community continues to lack awareness of, or interest in, biosecurity

- people think it's not a big deal and not serious
- people are thinking 'why bother, it's not relevant to me'
- people are saying 'it's the government's job'
- hotline not used
- people don't know something is a disease.

People are not 'doing the right thing'

- lack of reporting about diseases; for example, calls to 13* numbers (hotlines/call centres)
- increased compliance actions
- longer queues at airports (because the amount of risky material travellers are trying to bring into Australia increases)
- increased detections by dogs or the Australian Quarantine and Inspection Service
- empty fruit fly bins at airports and pest-restricted areas, and people still travelling with risky material.

Government agencies and industry bodies are not doing a good job in engaging with the community

- complaints about data assistance
- quality of public information is not great.

Undesired biosecurity outcomes (lack of biosecurity engagement likely to play only a contributing role)

- increased number and severity of pest and disease incursions
- increased pest and disease pressure
- loss of markets
- quality decline
- detections too late
- increased chemical use
- extinction of flora and fauna due to biosecurity issues
- no change.

Box 6 Pillar 6: Monitoring engagement progress

Monitoring and evaluation activities are important to ensure adaptive program management by enabling quick responses to new issues and opportunities as they arise. Biosecurity engagement programs could benefit greatly by learning from each other.

'On-track' signals for biosecurity engagement include:

- increased stakeholder awareness of, and interest in, biosecurity issues
- people doing 'the right thing'
- community takes initiative
- better biosecurity outcomes.

'Off-track' signals for biosecurity engagement include:

- community continue to have a lack of awareness of, and interest in, biosecurity issues
- people not 'doing the right thing'
- government agencies and industry bodies are not doing a good job in engaging with the community
- undesirable biosecurity outcomes.

Ideas for action

- Develop practical, time efficient monitoring and evaluation guidelines for biosecurity engagement programs that are not too onerous.
- Apply monitoring and evaluation guidelines as a condition for funding biosecurity engagement programs that have a duration of two years or longer.
- Develop a national monitoring and evaluation program for biosecurity engagement.

5.2 Pillar 7: Enabling sound governance

Biosecurity governance plays an important role in how well biosecurity engagement activities perform. For example, political choices play an important role in shaping the profile and perceived importance of biosecurity.

Incoherent legislation—including legislation that is not harmonised across states and portfolios—and a lack of political will were identified as barriers to good biosecurity outcomes, including biosecurity engagement. Some workshop participants mentioned that this could be addressed, at least to some extent, if governments better communicate to relevant stakeholders the need for different legislation.

Likewise, changing governments often result in changing policy direction and priorities, resulting in instability, referred to during one of the workshops as a 'legitimacy crisis'.

Some workshop participants said it is necessary to 'de-politicise' biosecurity by reducing red tape and political process. This could be done by a statutory body reviewing biosecurity at the federal level. Other workshop participants argued that the Beale review needed support through:

- undertaking strategic planning
- getting the community behind the change
- getting Parliament to act.

Some workshop participants identified increasing trade as a catalyst for regular review of biosecurity-related legislative structures and border processes to ensure they remain appropriate. Participants were keen to see the Australian Government legislate for a national biosecurity levy.

Integrated approach

A more harmonised, coordinated approach would lead to better use of resources, a more consistent approach to biosecurity issues, and more consistent, accurate messages to the community.

Workshop participants pointed to lack of integration as the cause of divergent interests among biosecurity players. For example, at the grassroots level, industry (producers) and community groups might have differing objectives and ideas about how to address biosecurity issues. A common discourse is needed, through an integrated approach to which key stakeholders agree.

The gap analysis of biosecurity engagement conducted earlier in the Engaging in Biosecurity project showed that some industries are more organised than others and therefore better represented on governmental committees. Government agencies need to be aware of representation gaps and actively seek to engage industries traditionally excluded.

Workshop participants acknowledged the Emergency Plant Pest Response Deed, and the more recent National Environmental Biosecurity Response Agreement, for encouraging closer cooperation and national coordination across all biosecurity jurisdictions. However, several participants pointed out the need for the different biosecurity players to work together more closely and strengthen the integration of their biosecurity activities. An important component of this involves a clear definition of roles and responsibilities.

