

National Plant Biosecurity Surveillance Strategy



2021-2031



Australian Government
Department of Agriculture,
Water and the Environment

Acknowledgements

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Subcommittee on National Plant Health Surveillance (SNPHS)

The SNPHS has been established under the Plant Health Committee to provide coordination and leadership for plant pest surveillance in Australia. The subcommittee comprises representatives from the Australian Government, state and territory governments, PHA and the CSIRO. The principal focus of SNPHS is to maintain and improve Australia's plant health surveillance capacity and capability in support of the economy, environment and community.

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Acronyms

EPP	Emergency Plant Pest
HPP	High Priority Pest
IGAB	Intergovernmental Agreement on Biosecurity
IPPC	International Plant Protection Convention
ISPM	International Standards for Phytosanitary Measures
NPBS	National Plant Biosecurity Strategy
NSP	National Surveillance Protocol
PHA	Plant Health Australia
PSNAP	Plant Surveillance Network Australasia Pacific
SNPHS	Subcommittee on National Plant Health Surveillance
SSWG	Surveillance Strategy Working Group

Executive summary

The National Plant Biosecurity Surveillance Strategy (the strategy) provides a framework to strengthen Australia’s plant health surveillance system. It is one of several strategies that supports the broader national biosecurity system through its alignment with the Intergovernmental Agreement on Biosecurity (IGAB) and the National Plant Biosecurity Strategy (NPBS).

The strategy’s vision is that by 2031 the plant health surveillance system protects Australia’s plant industries, economy, environment and community through the improved detection and knowledge of plant pest and weed status. Achieving this shared vision requires collective effort nationally to ensure the people, infrastructure, standards and tools used deliver the highest-quality surveillance activities.

The 2021–2031 strategy is based around six interconnected goals shown below. Each goal is supported by a series of actions that will guide and support national policy relating to the delivery of plant health surveillance activities and inform investment in research, development and extension. The actions can also be used to guide state/territory, regional and local efforts or efforts by individual governments, plant industries and stakeholder groups.

 Goal 1	Stronger regional, national and international connections
 Goal 2	Enhanced and improved capability for an effective surveillance system
 Goal 3	Barriers to surveillance and reporting identified and removed
 Goal 4	Increased adoption of innovative tools, technologies and approaches
 Goal 5	Risk-based surveillance systems and processes developed and maintained
 Goal 6	Improved information standards, analyses and infrastructure

The 2021–2031 strategy applies to plant pests and weeds that impact Australia’s plant industries, environment and community. For the purpose of the strategy, plant pests are defined as any species, strain or biotype of invertebrate or pathogen injurious to plants, plant products or bees. The application of the strategy to weeds covers exotic weed species and declared weed species not known to be established in a particular jurisdiction.

The 2021–2031 strategy is preceded by the 2013–2020 strategy. That strategy played a key role guiding activities to support improvements to the national plant health surveillance system. Some of the key achievements of the 2013–2020 strategy include:

- implementation of the Plant Surveillance Network Australasia-Pacific (PSNAP) to provide a mechanism for surveillance stakeholders in plant industries and government to connect and share surveillance information
- development of the national data aggregation system, AUSPestCheck™, to assist, connect and coordinate surveillance data systems across Australia
- development of National Minimum Dataset Specifications and Pest Record Specifications to promote consistency in data collected through surveillance.

The 2021–2031 strategy seeks to build upon the achievements and momentum of the 2013–2020 strategy and provide continued benefits for the broader national biosecurity system through the following outcomes:

- a cooperative and collaborative national approach to surveillance driven by partnerships
- skilled people are available to support surveillance
- improved awareness of biosecurity risks and participation in surveillance by plant industries, environmental groups and the community
- more effective technologies and approaches to detect plant pests and weeds
- greater confidence in the information generated from surveillance activities
- robust and credible information on Australia’s plant health and plant pest status.

The successful implementation of the 2021–2031 strategy will support surveillance practitioners in implementing best practice surveillance and ensure that Australia’s plant health surveillance system is effective into the future. It will also result in an improved national plant biosecurity system that will manage risks to Australia’s plant industries, environment and community while supporting trade and market access.

National Plant Biosecurity Surveillance Strategy at a glance

Vision	A plant health surveillance system that protects Australia's plant industries, knowledge of plant pest and weed status.		
Goals	 <p>1 Stronger regional, national and international connections</p>	 <p>2 Enhanced and improved capability for an effective surveillance system</p>	 <p>3 Barriers to surveillance and reporting identified and removed</p>
Actions	<p>1.1 Establish a shared and agreed understanding of roles and responsibilities of surveillance stakeholders.</p> <p>1.2 Define surveillance priorities that stakeholders will work on collaboratively to achieve national surveillance goals.</p> <p>1.3 Establish coordinated surveillance programs to maximise the effective detection of plant pests and weeds.</p> <p>1.4 Establish and enhance regional, national and international networks and partnerships.</p> <p>1.5 Develop and maintain a national framework for funding and coordinating surveillance activities across Australia.</p>	<p>2.1 Identify and address current and emerging capability gaps for people involved in surveillance.</p> <p>2.2 Coordinate training and professional development pathways to support the ongoing needs of the national surveillance system.</p> <p>2.3 Increase national surveillance biometric capability and build data literacy across surveillance practitioners.</p> <p>2.4 Develop communication and engagement mechanisms to increase stakeholder awareness and uptake of surveillance activities.</p> <p>2.5 Establish and maintain diagnostic skills, expertise and resources to support surveillance.</p>	<p>3.1 Improve the protection and support for stakeholders reporting plant pests and weeds.</p> <p>3.2 Establish and promote initiatives to improve surveillance for exotic and regionalised plant pests and weeds in urban and peri-urban areas.</p> <p>3.3 Establish mechanisms to integrate surveillance for priority plant pests into existing monitoring practices and systems.</p>
Expected outcomes	A cooperative and collaborative national approach to surveillance driven by partnerships	Skilled people are available to support surveillance	Improved awareness of biosecurity risks and participation in surveillance by plant industries, environmental groups and the community
Implementation	National Plant Biosecurity Surveillance Strategy		

economy, environment and community through the improved detection and



4 Increased adoption of innovative tools, technologies and approaches

- 4.1 Develop and implement a framework to assess the suitability of tools, technologies and approaches for the national surveillance system.
- 4.2 Identify and implement new tools, technologies and approaches to improve the detectability of plant pests and weeds.
- 4.3 Identify, assess and promote laboratory and in-field diagnostic methods to support surveillance.

More effective technologies and approaches to detect plant pests and weeds



5 Risk based surveillance systems and processes developed and maintained

- 5.1 Establish a framework to identify priority plant pests, weeds, commodities and conveyances, and high-risk areas for surveillance.
- 5.2 Develop, update and endorse National Surveillance Protocols for priority and emerging plant pests.
- 5.3 Develop nationally agreed guidelines to support surveillance design and analysis during and following emergency responses to plant pest incursions.

Greater confidence in the information generated from surveillance activities



6 Improved information standards, analyses and infrastructure

- 6.1 Implement and maintain an interoperable and integrated national surveillance information management system to collate, share and analyse surveillance data.
- 6.2 Evaluate and enhance the quality of general surveillance data captured for the national surveillance system.
- 6.3 Develop and implement a process for measuring and reporting the effectiveness of surveillance programs.

