NATIONAL CITRUS BIOSECURITY SURVEILLANCE STRATEGY

IMPLEMENTATION PLAN 2017–2021

INTRODUCTION

The Australian citrus industry is free from many significant pests that impact production and trade overseas. The National Citrus Biosecurity Surveillance Strategy (NCBSS) was developed to provide a framework for national coordination of plant pest surveillance activities that will support early detection of high priority pests and provide data to substantiate area freedom for market access.

The principles of the NCBSS are to maximise efficiencies of surveillance efforts by integrating and connecting surveillance amongst stakeholders. This integration will include development and use of diagnostic tools and triage networks, and surveillance which combines crop monitoring for established pests of production concern with surveillance for high priority exotic pests.

The NCBSS is comprised of the following four program areas which describe an enhanced system of engagement with community and industry to support government efforts in surveillance:

Goal 1 Improved partnerships through coordination and collaboration

Goal 2 Enhanced capability and capacity to undertake citrus biosecurity surveillance

Goal 3 Smart surveillance through risk assessment, tools and diagnostics to support detection of citrus pests

Goal 4 Improved capture and analysis of citrus pest surveillance data.

NATIONAL CITRUS BIOSECURITY SURVEILLANCE STRATEGY IMPLEMENTATION PLAN

The Australian citrus industry provides significant value to rural communities and the economy and is undergoing a period of significant growth, with access to export markets becoming an increasingly high priority.

In 2014-15, citrus production was valued at $411 million produced from 660,000 tonnes (National Plant Biosecurity Status Report, 2016). Citrus crops are grown commercially throughout Australia, with the exception of Tasmania and the Australian Capital Territory. Commercial citrus plantings are widely distributed with major growing areas in New South Wales Queensland, South Australia and Victoria. Production also occurs in Western Australia and there are a small number of plantings in the Northern Territory.

Throughout the world citrus production faces numerous crop protection challenges, and Australia's freedom from important exotic pests that affect citrus species overseas provides advantages that assist the Australian industry achieve profitable yields and produce high quality fruit.

To maintain freedom from exotic pests, Australia places a high priority on a biosecurity system that operates through each layer of the system—pre-border, border and post-border—assisting the citrus industry and governments to minimize the impact of or respond to pest threats.

Surveillance is an essential component of this system by providing early detection of new pests to increase the likelihood of successful eradication or containment.

Surveillance is also required to provide evidence that supports claims of area freedom from pests, which underpin trade with overseas and domestic markets. An understanding of pest status and distribution through surveillance, and complementary activities such as crop monitoring, assists in delivering more effective management of new and emerging pest issues.

The principles of the NCBSS are to enhance collaboration, coordination, efficiency, and effectiveness of surveillance to support market access and early detection of new pests.

The NCBSS is comprised of four goals supported by twelve actions that provide improvements to surveillance efforts at a national level. This Implementation Plan outlines requirements for delivery of each action, with a total of 36 tasks listed for consideration by both industry, through the peak representative body, Citrus Australia (CA), and governments.

It is anticipated this Implementation Plan will have a four-year timeframe, at the end of which review will occur for further implementation in line with the NCBSS. A summary of goals, actions and potential partners follows.

GOAL 1 – Improved partnerships through coordination and collaboration			
Action 1.1	Establish a nationally coordinated Citrus Biosecurity Surveillance program	Potential partners	PHA, DAWR, CA
GOAL 2 – Enhanced capability and capacity to undertake citrus biosecurity surveillance			
Action 2.1	Establish, coordinate and maintain a citrus diagnostic network and diagnostic triage system to support surveillance in the citrus industry and surveillance hubs	Potential partners	SPHD, DAWR, state agencies
Action 2.2	Maintain and enhance a nationally coordinated First Detector Network (FDN) to underpin surveillance for high priority exotic pests of citrus	Potential partners	CA, Hort Innovation, DAWR, PHA
Action 2.3	Establish, coordinate and maintain surveillance hubs in commercial production areas and high risk or high impact urban and peri-urban communities	Potential partners	CA, Hort Innovation, DAWR, PHA
Action 2.4	Improve surveillance for citrus pests in remote high risk areas	Potential partners	CA, Hort Innovation, DAWR
GOAL 3 – Smart surveillance through risk assessment, analysis, tools and diagnostics to support detection of citrus pests			
Action 3.1	Assess exotic citrus pest impacts, establishment potential and entry pathways into and within Australia to design surveillance programs to cost effectively mitigate risks	Potential partners	CA, Hort Innovation, DAWR, PHA
Action 3.2	Develop surveillance protocols for high priority pests of citrus appropriate for commercial, urban and peri-urban areas	Potential partners	DAWR, state agencies, SNPHS
Action 3.3	Develop and deploy tools that maximise detection of citrus pests from surveillance hubs and remote locations	Potential partners	CA, Hort Innovation, DAWR
Action 3.4	Develop and deploy diagnostic tests for improved cost-effective detection of exotic citrus pests and provision of surveillance data	Potential partners	CA, Hort Innovation, DAWR, state agencies, SPHD
GOAL 4 – Improved capture and analysis of citrus pest surveillance data			
Action 4.1	Identify, modify or develop tools for capturing surveillance data from the FDN and urban and peri-urban surveillance hubs	Potential partners	PHA, DAWR, CA
Action 4.2	Improve data collection and pest reporting from all stakeholder groups	Potential partners	DAWR
Action 4.3	National capture of surveillance data for citrus pests	Potential partners	PHA, DAWR, CA