Roles and responsibilities

Workshop participants regularly pointed to biosecurity being a shared responsibility between government, industry and the wider community. Some felt the roles, accountability, duty of care and individual responsibility, including by the broader community, need to be more clearly defined.

Clearly defining roles was identified as a leverage point in achieving good biosecurity engagement outcomes. When roles and responsibilities are not clearly defined there is a tendency to assume someone else is responsible and therefore no one takes ownership. Having the 'care factor' is important for someone to accept responsibility for tasks.

For example, cooperation between local, state and federal governments in relation to responsibility for various pests and weeds, such as the Weeds of National Significance strategy, needs further streamlining. This is necessary before a comprehensive biosecurity community engagement plan can be rolled out.

To get all stakeholders involved in a coordinated approach it might be necessary to develop a business case and a communication strategy to gain their involvement, investments and ownership. Individuals, groups and organisations could therefore be motivated to accept responsibility based on the 'what's in it for me?' principle; that is, use messages that would appeal to that particular audience.

Some workshop participants felt that in order to better define biosecurity roles a social network analysis should be conducted. They also proposed that monitoring

and evaluation be undertaken to keep track of the involvement and contributions of different stakeholder groups, in order to identify opportunities for improvement.

Some suggested reviewing the Emergency Plant Pest Response Deed to ensure industry and government at all levels have roles, responsibilities and ownership relating to the deed. In particular, some participants suggested identifying stakeholder gaps, such as local government.

Industry needs to play a key role in community engagement for biosecurity. Farmers and their industry representatives could make a significant contribution to raising the profile of biosecurity, empowering the community and understanding the 'what's in it for me?' principle. They are well-placed to communicate about the pests that threaten their industry, especially in a regional context. National and state industry bodies need to play a central part in engaging the community at broader levels about biosecurity.

Some participants believed that local government (councils) could be more integrated into the biosecurity approach as they have many good skills (such as weed training) that can be used. This could be done by better understanding what they are doing to address biosecurity-related issues and discovering what other roles they could play by:

- conducting a stocktake of councils' actual and potential roles
- conducting a stocktake of current risky activities, such as planting host plants for key pests
- analysing potential mitigating practices
- drafting a framework for councils involving a new role; for example, by-law changes
- appointing a council biosecurity officer
- providing, as a pilot, two councils with a geographer and a biosecurity specialist.

In addition, there appears to be scope for the environmental sector to play a greater role in addressing biosecurity issues. It was pointed out that, despite invasive species being the second greatest threat to biodiversity in Australia, interaction between biosecurity agencies and the environmental sector is limited.

The environmental non-government sector needs to play a greater role in biosecurity policymaking and decisions relevant to the environment by, for example, including a representative from an environmental non-government organisation on the Biosecurity Advisory Council. There is also room to strengthen the environmental sector's involvement in decision-making processes relating to pest eradication.

The Beale review (2008) points out that a shared responsibility includes the need to strengthen engagement with other industries and communities. These include tourism and transport industries, peri-urban communities, and communities from culturally and linguistically diverse backgrounds.

Strengthening biosecurity on the political agenda

Participants welcomed the fact that most states and the Australian Government are developing reform measures for biosecurity. Some participants felt the Australian Government should legislate for a national biosecurity levy.

A nationally coordinated and integrated approach, including clarifying roles and responsibilities, would contribute significantly to the right legislative framework for biosecurity. Several workshop participants indicated that it is important to

strengthen biosecurity on the political agenda. Several suggestions were made, including how political choices about biosecurity could be influenced by:

- Appointing a minister for biosecurity as part of the Prime Minister's Office; New Zealand has a biosecurity minister.
- Raising the importance of biosecurity on the agendas of the Chief Scientist, heads of government departments and the Council of Australian Governments.
- Organising meetings between the Primary Industries Standing Committee, Standing Council on Primary Industries (previously known as Primary Industries Ministerial Council), the Chief Scientist, heads of tourism and industry, general practitioners, cooperative research centres, universities, and federal health officials to discuss national biosecurity issues. This group could create a national biosecurity council as recommended by the Beale review. A national biosecurity authority, which should include both plant and animal biosecurity, could have a collaborative approach across jurisdictions to minimise duplication and make more effective use of resources.
- Informing and educating policymakers, including their advisors. Training might be needed on how best to communicate with policymakers.
- Identifying and supporting champions to talk to politicians.
- Using alternative ways to have a voice; for example, through web-based advocacy movements and working through grassroots community lobbying.
- Strengthening the capabilities of industry bodies, including their lobbying skills; some participants indicated that industry associations could do a better job in this regard.
- Strengthening links between science and policy through stronger networks between research organisations and governments to ensure policies are science-based.