Robust and credible information on Australia's plant health and plant pest status

Implementation Plan and action plans

Introduction

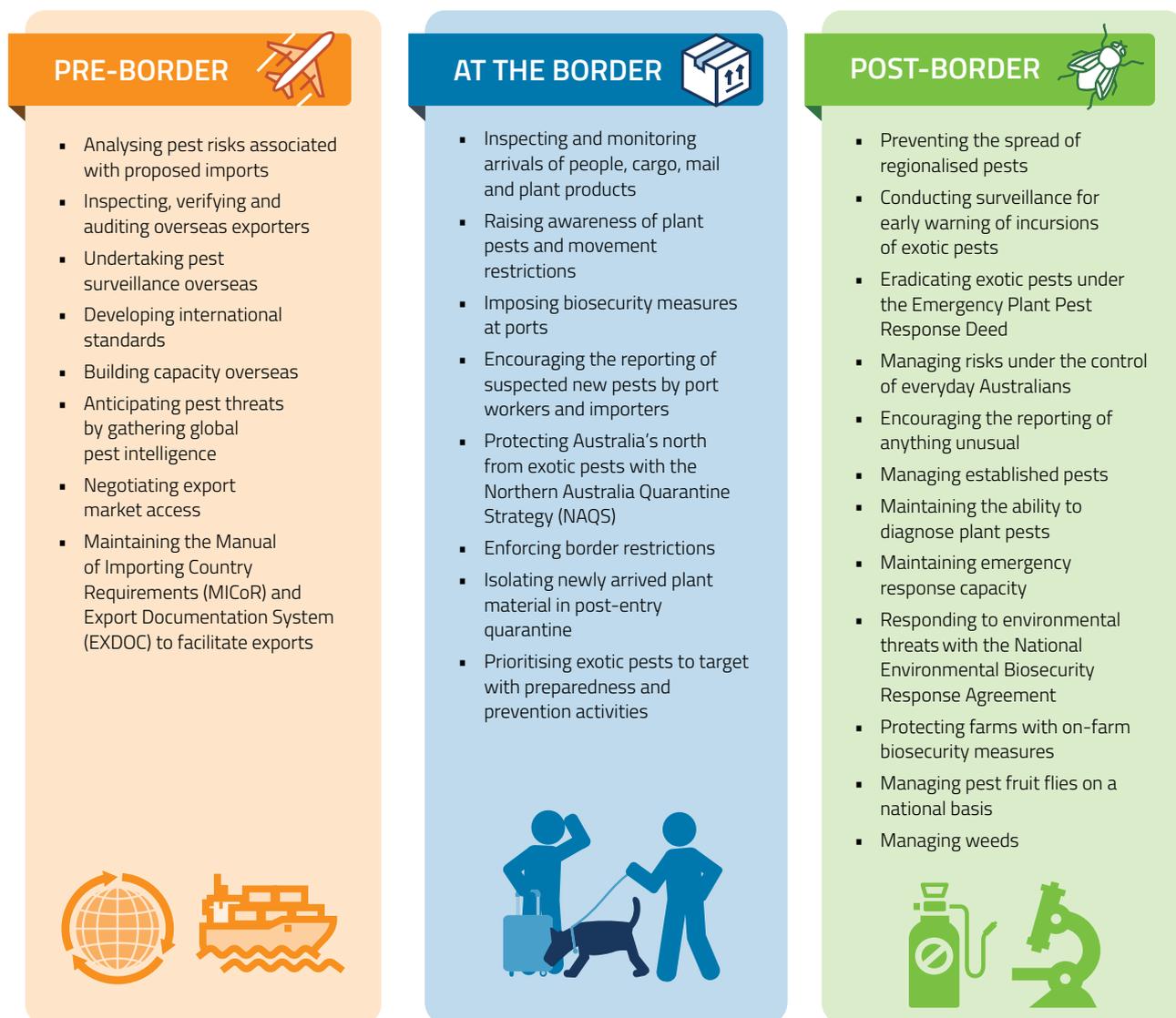
Australia's biosecurity system is complex and extensive, with activities in place internationally (pre-border or offshore), along our coastline and at our border (airports, seaports, mail centres), and within Australia (also called onshore or post-border). These three elements—pre-border, border and post-border, come together in what is known as the biosecurity continuum (Figure 1).

Plant health surveillance (also called plant biosecurity surveillance) is a fundamental component of the national biosecurity system and plays an important role at all stages of the biosecurity continuum. The main aim of plant health surveillance is to look for plant pests and weeds to determine their presence or absence from an area so that appropriate management actions can be taken. This includes plant pests and weeds that are known to be present and those that are not yet present in the country, state, region or property.

Surveillance activities within the national plant health surveillance system can be undertaken by a wide range of stakeholders including governments, plant industries and the community. All work is guided by the National Plant Biosecurity Surveillance System Framework provided in Appendix 1. Activities under the national framework work together to achieve five key objectives:

- **Early warning:** Shows where new biosecurity measures are required to prevent the arrival or spread of plant pests and weeds, with surveillance along high-risk pathways being a priority.
- **Early detection:** Finding a new plant pest or weed incursion or outbreak early, before it has a chance to become established and spread.
- **Plant pest status/area freedom:** Collecting surveillance data on the presence or absence of plant pests and weeds demonstrates to other countries that they can safely buy our produce. This is known as 'evidence of absence' and is critical to support market access both within Australia and overseas.
- **Delimiting (or delimitation surveillance):** The ability to define where plant pests and weeds are present and absent to ensure the boundaries of a pest's distribution can be defined. This is very important during an eradication response.
- **Monitoring established pests:** This includes surveillance for plant pests and weeds that are already here and is usually driven by the need to make decisions on pest management.

Figure 1. Australia's biosecurity continuum



Types of surveillance

Surveillance programs may include the following types of surveillance:

- **Specific surveillance** is described as the gathering of information on plant pests and weeds through an active process targeting specific plant pests and weeds over a defined period of time. Such activities demonstrate which plant pests and weeds are present or absent in a region and are typically highly structured, with records captured on pests and host targets, date, location, pest levels (including pest absence).
- **General surveillance** is described as the gathering of information on plant pests and weeds through activities such as reports from members of the public, and monitoring undertaken by growers, researchers and government bodies. General surveillance activities can vary significantly in their structure and the detail of information collected.

While both types of surveillance can provide valuable information on the presence or absence of plant pests and weeds, the structured nature of specific surveillance often provides a higher overall level of confidence. However, specific surveillance can also incur substantial costs and for this reason will often be limited in duration and/or area.

In contrast, general surveillance can be more flexible and integrate with existing practices at the farm or community level. The confidence provided by general surveillance occurs through the large coverage and potentially large quantity of data collected. As a result, general surveillance data provided by plant industries, governments and urban and peri-urban communities can contribute to an overall evidence of absence.

Achievements under the 2013–2020 strategy

The 2021–2031 strategy is preceded by the 2013–2020 strategy. That strategy identified requirements to promote greater participation for plant pest surveillance activities and supported improved coordination, consistency, and optimisation of surveillance efforts.