GOAL 1
IMPROVED PARTNERSHIPS THROUGH COORDINATION AND COLLABORATION

ACTION 1.1	DESCRIPTION
Establish a nationally coordinated Citrus Biosecurity Surveillance Program	A key component of the improved partnership approach will be identification and establishment of surveillance hubs in commercial production, peri-urban and urban areas. Surveillance hubs are comprised of sites and networks of individuals that act as focal points within a region or community. These hubs will undertake surveillance for pests and provide ongoing awareness of the importance of biosecurity and potential impact of exotic pests.

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Prioritisation of activities and resources that maximise efficiencies using input from industry, government and community sources in a partnership approach.
- Sustainable funding mechanisms for citrus surveillance activities.
- Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.
- Coordination and development of a range of support materials and tools to support different stakeholder and surveillance needs.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
1.1.1 Establish a National Steering Group comprising members of PHA, DAWR and Citrus Australia to oversee the National Citrus Biosecurity Surveillance Program	PHA	Very high	6 months
1.1.2 Define the national citrus biosecurity surveillance program and identify key stakeholders	National Steering Group	Very high	6 months
1.1.3 Establish capability and funding arrangements for an efficient and effective program	National Steering Group	Very high	6 months
1.1.4 Appoint and maintain a Coordinator to coordinate and monitor activities and resourcing requirements Identify mechanisms to improve efficiency of surveillance efforts	National Steering Group	Very high	3 months then ongoing
1.1.5 Identify mechanisms to improve efficiency of surveillance efforts within commercial production areas and other high risk areas	National Coordinator	High	6 months

POTENTIAL PARTNERS	PHA, DAWR and CA

GOAL 2

ENHANCED CAPABILITY AND CAPACITY TO UNDERTAKE CITRUS BIOSECURITY SURVEILLANCE

ACTION 2.1	DESCRIPTION
Establish, coordinate and maintain a citrus diagnostic network and diagnostic triage system to support surveillance in the citrus industry and surveillance hubs	Identification of diagnostic support will be needed to maintain ongoing activities of surveillance hubs and the First Detector Network (FDN). Establishment of a citrus diagnostic node within the National Plant Biosecurity Diagnostic Network facilitated by the Sub-Committee for Plant Health Diagnostics (SPHD) will be required as well as an investment model that provides funding and capacity to diagnose samples of suspected exotic pests submitted as part of the surveillance activities.

For some exotic pests or their symptoms, the use of images for initial diagnosis will increase the efficiency of the system and provide more rapid feedback for surveillance undertaken within urban, peri-urban and commercial hubs. |

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Improved capacity and capability in industry and community for surveillance.
- Increased responsiveness to new citrus biosecurity issues as a result of improved awareness of biosecurity.
- Diagnostic networks, tools and tests to support surveillance for citrus pests for different stakeholder and surveillance needs.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
2.1.1 Establish triage processes for images or samples to be assessed within the citrus diagnostic network	National Steering Group	High	6 months
2.1.2 Establish processes for feedback and response for sample submission	National Steering Group	High	6 months
2.1.3 Establish and maintain a citrus diagnostic node within the National Plant Biosecurity Diagnostic Network	National Coordinator	Medium	30 months

POTENTIAL PARTNERS	SPHD, DAWR, state agencies

ACTION 2.2	DESCRIPTION
Maintain and enhance a nationally coordinated First Detector Network to underpin surveillance for high priority exotic pests of citrus	The First Detector Network (FDN) is an important surveillance resource for early detection of exotic pests and for providing evidence of absence for pests of market access concern. Training of the FDN for key exotic pests will improve and maintain surveillance activities and encourage reporting of new pests or symptoms.