Box 7 Pillar 7: Enabling sound governance

Incoherent legislation, a lack of political will, changing governments resulting in changing priorities, 'red tape', and political process were identified as barriers to effective biosecurity engagement.

It is important to consolidate biosecurity on the political agenda by, for example, strengthening communication between academics, policymakers and other stakeholders.

Roles, accountability, duty of care and individual responsibility of all biosecurity stakeholders, including the broader community, need to be better defined and communicated.

It appears that the environmental and aquatic sector, local councils, the tourism and transport industries, peri-urban, and culturally and linguistically diverse communities could be better engaged in addressing biosecurity issues. Farmers and industry bodies could make a significant contribution to community engagement efforts at a regional level.

Ideas for action

- Conduct a review of how biosecurity engagement projects could be best managed and conducted, including ways to cut 'red tape' and how to operate in a changing political environment.
- Use the social network analysis proposed in section 4.1 to identify possible improvements to the allocation and definition of roles and responsibilities, with special emphasis on the broader community. Identify how roles and responsibilities could best be communicated.
- Highlight to biosecurity policy areas the need to further the recommendations of the Beale review relating to political will and community involvement to address biosecurity issues.

5.3 Pillar 8: Building and maintaining scientific capability

A key strategic issue workshop participants identified was that of building and maintaining Australia's scientific capacity (including capability) in relation to biosecurity issues.

Scientific expertise

A key component of scientific capacity is access to specialists. Gaps in the biosecurity skill base could mean Australia is unable to recognise potential future threats and develop solutions, which could lead to non-reactive government agencies and industry bodies. Workshop participants indicated that loss of skills and knowledge of biosecurity professionals, such as entomologists, would pose a problem if left unaddressed. Competition from other professions is threatening supply of specialist biosecurity expertise. Succession planning urgently needs strengthening.

Some workshop participants identified the existing scientific skill base and research as an enabler, whereas other workshop participants pointed out that lack of expertise is a barrier to good biosecurity outcomes.

Some participants felt biosecurity needs to be 'tagged' to a specific discipline base; that it is currently spread across too many different disciplines. Biosecurity relates to the economic, social, environmental and agricultural sciences. Workshop participants welcomed the Masters in Biosecurity degree that some universities began offering in 2011.

To strengthen and maintain the biosecurity skill base in Australia participants suggested:

- making biosecurity 'sexy' for new entry students and job hunters
- targeting schools and education for developing science; for example, start educating children from kindergarten and primary school age
- strengthening links between educational institutions and industry and government to solve longer-term 'brain drain' problem
- strengthening communication with biosecurity scientists internationally
- developing people capability (sufficient quantity and quality expertise) along the biosecurity chain, and implementing measures to retain corporate knowledge by, for example
  - funding university training through scholarships
  - introducing more industry traineeships
  - buying in or recruiting overseas scientists
  - encouraging more people to enrol in biosecurity-related courses
  - providing continuous learning opportunities for biosecurity professionals through education providers and Agrifood Skills Australia
  - providing more attractive employment options, viable careers and flexible employment opportunities
  - creating interest in biosecurity issues by conducting field days involving specialists such as plant entomologists and plant pathologists
  - investing in succession planning, starting immediately
  - encouraging scientists to adopt appropriate technologies and participate in key networks, including the Australasia–Pacific Extension Network, the Australian Biosecurity Intelligence Network and research groups.

Research

New approaches, ideas and innovation need to be fostered in order to identify effective biosecurity practices. This requires more investment in research relating to the biology, ecology and management of certain species in an Australian context, but also in research relating to use of new technologies and engagement strategies.