Implementation of the 2013–2020 strategy was led by SNPHS and guided significant improvements in the national biosecurity system. These included the establishment of a national surveillance network, development of standards for data collection and surveillance activities, and initiation of partnership programs between plant industries and government. Some of these achievements included:

- The PSNAP¹ was established to provide a mechanism for surveillance stakeholders in plant industries and government to connect and share surveillance information
- The national data aggregation system, AUSPestCheck™, was developed to assist, connect and coordinate surveillance data systems across Australia
- MyPestGuide was developed as a tool to support and encourage surveillance in urban and peri-urban communities or other specific surveillance programs as required
- National Minimum Dataset Specifications and Pest Record Specifications were developed to promote consistency in data collected through surveillance
- The Reference Standard for National Surveillance Protocols (NSPs) was developed to improve documentation of surveillance methods and consistency of surveillance efforts
- A surveillance prioritisation process was developed for the identification of national priority plant pests or groups of pests
- A general surveillance framework was developed to better define general surveillance and to improve the level of confidence
- Surveillance strategies for the citrus, forest, grains and tropical fruit industries have been developed to ensure that activities are organised and target the plant pests of greatest concern
- The National Bee Pest Surveillance Program was established to detect new incursions of exotic bee pests and pest bees.

¹ The PSNAP Coordinator is based within Plant Health Australia and was initially funded in 2018–2019 by the Department of Agriculture, Water and the Environment for a period of two years.

Challenges

While significant activity has occurred over the last decade to strengthen the national plant health surveillance system, a range of existing, emerging, and growing challenges are increasing the threat of biosecurity risks.

These include factors such as globalisation, international and interstate movement, climate change, tourism and the increasing volume of goods moved²³⁴⁵. Further compounding these challenges is a number of other trends including the emergence of new plant pests and new pathways (such as online retailers), the shifting geographic spread of existing plant pests and weeds, agricultural expansion and intensification, increased urbanisation and changing land uses⁶. In conjunction with these increasing challenges and trends, there is an ongoing competition for resources across the plant health surveillance system.

All these factors have combined to place significant pressure on the ability of surveillance stakeholders to meet their biosecurity responsibilities, national biosecurity obligations and respond to new and emerging pest risks and pathways.

At the same time, overseas markets for primary produce are becoming more competitive as trading partners strengthen their own biosecurity systems and requirements. Consumer preferences and expectations for information on food safety and quality are driving a greater need to ensure production systems are ethical, effective and safe. Part of these expectations include a growing need to demonstrate freedom from plant pests, driving improvements in surveillance at a national, regional and property level.

Fundamental to address this need will be a renewed focus to ensure Australia has the people, resources, infrastructure, policies, standards and tools to provide for the highest-quality surveillance delivery.

This strategy focuses on addressing these challenges over the next ten years through provision of a long-term policy focus, coupled with a process of regular monitoring, review and reporting against the goals and actions. The strategy aims to remain agile and responsive to the changing and demanding biosecurity environment expected over the next decade.

Consultation and development

This strategy has been developed through consultation with a wide range of plant health surveillance stakeholders including:

- plant biosecurity and environment representatives in Australian, state and territory governments
- plant industry bodies
- research and development corporations
- research bodies
- local government authorities
- environmental groups
- community groups and
- growers.

Direction and advice to inform development of the strategy was provided by the Surveillance Strategy Working Group (SSWG) of the Subcommittee on National Plant Health Surveillance (SNPHS). The SSWG included membership from PHA and the Australian, state and territory governments.

Members of the SSWG and the list of organisations/groups engaged are provided in Appendix 2 – Stakeholder consultation.

- 2 CSIRO 2014, Australia's biosecurity future: preparing for future biological challenges, Commonwealth Scientific and Industrial Research Organisation, Canberra.
- 3 Grafton, Q, Mullen, J & Williams, J 2015, Australia's agricultural future: returns, resources, and Risks, final report for the Australian Council of Learned Academics, Melbourne.
- 4 Hajkowicz, S & Eady, S 2015, Rural industry futures: Megatrends impacting Australian agriculture over the coming twenty years, report prepared for the Rural Industries Research and Development Corporation, Canberra.
- 5 Cope, R, Ross, J, Wittmann, T, Prowse T & Cassey, P 2016, Integrative analysis of the physical transport network into Australia, PLOS ONE.
- 6 Craik, W., Palmer, D. & Sheldrake, R. 2017, Priorities for Australia's biosecurity system: An independent review of the capacity of the national biosecurity system and its underpinning Intergovernmental Agreement, prepared for the Department of Agriculture and Water Resources, Canberra, Australia. Available at www.agriculture.gov.au/igabreview.

National approach to plant biosecurity

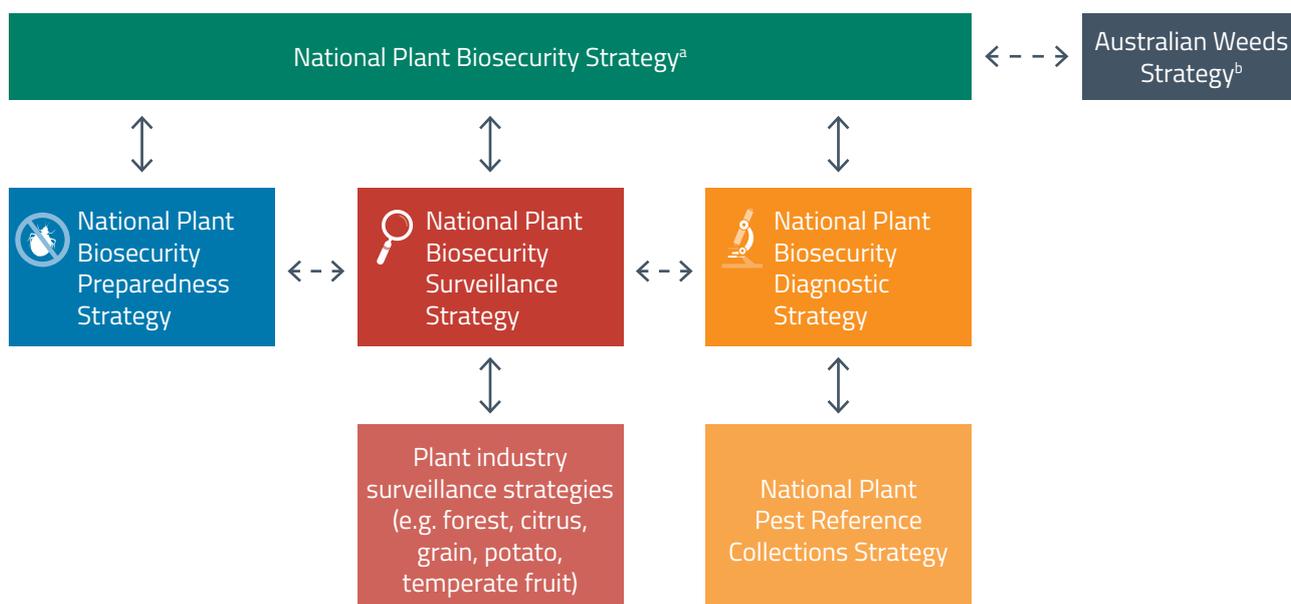
Australia's plant biosecurity system is built on a shared responsibility between a diverse range of stakeholders including all levels of government, plant industry bodies, growers, research organisations, environmental groups, natural resource managers, supply chains and the wider community (e.g. Aboriginal and Torres Strait Islander peoples and communities, education institutions and the general public). This means everyone takes responsibility for biosecurity matters, whether under their direct control or not, and everyone has an obligation to take action to protect Australia from plant pests and weeds.