OUTCOMES

- Improved capacity and capability in industry and community for surveillance.
- Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.
- Increased responsiveness to new citrus biosecurity issues as a result of improved awareness of biosecurity.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
2.2.1 Define requirements for a FDN for citrus biosecurity surveillance within the National Citrus Biosecurity Surveillance Program	National Coordinator	High	6 months
2.2.2 Identify key FDN personnel in each region	National Coordinator	High	6 months
2.2.3 Develop support material and training for FDN	National Coordinator	High	12 months
2.2.4 Establish and maintain a program for training and engagement with FDN for surveillance for high priority pests of citrus	National Coordinator	High	On going
2.2.5 Develop an accreditation program to authorise key FDN personnel to undertake surveillance for citrus pests of market access concern	National Coordinator; DAWR	Medium	12 months

POTENTIAL PARTNERS	DAWR; CA

ACTION 2.3	DESCRIPTION
Establish, coordinate and maintain surveillance hubs in commercial production areas and high risk or high impact urban and peri-urban communities	A key component of the improved partnership approach will be identification and establishment of surveillance hubs in commercial production, peri-urban and urban areas. Surveillance hubs are comprised of sites and networks of individuals that act as focal points within a region or community. These hubs will undertake surveillance for pests and provide ongoing awareness of the importance of biosecurity and potential impact of exotic pests.

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Prioritisation of activities and resources that maximise efficiencies using input from industry, government and community sources in a partnership approach.
- Improved capacity and capability in industry and community for surveillance.
- Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.
- Coordination and development of a range of support materials and tools to support different stakeholder and surveillance needs.
- Increased responsiveness to new citrus biosecurity issues as a result of improved awareness of biosecurity.
- Increased levels of understanding and 'ownership' of citrus biosecurity issues in urban and peri-urban communities.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
2.3.1 Define requirements of surveillance hubs as part of activities within the FDN network in commercial production areas and within the communities in peri-urban and urban areas	National Coordinator	High	12 months
2.3.2 Develop and implement an engagement plan for surveillance hubs in commercial production, peri-urban and urban communities	National Coordinator	Medium	12 months
2.3.3 Develop and implement an engagement plan for surveillance hubs in commercial production, peri-urban and urban areas	National Coordinator	Medium	24 months
2.3.4 Develop and maintain a web portal and support material for community surveillance hubs in peri-urban and urban areas	National Coordinator	Medium	24 months

POTENTIAL PARTNERS	CA, Hort Innovation, DAWR

ACTION 2.4	DESCRIPTION			
Improve surveillance for citrus pests in remote high risk areas	The development and deployment of innovative surveillance tools or the establishment of surveillance hubs will provide delivery of surveillance activities in remote locations. Establishment of surveillance programs in remote communities to improve capacity and capability for detection of exotic pests.			

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Improved capacity and capability in industry and community for surveillance.
- Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
2.4.1 Define capacity and capability needs for surveillance for citrus pests in remote locations	National Coordinator	High	12 months
2.4.2 Investigate cost effective solutions for surveillance in remote locations, using a risk based approach	National Coordinator	High	18 months
2.4.3 Develop and deploy a program for surveillance for citrus pests in remote high risk areas for establishment of exotic citrus pests	DAWR	High	24 months

POTENTIAL PARTNERS	CA, Hort Innovation, DAWR

GOAL 3

SMART SURVEILLANCE THROUGH RISK ASSESSMENT, ANALYSIS TOOLS AND DIAGNOSTICS TO SUPPORT DETECTION OF CITRUS PESTS

ACTION 3.1	DESCRIPTION
Assess exotic citrus pest impacts, establishment potential and entry pathways into and within Australia to design surveillance programs to cost effectively mitigate risks	The potential risk posed by the entry and establishment of exotic pests into different commercial production areas and urban and peri-urban communities, requires identification and evaluation to prioritise surveillance activities. Analysis of the types and scope of surveillance and crop monitoring in different regions is required to quantify efforts that support pest status at both a regional and national level. Risk-based interpretation of surveillance will support and improve activities undertaken by the FDN and surveillance hubs.