Some workshop participants were keen to see more research on the current status (baseline information) of biosecurity. This would involve assessing the values that need protecting, including the economic, social and environmental benefits Australians derive from the absence of certain pests, weeds and diseases and could encompass an asset-based protection approach similar to that used in the Caring for Our Country program.

It is important to provide information that shows communities how the things they value might be affected by pests, weeds and diseases. This information could be obtained by investing in processes such as economic impact assessments and modelling.

For research to make a real impact, it is important that it links with industry and community needs and, where appropriate, the policymaking process. It is important that the research and development prioritisation process be open, consultative and transparent, and include independent expert scientific advice.

Capabilities needed to achieve effective research outcomes include data collection and analysis, information reporting, sharing and dissemination and evaluation. Research planning needs to consider how findings will be disseminated to end-users. Many required capabilities already exist in government agencies, research bodies and commercial areas, but could be further developed. For example, the work agencies, such as the Australian Centre of Excellence for Risk Analysis, Biosecurity Australia, state agencies, cooperative research centres and universities, conduct is good, but could be strengthened.

Key risks and pathways

A number of workshop groups pointed out that identifying key risks and pathways is vital to maintaining Australia's scientific capability for biosecurity. Establishing good risk management processes is fundamental to ensuring good biosecurity outcomes. Australia needs to aim for a 'risk–return' approach that is globally recognised and can underpin international market access opportunities.

An enabler to good biosecurity outcomes is to have well-developed value sets to prioritise and plan responses to pest, weed and disease threats and incursions. In other words, it requires consequence analysis to inform base response decisions.

Government agencies and industry bodies are already doing significant work in this area, but more is needed. The continuing increase in trade volumes and international travel compound biosecurity risk, and thereby increase the need for effective risk analysis. This requires the necessary resources and systems in place to cope with increased risk.

More proactive control is also needed to prevent new pests, weeds and diseases reaching Australia's borders or waters. To achieve this, surveillance in international waters, and coordination and communication with other countries is necessary. It is therefore important to know what new potential risks could be; some workshop participants identified gaps in current knowledge. Private sector organisations with knowledge in this area could help Plant Health Australia and Animal Health Australia identify potential new threats.

It is important that research about, and responses to, key risks and pathways are well-connected to the wider scientific and general community to disseminate information to end-users in a way that meets their needs. Communication about new pests, and extension services for end-users, were identified as capabilities that could be further developed (see the section 'Effective communication about new and emerging pests').

Information about key risks and pathways needs to be translated into a commonsense approach to implementing good biosecurity practices, such as moving produce during new incursions and outbreaks of existing pests. It is important in these circumstances to rely not only on regulation, but also on education and trust.

Participants also suggested the need to learn from existing incursions by monitoring and evaluating management processes. This would require state and federal government involvement and central data collection or sharing of datasets. If datasets are to be shared they need to be compatible.

Box 8 Pillar 8: Building and maintaining scientific capacity

To build and maintain Australia's scientific biosecurity capacity, there is a need to strengthen:

- scientific expertise—by attracting new entrants to this field and maintaining existing ones, succession planning will be strengthened
- research—for example
  - to better understand the epidemiology, biology, ecology and management of certain pest species in an Australian context
  - to make better use of new technologies and engagement strategies
  - to better articulate the 'avoided losses' from controlling biosecurity threats
  - to be able to address knowledge gaps in key biosecurity risks and pathways. Research needs to link in with industry and community needs and policymaking.
- identification and communication of key risks and pathways—the need for effective risk analysis is increasing because of the growing movement of goods and people. A well-developed value set is necessary to prioritise and plan responses for biosecurity risks and incursions. Effective communication about key risks and pathways is important to enable relevant groups to respond appropriately.

Ideas for action

- Launch a marketing initiative to promote biosecurity-related career opportunities.
- Review how key risks and pathways are currently being communicated to key groups and identify how engagement with the broader community could be improved.
- Make evaluation a mandatory component of incursion responses.
- Make the principles of the lessons learned publicly available so programs can learn from each other.