The Australian Government and state and territory governments work under the principles set out in the IGAB. The IGAB aims to strengthen Australia's biosecurity system, enhance national collaboration among Australian governments, and support our biosecurity system to meet current and future challenges. The current version of the agreement was ratified in January 2019 and replaced the previous IGAB which came into effect in 2012.

This strategy aligns with the IGAB and underpins the overarching NPBS. The NPBS is a ten-year plan that outlines a set of goals and actions to strengthen Australia's plant biosecurity system. The strategy has provided the focus and strategic direction for national plant biosecurity activities since 2010, and drives the way governments, plant industries and the community to work closely together.

This strategy also complements other national strategies—the National Plant Biosecurity Diagnostic Strategy, National Plant Biosecurity Preparedness Strategy and Australian Weeds Strategy—to further strengthen plant biosecurity arrangements over the next decade. It also guides plant industry specific surveillance strategies that form part of the strategic framework for Australia's plant biosecurity system. Figure 1 shows the relationship between key plant biosecurity strategies at the national level.

Figure 1. Key national strategies relevant to plant biosecurity



a The National Plant Biosecurity Strategy Implementation Group has oversight of the National Plant Biosecurity Strategy and its three sub-strategies on preparedness, surveillance and diagnostics.

b The Environment and Invasives Committee has oversight of the Australian Weeds Strategy.

Scope of the strategy

This strategy focuses on improved outcomes for the national plant health surveillance system and applies to plant pests and weeds that impact Australia's plant industries, environment and community.

For the purpose of this strategy, plant pests are defined as any species, strain or biotype of invertebrate or pathogen injurious to plants, plant products or bees.

The application of the strategy to weeds primarily covers exotic weed species and declared weed species not known to be established in a particular jurisdiction, which pose high potential impacts. It supports those aims of the Australian Weeds Strategy⁷ that relate to surveillance. Weeds are also included in this strategy where they may be important vectors, reservoirs and alternative hosts for plant pests.

The strategy should be considered in conjunction with the National Plant Biosecurity Preparedness Strategy and the National Plant Biosecurity Diagnostic Strategy which together support implementation of the National Plant Biosecurity Strategy.

The strategy does not identify resourcing or funding sources to deliver the goals and actions. Guidance on the specific tasks required for each action, including organisations and/or groups with responsibility for implementing each task, resources required and timeframes, will be provided in detailed action plans to support implementation of the strategy.

⁷ Invasive Plants and Animals Committee 2016, Australian Weeds Strategy 2017 to 2027, Australian Government Department of Agriculture and Water Resources, Canberra. Available at <https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/pests-diseases-weeds/consultation/aws-final.docx>



Guiding principles

The strategy is guided by the following principles which together help ensure the national plant health surveillance system manages risks to Australia's plant industries, environment and community while supporting trade and market access.

1 >

An effective biosecurity continuum

An effective biosecurity system manages the pre-border, border and post-border elements (the biosecurity continuum) to mitigate risks.



2 >

Collaboration

Biosecurity is a responsibility shared between all governments, plant industries, natural resource managers, land custodians or users, and the community.



3 >

Evidence-based

Biosecurity activities are undertaken according to a cost-effective, science based and risk-managed approach.



4 >

Coordination

Biosecurity activities are well coordinated to ensure resources are targeted towards agreed national priorities.





Strategic direction to 2031

The strategy identifies six interconnected goals to achieve the vision for Australia's plant health surveillance system to 2031. The goals and expected outcomes are:

	1	2	3	4	5	6
Goals	 <p>Stronger regional, national and international connections</p>	 <p>Enhanced and improved capability for an effective surveillance system</p>	 <p>Barriers to surveillance and reporting identified and removed</p>	 <p>Increased adoption of innovative tools, technologies and approaches</p>	 <p>Risk-based surveillance systems and processes developed and maintained</p>	 <p>Improved information standards, analyses and infrastructure</p>
Expected outcomes	A cooperative and collaborative national approach to surveillance driven by partnerships	Skilled people are available to support surveillance	Improved awareness of biosecurity risks and participation in surveillance by plant industries, environmental groups and the community	More effective technologies and approaches to detect plant pests and weeds	Greater confidence in the information generated from surveillance activities	Robust and credible information on Australia's plant health and plant pest status

Implementation plan

Each goal is supported by a series of actions that are described in this section. More information on the implementation of the strategy, including performance measures, key contributors and indicative timeframes for delivery⁸, is available in the National Plant Biosecurity Surveillance Strategy Implementation Plan. The implementation plan also sets out governance arrangements for the strategy along with provisions for review and reporting.

⁸ All timeframes are indicative and should not preclude the commencement of any actions before the date set out in the implementation plan.



GOAL 1

**STRONGER REGIONAL, NATIONAL
AND INTERNATIONAL CONNECTIONS**

EXPECTED OUTCOME:

A cooperative and collaborative national approach to surveillance driven by partnerships

ACTION 1.1:

Establish a shared and agreed understanding of roles and responsibilities of surveillance stakeholders

Managing plant biosecurity risks and protecting our biosecurity status is a shared responsibility among a wide range of stakeholders. Previously, the roles and responsibilities for system participants have not been clearly understood, coordinated, or broadly consulted and agreed.

An important step in realising a shared responsibility is identifying, establishing and assigning roles and responsibilities for all surveillance stakeholders. These stakeholders include all levels of government, plant industry bodies, growers, research organisations, environmental groups, natural resource managers, supply chains and the wider community. They also include overseas trading partners and near neighbours.

Once agreed, there is a need to ensure everyone is aware of and acknowledges their roles, responsibilities and accountabilities as well as those of other system participants. This will ensure that stakeholders meet their biosecurity obligations and can effectively identify and respond to the challenges facing the system.

ACTION 1.2:

Define surveillance priorities that stakeholders will work on collaboratively to achieve national goals

Priorities for surveillance activities for plant pests and weeds are informed by a range of elements. These include Australian Government, state and territory strategies and policies, plant industry aspirations and needs, risk assessments, pathway analyses, surveillance data, trade requirements, stakeholder capabilities, diagnostics capabilities, available resources and surveillance tools, and outcomes of national or plant industry prioritisation processes.

Given the large number of potential plant pest and weed targets, along with the finite resources available for surveillance, it is important to set priorities that plant industries, government and other surveillance stakeholders will work on collectively. These priorities should be evidence-based, well defined, achievable and aligned with national and international requirements. A process for reviewing surveillance priorities should also be developed and established to ensure they remain relevant and reflect the changing knowledge of plant biosecurity risks.

The ability to prioritise surveillance activities will maximise the efficiency and effectiveness of resources deployed across the national plant health surveillance system. It also recognises that surveillance, which is risk-based and focused on agreed high priority pest targets and locations, will provide the greatest return on investment.

ACTION 1.3:

Establish coordinated surveillance programs to maximise the effective detection of plant pests and weeds

Multiple surveillance programs delivered by governments and plant industries have been established across Australia to target plant pests and weeds. While these programs are a key component of the national plant health surveillance system, they often occur largely independently of each other and would benefit from being conducted in a coordinated manner.

It is recommended that nationally coordinated surveillance programs are established for all major plant industries, and plant pests and weeds of national concern, to improve the efficiency and effectiveness of the Australia's plant health surveillance system. This will maximise the detection of exotic plant pests and weeds, mitigate the risk of exotic plant pests and weeds establishing in Australia, and provide evidence to support claims of area freedom. In addition, coordination will help facilitate the exchange of information between government and plant industries to help everyone better manage biosecurity risks.

The establishment and maintenance of these programs requires partnerships across governments, industries and urban and peri-urban communities to maximise collective effort and reduce duplication of effort (Action 1.4). They should also be supported by an effective diagnostic network (Action 2.6), protocols consistent with national and international standards (Action 5.2) and an ongoing process for measuring and reporting their effectiveness (Action 6.3).

ACTION 1.4:

Establish and enhance regional, national and international networks and partnerships

A suite of activities already connects individuals and groups across the national plant health surveillance system. These include the PSNAP Surveillance Residential, development of NSPs and surveillance programs at the regional, state and national level.

In order to support surveillance delivery, continual improvement will be needed to grow domestic and international partnerships. The ability to establish and enhance these connections within and between stakeholders identified through Action 1.1 will assist with the sharing of expertise and surveillance information as well as the coordination of surveillance activities, training, and research activities relating to plant pests and weeds. It will also help communicate surveillance outcomes and increase the awareness of plant biosecurity risks and successes.

In addition, there is scope to extend collaboration within Australia through connecting with the different sectors with similar purposes (e.g. animal and human health, biodiversity). Often similar technologies, challenges and policies are in place across these sectors, and improved communication and linkages will build networks that ensure resources are used more effectively.

ACTION 1.5:

Develop and maintain a national framework for funding and coordinating surveillance activities across Australia

Resourcing for all aspects of surveillance, and diagnostics that support identification, is an ongoing challenge and a better approach is needed to support surveillance efforts into the future.

The development of a national framework for funding and coordinating surveillance will support the delivery of surveillance activities across Australia in an integrated and consistent manner. To be effective, the framework must be able to identify where resources are best directed and allocate funding accordingly, including cost-sharing where appropriate.

The framework should identify opportunities to standardise efforts and surveillance activities across the biosecurity continuum to improve the ability to accurately triage and diagnose plant pests and weeds, and mount an appropriate response to detections.



GOAL 2

**ENHANCED AND IMPROVED
CAPABILITY FOR AN EFFECTIVE
SURVEILLANCE SYSTEM**

EXPECTED OUTCOME:

Skilled people are available to support surveillance

ACTION 2.1:

Identify and address current and emerging capability gaps for people involved in surveillance

An effective national plant health surveillance system is reliant on appropriately trained individuals and/or groups with the necessary capacity and capability to conduct surveillance activities. However, a national approach to the development and enhancement of capability of personnel involved in surveillance across the biosecurity continuum is not currently in place.

In order to ensure all people involved in surveillance are effective in their roles, there is a requirement to identify the current and emerging gaps in human capability across the national plant health surveillance system. This will contribute to the identification and design of training and professional development activities to support Australia's plant health surveillance system (Action 2.2).

Successfully identifying these gaps and implementing measures to address them will ensure that people involved in surveillance delivery maintain an appropriate level of skills and expertise to achieve surveillance outcomes. It will also ensure an adequate number of appropriately trained people are deployed in surveillance delivery.

ACTION 2.2:

Coordinate training and professional development pathways to support the ongoing needs of the national surveillance system

The identification and design of training and professional development activities should be informed by assessing key current and emerging capability gaps across the system to ensure pathways meet the needs of the national plant health surveillance system (Action 2.1). While needs will vary across the diverse range of surveillance stakeholders including government, plant industries, growers and the wider community, training and professional development are required for:

- improving the skills, knowledge and expertise of existing surveillance practitioners to ensure they are proficient in the required surveillance techniques and methods in order to maintain capability
- introducing new surveillance practitioners into the system to improve capability and capacity
- maintaining expertise, preventing the loss of institutional knowledge, and encouraging succession planning.

Training needs may range from specialist courses in pathway and data analysis, on-the-ground training for delimiting surveillance associated with emergency response or integrating surveillance for specific exotic plant pests into crop monitoring to provide data that supports area freedom claims. For the wider community, training and support material covering plant pests and weeds may be in the form of awareness material and workshops for special interest groups.

Current professional development activities include short-term residential visits, annual workshops and sponsored training courses. It is recommended that these activities are broadened over time to improve the skills, knowledge and expertise of surveillance practitioners. Pathways to introduce new surveillance practitioners should also be investigated in order to maintain an appropriate level of expertise. Options for maintaining this capability could also involve succession planning, mentoring programs and scholarships.

ACTION 2.3:

Increase national surveillance biometric capability and build data literacy across surveillance practitioners

Surveillance should be both risk and evidence-based to be most effective and efficient. This requires knowledge and skills for the wide range of statistical analyses that support surveillance including pathway assessment, survey design, establishment and spread modelling, and data analysis of surveillance results.

Specialist areas of biometrics are continually improving, and while this provides significant opportunities to improve data analysis and modelling for surveillance, it results in a constant need to maintain and develop expertise.

In addition to specialist biometrics skills, there is an ongoing need to build data literacy for surveillance practitioners to ensure they are aware of the importance of different aspects of surveillance programs and understand the data collection that may be required. Decision makers in government and plant industries also require levels of data and surveillance terminology literacy to ensure that they understand components of surveillance programs and can make informed decisions on surveillance outcomes.

ACTION 2.4:

Develop communication and engagement mechanisms to increase stakeholder awareness and uptake of surveillance activities

A focus on improving communication and engagement is essential to ensure all surveillance stakeholders across the biosecurity continuum have the knowledge, skills, motivation and resources they require to deliver positive outcomes.

In order to be effective, the mechanisms used should be appropriate to the communication and information needs of the different stakeholder groups. This includes governments, plant industries, growers and the wider community, especially Indigenous and culturally and linguistically diverse populations. Information should also be easily accessible to be obtained in the right format at the right time to meet stakeholder needs.

This will improve the effectiveness of engagement activities and help create longer-term and self-sustaining surveillance programs. It will also help develop a greater awareness of plant biosecurity risks and successes, stimulate behavioural change and empower community participation in the investigation and reporting of plant pests and weeds.

ACTION 2.5:

Establish and maintain diagnostic skills, expertise and resources to support surveillance

While the skills, expertise and knowledge of plant pest diagnosticians have increased through implementation of the National Plant Biosecurity Diagnostic Strategy (2012–2020), there is a constant need to develop and maintain these skill sets to support surveillance activities into the future.

For plant pests, implementation of the National Plant Biosecurity Diagnostic Strategy (2021–2031) will largely deliver on this action. The strategy addresses the following points:

- national and international diagnostic connections
- expertise required to enable the delivery of world class plant pest diagnostics
- innovative tools, technologies and approaches for improved diagnostics
- appropriate, sustainable and coordinated resourcing to support the diagnostic system
- systems, policies and infrastructure to deliver reliable diagnoses
- data analytics to inform biosecurity decision making.

In the case of weeds, as with other plant health disciplines, there is a need to address the declining supply of specialists in botanical diagnostics. Continuous efforts are also needed to improve engagement with herbaria across the country and overseas taxonomic experts to ensure the prompt diagnosis and reporting of weeds.