Glossary

Animal Health Australia (AHA)	is a not-for-profit public company established by the Australian Government, state and territory governments and major national livestock industry organisations. AHA manages programs on behalf of its members to improve animal and human health, biosecurity, market access, livestock welfare, productivity, and food safety and quality.
Atlas of Living Australia (ALA)	is a national initiative focused on making Australia's biodiversity information more accessible and useable online, including by providing tools for researchers and others to access, combine and map data on Australian species.
Australasia–Pacific Extension Network (APEN)	is a professional association for people whose job involves facilitating change in regional communities.
Australian Biosecurity Intelligence Network (ABIN)	is an Australian Government initiative that aims to make it easier to connect, share, use and create biosecurity intelligence for biosecurity research, surveillance and response through a shared online workspace that can be accessed through the ABIN web portal.
Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)	is a research bureau within the Australian Government Department of Agriculture, Fisheries and Forestry
Australian Quarantine and Inspection Service (AQIS)	was part of the Australian Government Department of Agriculture, Fisheries and Forestry that managed quarantine controls at Australia's borders to minimise the risk of exotic pests and diseases entering the country. AQIS also provided import and export inspection and certification to help retain Australia's highly favourable animal, plant and human health status and wide access to overseas export markets. (Renamed DAFF Biosecurity in 2011.)

Biosecurity Advisory Council (BAC)	is a non-statutory advisory body to the Australian Government Minister for Agriculture, Fisheries and Forestry that provides independent advice on matters across the entire biosecurity continuum.
Biosecurity Surveillance, Incident, Response and Tracing (BioSIRT)	is a software application that enables better management of information and resources used to manage animal or plant diseases or pests and emergency responses to incursions across Australia.
Bowerbird	is a shared, socially networked workspace being developed in connection with PaDIL, the primary aim of which is to connect users with experts and act as an identification screening aid.
Department of Agriculture, Fisheries and Forestry (DAFF)	is an Australian Government department. Its role is to develop and implement policies and programs that ensure Australia's agricultural, fisheries, food and forestry industries remain competitive, profitable and sustainable.
Engaging in Biosecurity (EiB)	is the research project of which this report forms a part.
Emergency Plant Pest Response Deed (EPPRD)	is a formal legally binding agreement between Plant Health Australia, the Australian Government, all state and territory governments and plant industry signatories covering management and funding of responses to emergency plant pest incidents.
Intergovernmental Agreement on Biosecurity (IGAB)	is an agreement between the Australian Government and state and territory governments to strengthen the biosecurity system based on priority reform areas.
National Biosecurity Committee (NBC)	provides strategic leadership in managing national approaches to emerging and ongoing biosecurity policy issues across jurisdictions and sectors.
National Engagement and Communications Working Group (NECWG)	is one of several working groups established to progress the Intergovernmental Agreement on Biosecurity.
National Environmental Biosecurity Response Agreement (NEBRA)	is an agreement to establish national arrangements for responses to nationally significant biosecurity incidents with predominantly public benefits.

National Plant Biosecurity Engagement Framework (NPBEF)	is a national framework proposed in this document to provide inspiration, guidance and support for involving communities in addressing pest, weed and disease issues.
North Australian Indigenous Land and Sea Management Alliance (NAILSMA)	is a bioregional forum for Indigenous land and sea managers across north Australia. It aims to support practical Indigenous land and sea management using strategic approaches to care for country, with an emphasis on practical management by traditional owners.
Office of the Chief Plant Protection Officer (OCPPO)	is the branch in the Department of Agriculture, Fisheries and Forestry responsible for post-border plant pest preparedness and responses.
Pests and Diseases Image Library (PaDIL)	is an Australian Government initiative that offers high-quality colour diagnostic images and information on pests and diseases.
Plant Health Australia (PHA)	is a not-for-profit company that services members and independently advocates for the national plant biosecurity system. It coordinates a government–industry partnership for plant biosecurity.
Research and Development Corporations (RDCs)	are jointly funded by the Australian Government and industry. There are 14 Australian rural RDCs covering virtually all of Australia's agricultural industries.
Weeds of National Significance (WoNS)	is a list of 20 species of weeds selected by the Australian Government and the state and territory governments on the basis of these species' high invasive tendencies, impacts, potential for spread, and socioeconomic and environmental values.

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