GOAL 3

**BARRIERS TO SURVEILLANCE
AND REPORTING IDENTIFIED
AND REMOVED**

EXPECTED OUTCOME:

Improved awareness of biosecurity risks and participation in surveillance by plant industries, environmental groups and the community

ACTION 3.1:

Improve the protection and support for stakeholders reporting plant pests and weeds

There are several potential barriers that can impact the ability of surveillance stakeholders to detect and report plant pests and weeds. Current barriers include a lack of awareness about new plant pests and weeds and the mechanisms for reporting, limited access to tools for surveillance or for capturing information on presence or absence and poor understanding or fear of the consequences of reporting new plant pests.

Given the importance of early identification and reporting to successful eradication, there is a need to minimise these barriers and establish incentives for reporting. Opportunities may include protection and support for stakeholders such as growers or staff members reporting plant pests, tools to assist with reporting plant pests and weeds, and a focus on surveillance and reporting by environmental groups and urban and peri-urban communities.

The range of solutions developed will help strengthen the knowledge, attitudes and practices of people involved in surveillance. Information captured as part of these enhanced reporting activities will also play a key role in supporting national and international market access, identifying and planning surveillance activities and tracking surveillance activities across Australia.

ACTION 3.2:

Establish and promote initiatives to improve surveillance for exotic and regionalised plant pests and weeds in urban and peri-urban areas

Urban and peri-urban areas, as well as the environment, can be high-risk entry and establishment pathways for plant pests and weeds. However, general surveillance in these areas can be a challenge to initiate and maintain.

Initiatives focused on members of the community/businesses that are most interested in plants and plant biosecurity are most likely to provide the best opportunities to improve general surveillance in urban and peri-urban areas and the environment. Target audiences for these initiatives could include community gardens, environmental groups, garden clubs, school aged children, government staff, researchers and members of regional communities reliant on agriculture or horticultural production.

In order for the initiatives to be effective, participants need to be provided with training (Action 2.2), materials (Action 2.4) and tools (Action 4.2) that support detection and reporting of suspect plant pests and weeds in urban and peri-urban areas as well as the environment. This will help provide a targeted message to promote the idea of a shared responsibility and create sentinels for surveillance activities.

ACTION 3.3:

Establish mechanisms to integrate surveillance for priority plant pests into existing monitoring practices and systems

Improvements to the plant biosecurity system will require integration of specific surveillance and general surveillance into existing plant pest monitoring activities, which when coupled with support for progressive improvement, will provide the best likelihood of establishing partnerships between a range of stakeholders.

Within plant industries, surveillance in the form of crop monitoring for established plant pests is routinely undertaken in many businesses to inform management decisions, or surveillance/assessment to meet domestic or export protocols. Identification of mechanisms to include surveillance for exotic plant pests and, where necessary, capture this information, will assist improve surveillance outcomes that could be used to support trade or early detection of new plant pests. These mechanisms will need to identify the value proposition for individual businesses in conducting surveillance and establish agreements for data sharing.

For governments and research organisations, integration of surveillance for exotic plant pests may be by mechanisms such as inclusion of pest targets in pest monitoring activities, or addition of exotic plant pest targets in diagnostic tests being run for established plant pests.



GOAL 4

**INCREASED ADOPTION
OF INNOVATIVE TOOLS,
TECHNOLOGIES AND
APPROACHES**

EXPECTED OUTCOME:

More effective technologies and practices to detect plant pests and weeds

ACTION 4.1:

Develop and implement a framework to assess the suitability of tools, technologies and approaches for the national surveillance system

New tools, technologies and approaches are constantly being developed to improve the conduct of surveillance activities and the collection of surveillance data. Existing tools, technologies and approaches are also being regularly being used in new and innovative ways.

A mechanism to assess the suitability of tools, technologies and approaches for the national surveillance system, and prioritise investment to address gaps, is not currently available. Through the development of a monitoring and evaluation framework, end users will be able to assess the appropriateness of current and emerging technologies in a consistent manner to ensure their ongoing validity, accuracy and reliability. This could enhance confidence in their use and allow barriers to the uptake of new technologies to be identified and further explored.

As part of this approach, there is a requirement to determine a process to ensure the frequency of the evaluations keep pace with advances in technology. There is also a need for the results of any evaluations to be clearly communicated through the PSNAP and other fora in a timely manner to ensure the capabilities and limits of these technologies are clearly understood across the system.

ACTION 4.2:

Identify and implement new tools, technologies and approaches to improve the detectability of plant pests and weeds

The continuous improvement of tools, technologies and approaches is necessary to capture high quality and quantifiable evidence of plant pests and weeds. This is particularly important for surveillance given the size of Australia and our relatively sparse population, and the number of crops/plant types, environments and potential targets that must be addressed.

The development of innovative tools such as smart traps and sensors and improvements to diagnostic methods (Action 3.3) will improve the efficiency of surveillance efforts, particularly across remote locations. It is recommended that the application of these tools, technologies and approaches is assessed against the framework developed in Action 4.1 and supported in surveillance programs for plant pests and weeds (Action 1.3).

It will be important to foster the relationships with stakeholders including research organisations, universities, and state and territory agencies to ensure research efforts are coordinated and evaluated effectively (Action 1.4). For weeds, fostering strong working and reporting relationships with national and state herbaria will be crucial to achieving positive outcomes.

ACTION 4.3:

Identify, assess and promote laboratory and in-field diagnostic methods to support surveillance

While morphology continues to play a critical role in the identification of specimens, advances in technology over the past decade have facilitated the development of a range of laboratory and in-field diagnostic methods.

There is no common approach available at present to identify and assess the adequacy of these methods, so a process involving surveillance and diagnostic personnel needs to be developed to help inform decision making. It is recommended that the process developed complements Action 4.1 and considers the overall costs and benefits associated with current and emerging methods. Through the PSNAP, the results will be assessed and reviewed with the adoption of suitable methods via inclusion in current and future protocols.

Improvements in these areas will generate potential efficiencies for both surveillance and diagnostics. It will enable more samples to be surveyed more efficiently without overwhelming the dependency on human and physical resources of diagnostic laboratories. It will also make surveillance activities more effective through providing increased confidence, greater capacity and earlier feedback on outcomes.



GOAL 5

**RISK-BASED SURVEILLANCE
SYSTEMS AND PROCESSES
DEVELOPED AND MAINTAINED**

EXPECTED OUTCOME:

Greater confidence in the information generated from surveillance activities

ACTION 5.1:

Establish a framework to identify priority plant pests, weeds, commodities and conveyances, and high-risk areas for surveillance

The identification of priority plant pests, weeds, high-risk pathways, risk mitigation and return on investment are key to developing risk-based surveillance programs. Pest risk analyses, pathway analyses and response planning assist with the identification and management of the risks posed by a plant pest or weed to Australia's environment, plant industries and economy.

A framework should be developed to identify priority plant pests, weeds, risk pathways, and high risk areas where plant pest surveillance will provide value to market access, containment and eradication. The framework should also provide guidance on the planning and prioritisation of surveillance activities and resources and assist with the selection of surveillance methods for each component.

ACTION 5.2:

Develop, update and endorse National Surveillance Protocols for priority and emerging plant pests

NSPs provide a national standard for surveillance for target pests or pest groups. While a number of NSPs were developed and endorsed through implementation of the 2013–2020 strategy, the majority of priority plant pests still do not have a draft or endorsed NSP.

Efforts to improve the coverage of NSPs should focus on the development of new protocols for both priority and emerging plant pests and weeds as well as the review and verification of existing drafts. The development of NSPs needs to be prioritised to critical gaps and high-risk plant biosecurity threats, in combination with effectively using available established and published information to gain efficiencies in development.

The continued development and endorsement of NSPs will promote consistency in surveillance efforts across governments and plant industries. It will also ensure NSPs are available for use as the basis for national surveillance plans to support surveillance conducted under national programs (Action 1.3).

ACTION 5.3:

Develop nationally agreed guidelines to support surveillance design and analysis during and following emergency responses to plant pest incursions

There is a need to provide clear guidance to support the design and analysis of surveillance efforts both during and following emergency responses to plant pest incursions.

The development of national guidelines for these surveillance processes will help improve the understanding of stakeholders on requirements and ensure a more consistent approach to surveillance efforts. The guidelines should be aligned with nationally agreed standards/protocols and international requirements. They should also be revised and updated as required to ensure they are accurate and up-to-date.



GOAL 6

**IMPROVED INFORMATION
STANDARDS, ANALYSES
AND INFRASTRUCTURE**

EXPECTED OUTCOME:

Robust and credible information on Australia's plant health and plant pest status

ACTION 6.1:

Implement and maintain an interoperable and integrated national surveillance information management system to collate, share and analyse surveillance data

Surveillance data on plant pests and weeds has traditionally been held in a number of systems across government, industries and non government organisations. These range from resources such as *AUSPestCheck*[™] and *MyPestGuide* through to the Biosecurity Portal and the PSNAP website.

While significant progress in collection and collation of data has been made through implementation of the 2013–2020 strategy, the lack of integration and interoperability between data collection systems remains an issue. Enhancements in these areas will help provide consistency in collation and visualisation of data across a range of programs and systems, and contribute to the evidence required when making official claims around Australia's pest status. It will also play a key role to support the development of partnerships to guide decision making at the regional, state and national level.

In order to improve the connectivity of the different information management systems, there is a requirement to develop an approach to address issues with privacy and confidentiality that can restrict the sharing of information. One option could involve agreements by which signatory parties can contribute and receive access to data on an ongoing, trusted and confidential basis.

ACTION 6.2:

Evaluate and enhance the quality of general surveillance data captured for the national surveillance system

General surveillance activities for plant pests and weeds are increasingly being undertaken by a wide range of stakeholders such as growers, land managers, agronomists, community groups, researchers, government staff and members of the general public. While these activities offer several potential benefits, they are not always conducted in a consistent or coordinated manner and the quality of the data generated can be variable.

Opportunities to maximise the quality of data generated from general surveillance activities should be investigated to ensure optimum value from the data collected. Options may include creating a process for evaluating existing and potential data sets and sources provided by plant industries and the community or developing agreed resources such as guidelines or standards for general surveillance. It could also include the use of technologies that enable reliable detections (Action 4.2).

Maximising the quality and reliability of this surveillance information will help realise the full benefits of general surveillance activities. It will also provide an opportunity for plant industry and community data to be formally recognised and used to complement national surveillance programs and support both domestic and international market access.

ACTION 6.3:

Develop and implement a process for measuring and reporting the effectiveness of surveillance programs

Within Australia, there are multiple surveillance programs in operation each year across a range of industries that target plant pests and weeds. However, there is currently no process in place for monitoring and evaluating their effectiveness.

An ongoing process for measuring the effectiveness of surveillance programs will ensure the programs established through Action 1.3 remain reliable and credible to stakeholders. The frequency of any evaluations undertaken as part of this process should be appropriate to ensure the activities are being performed correctly and remain appropriate to meet the objectives of the program.

It is recommended that mechanisms for reporting are also developed to ensure accountability, improve performance and provide information on emerging issues. There is also a need to identify and establish a clear governance structure to manage the process for communication, implementation and ensure that reporting obligations are met.

Glossary

Area freedom	Absence of a specific pest in a specified location (which may include pest free areas, pest free places of production or pest free production sites).
Biosecurity continuum	Describes the range of locations where biosecurity risks may arise and where biosecurity activities take place – pre-border, at the border and post border.
Commonwealth	The Commonwealth of Australia, including its external territories.
Declared weed species	Weeds that are regulated under legislation due to their threat to primary industries, the natural environment and public safety. Plants are declared under the provisions of an Act or Local Law relating to their movement, sale, notification and control.
Diagnostics	Processes and standards associated with the accurate identification of a pest or host.
Emergency Plant Pest (EPP)	Has the meaning given in Clause 1 of the Emergency Plant Pest Response Deed.
Endemic plant pest	A plant pest which is native to Australia or an established plant pest which is not subject to containment and is therefore unlikely to be eradicated.
Environment	Includes: <ul style="list-style-type: none">(a) ecosystems and their constituent parts, including people and communities; and(b) natural and physical resources; and(c) the qualities and characteristics of locations, places and areas; and(d) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b) or (c).
Established plant pest	A plant pest that is perpetuated, for the foreseeable future, within any area and where it is not feasible (whether in terms of technical feasibility or a benefit/cost analysis) to eradicate.
Exotic plant pest	A plant pest that does not normally occur in Australia.
Exotic weed species	A plant that does not naturally occur in Australia which has become naturalised or a plant not yet known to be in Australia which has been identified as a threat to the economy, the environment, plant industries and social amenity.
General surveillance	A process whereby information on particular pests which are of concern for an area is gathered from many sources, wherever it is available and provided for use by biosecurity agencies.
High Priority Pest	A plant pest that has been identified as a priority threat, based on the likelihood and impact ratings, by a particular plant industry and is listed in a biosecurity plan.
Incursion	An isolated population of a pest recently detected in an area, not known to be established, but expected to survive for the immediate future.
Jurisdiction	A state or territory or the Commonwealth.
National Minimum Dataset Specifications	A biosecurity data and information governance framework.
National Surveillance Protocol (NSP)	A nationally endorsed technical reference guide for conducting surveillance on a specific plant pest or group of plant pests for a particular purpose. It includes information on the surveillance methodology, pest biology and taxonomy, identification and sample processing for diagnosis.
Naturalised	Introduced and reproducing itself without human assistance.
Pest status	Presence or absence, at the present time, of a pest in an area, including where appropriate its distribution, as officially determined using expert judgement on the basis of current and historical pest records and other information.

Plant biosecurity	A set of measures which protect the economy, environment and community from the negative impacts of plant pests and weeds.
Plant biosecurity system	The combination of all measures, programs and services delivered by government, plant industries, the community and other stakeholders that enables the protection of plants, plant products or bees from significant exotic, endemic and established plant pests and weeds.
Plant health surveillance	Formal and informal monitoring to detect changes in Australia's plant pest status or changes in plant biosecurity risk or plant pest prevalence, which may affect imports, exports and/or onshore production.
Plant industries	Covers agriculture, horticulture, forestry, honey bees and amenity plants and plant products.
Plant pest	Any species, strain or biotype of invertebrate or pathogen injurious to plants, plant products or bees.
Post-border	In relation to the biosecurity continuum: region's inside Australia's border.
Pre-border	In relation to the biosecurity continuum: region's outside Australia's border.
Preparedness	Activities undertaken in advance of a plant pest incident to decrease the occurrence, impact, extent and severity of the incident and to ensure more effective response, continuity and recovery activities.
Regional	A geographic region within Australia (which may include a state, territory or agricultural zone).
Regionalised pest	Pests contained within a geographically defined region due to specific quarantine and/or management arrangements.
Shared responsibility	Everyone takes responsibility for biosecurity matters, whether under their direct control or not. Everyone has an obligation to take action to protect Australia from plant pests and weeds.
Specific surveillance	A surveillance activity conducted over a defined period of time that records the detection of, or confirms the absence of, specific pests.
State and territory governments	The state and territory governments of Australia.
Surveillance	Processes which collect and record data on pest presence or absence through survey, monitoring or other procedures.
Surveillance design	Process of critically assessing the surveillance requirements to meet one or more risk mitigation objectives.
Surveillance plan	Surveillance plans will: <ul style="list-style-type: none"> ▪ specify the surveillance objectives for one or more pests ▪ stipulate the quantity and location of sites that will be targeted to address the risks ▪ describe the protocols that will be used to detect the pest/s. <p>Surveillance plans will indicate the resources and the quantity of effort required to deliver surveillance to meet the objective.</p>
Surveillance practitioner	Individuals and/or groups undertaking pest, plant or apiary monitoring.
Weed	A plant that requires some form of action to reduce its negative effects on the economy, the environment, plant industries and social amenity.

Appendix 1. National Plant Biosecurity Surveillance System Framework

Australia's plant biosecurity surveillance system framework was endorsed by the Plant Health Surveillance Consultative Committee in July 2017. The framework identifies three components of the system that together protect Australia and its place in international trade:

- surveillance enablers
- surveillance processes
- applications.



NATIONAL PLANT BIOSECURITY SURVEILLANCE SYSTEM FRAMEWORK

The National Plant Biosecurity Surveillance System Framework identifies five objectives for surveillance:

1. Early warning (EW)
2. Early detection (ED)
3. Plant pest status/area freedom (AF)
4. Delimiting (DE)
5. Monitoring established pests (ME)

These objectives underpin the Australian Government's investment in improving biosecurity surveillance and analysis through the Agricultural Competitiveness White Paper.

SURVEILLANCE ENABLERS

- Policy and legislation
- Partnerships and shared responsibility
- Resources and funding
- Risk analysis and risk based allocation
- Processes and workflows
- Information management
- Technology and tools
- People capability
- Communications and engagement
- Evaluation and assurance

SURVEILLANCE PROCESSES

SPECIFIC SURVEILLANCE

- Specific surveillance programs
- Design (surveys, trapping)
- Delivery
- Data collection
- Protocols and procedures
- Capability and capacity

GENERAL SURVEILLANCE

- Observations
- Inspections
- Notifications
- Investigations
- Data collection

DIAGNOSTICS

- Quality systems
- Proficiency testing programs
- Diagnostics protocols
- Pest reference system
- Capability and capacity

APPLICATIONS

PESTS

- Emerging pests
- Industry priority pests
- Social amenity pests
- Environmental pests

REGIONS

- Border
- Urban/peri-urban
- Rural
- Northern Australia
- External Territories
- Offshore
- Jurisdictions
- NRM regions

PATHWAYS

- Hosts
- Commodities/Industries
- Regulated
- Unregulated/natural
- Emerging pathways

Appendix 2.

Stakeholder consultation

Table 1. Surveillance Strategy Working Group

Name	Organisation
Rosalie Banks	Queensland Department of Agriculture and Fisheries
Susie Collins	Department of Agriculture, Water and the Environment
Sally Heaton	Department of Primary Industry and Resources
Tim Hurst	Department of Jobs, Precincts and Regions
Craig Marston	Department of Agriculture, Water and the Environment
Sharyn Taylor	Plant Health Australia
Jonathan Terlich	Plant Health Australia

Table 2. Stakeholders consulted in the development of the strategy

Organisation	Organisation
Adelaide Markets	Australian Walnut Industry Association
AgForce Queensland	AUSVEG Limited
AgNova Technologies	Avocados Australia
AgriFutures Australia	Beechworth Honey
Almond Board of Australia	Blue Ribbon Group
Animal Health Australia	Botanic Gardens Biosecurity Network
ANJ Container Services	Bowen Gumlu Growers
Apple and Pear Australia	Brisbane Markets
Association of Biosafety Australia and New Zealand	Bunnings
Australian Banana Growers' Council	Canegrowers
Australian Blueberry Growers' Association	Canned Fruit Industry Council of Australia
Australian Centre for International Agricultural Research	Centre for Invasive Species Solutions
Australian Container Freight Services	Centre of Excellence for Biosecurity Risk Analysis
Australian Forest Products Association	Cesar Australia
Australian Fresh Produce Alliance	Cherry Growers of Australia
Australian Ginger Industry Association	Chestnuts Australia
Australian Grape and Wine	Citrus Australia
Australian Honey Bee Industry Council	Coles
Australian Horticulture Exporters Association	Cotton Australia
Australian Local Government Association	Cotton Research and Development Corporation
Australian Lychee Growers' Association	Council of Australasian Weeds Societies
Australian Macadamia Society	Dreamtime Wholesale Nursery
Australian Mango Industry Association	Dried Fruits Australia
Australian Melon Association	Far North Queensland Growers
Australian Network for Plant Conservation	Forest and Wood Products Australia
Australian Olive Association	Fruit Growers Tasmania
Australian Plants Society	Fruit West Co-operative
Australian Processing Tomato Research Council	Grain Producers Australia Limited
Australian Seed Federation Limited	Grains Research and Development Corporation
Australian Sweet Potato Growers	Greenlife Industry Australia
Australian Table Grape Association	Growcom
Australian Tea Tree Industry Association	Hazelnut Growers of Australia
Australian Truffle Growers Association	Horticulture Innovation Australia
	Invasive Species Council
	Landcare

Organisation
Local Government Association of Queensland
Melbourne Markets
National Landcare Network
Natural Resource Management Regions Australia
Northern Territory Farmers Association
Onions Australia
Passionfruit Australia Incorporated
Peri-urban Environmental Biosecurity Network
Perth Markets
Pistachio Growers' Association
Plant Biosecurity Research Initiative
Plant Health Australia
Price and Speed Containers
Protected Cropping Australia
Quintis
Raspberries and Blackberries Australia
Reid Fruits
Ricegrowers' Association of Australia
Southern Gulf NRM
Steritech
Strawberries Australia
Sugar Research Australia
Summerfruit Australia
Sustainable Timber Australia
Sydney Markets
University of the Sunshine Coast
University of Wollongong
Urban Plant Health Network
Victorian Farmers Federation
Vinehealth Australia
Western Australia Local Government Association
Wine Australia
Wine Tasmania
Woolworths

Organisation
Government agencies
Australian Government
Australian Pesticides and Veterinary Medicines Authority
CSIRO
Department of Agriculture, Water and the Environment
Australian Capital Territory Government
Environment Planning and Sustainable Development Directorate
New South Wales Government
Department of Planning, Industry and Environment
Department of Primary Industries
Department of Regional NSW
Northern Territory Government
Department of Environment and Natural Resources
Department of Industry, Tourism and Trade
Queensland Government
Department of Agriculture and Fisheries
South Australian Government
Department of Primary Industries and Regions
Tasmanian Government
Department of Primary Industries, Parks, Water and Environment
Victorian Government
Department of Jobs, Precincts and Regions
Western Australian Government
Department of Biodiversity, Conservation and Attractions
Department of Primary Industries and Regional Development
New Zealand Government
Ministry for Primary Industries
Fiji Government
Biosecurity Authority of Fiji
Timor Leste Government
Plant Quarantine Timor Leste

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