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Prioritisation of activities and resources that maximise efficiencies using input from industry, government and community sources in a partnership approach.
- Improved understanding of the risk of entry of citrus pests from pathways into northern Australia.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
3.1.1 Assess exotic citrus pest impacts, establishment potential and entry pathways into and within Australia	DAWR	High	24 months
3.1.2 Identify high risk areas for entry and establishment of each pest type	DAWR	High	24 months
3.1.3 Collate and analyse the types and scope of crop monitoring activities undertaken in different regions to quantify surveillance efforts	National Coordinator	Medium	12 months
3.1.4 Develop surveillance models that incorporate risks and quantify surveillance efforts to estimate the pest status of citrus pests	DAWR	Medium	18 months

POTENTIAL PARTNERS	DAWR, PHA, CA, Hort Innovation

ACTION 3.2	DESCRIPTION
Develop surveillance protocols for high priority pests of citrus appropriate for commercial, urban and peri-urban areas	The development of surveillance protocols specific to pests, pathways, regions or high risk areas should be undertaken using statistically sound, risk-based approaches. Development and implementation of surveillance protocols will ensure national consistency in surveillance activities undertaken in different regions by different surveillance stakeholders.

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Improved capacity and capability in industry and community for surveillance.
- Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
3.2.1 Review existing surveillance protocols for citrus including identification of the surveillance purpose and scope, stakeholder group undertaking surveillance and pest targets for each region or site	National Coordinator	Very high	6 months
3.2.2 Develop surveillance protocols and a Surveillance Operations Manual for high priority pests and/or their vectors for deployment in the Citrus Biosecurity Surveillance Program	National Coordinator	Very high	30 months

POTENTIAL PARTNERS	DAWR, state agencies, SNPHS

ACTION 3.3	DESCRIPTION
Develop and deploy tools that maximise detection of citrus pests from surveillance hubs and remote locations	Development and deployment of innovative tools such as smart traps and sensors to record the presence or absence of pests in remote locations will improve the efficiency of surveillance efforts and increase the likelihood of early detection of exotic pests.

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Coordination and development of a range of support materials and tools to support different stakeholder and surveillance needs.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
3.3.1 Identify and develop surveillance tools such as remote cameras, multi-pest lures, traps etc to improve efficiency and effectiveness of detection of high priority pests of citrus	Hort Innovation	Medium	36 months
3.3.2 Deploy surveillance tools for real-time detection of citrus pests in high risk areas of entry and establishment	National Coordinator	Medium	36 months

POTENTIAL PARTNERS	CA, DAWR, Hort Innovation

ACTION 3.4	DESCRIPTION
Develop and deploy diagnostic tests for improved cost-effective detection of exotic citrus pests and provision of surveillance data	Several of the high priority exotic pests of citrus are 'cryptic', meaning the pest or its symptoms are hard to distinguish from other biotic or abiotic factors, and their presence or absence can only be confirmed using specific sampling and diagnostic assessment. For cryptic pests, visual assessment of citrus trees or fruit is insufficient and sample collection, coupled with development and deployment of diagnostic assays will be needed for early detection. Incorporating diagnostic tests into budwood high health schemes would provide an additional mechanism for provision of surveillance data for cryptic pests.

OUTCOMES

- Diagnostic networks, tools and tests to support surveillance for citrus pests for different stakeholder and surveillance needs

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
3.4.1 Identify and prioritise citrus pest targets for the development of high throughput and/or field diagnostic tests based on impact and inability to diagnose using visual symptoms	National Coordinator	High	6 months
3.4.2 Develop and deploy high throughput and/or field diagnostic tests to support surveillance for high priority citrus pests	National Coordinator	Medium	30 months

POTENTIAL PARTNERS	DAWR, CA, Hort Innovation, state agencies

GOAL 4
IMPROVED CAPTURE AND ANALYSIS OF CITRUS SURVEILLANCE DATA

ACTION 4.1	DESCRIPTION
Identify, modify or develop tools for capturing surveillance data from the FDN and urban and peri-urban surveillance hubs	Development of data capture tools will ensure surveillance data are captured in a consistent and timely way and can be integrated into a national system for data analysis.

Data capture tools will ideally align with existing industry practices to reduce disincentives in providing surveillance data.

Provision of tools or resources for surveillance hubs in urban and peri-urban environments will assist with data capture as well as reporting suspected detections of exotic pests.

OUTCOMES

- An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom.
- Improved capacity and capability in industry and community for surveillance.
- Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.
- Coordination and development of a range of support materials and tools to support different stakeholder and surveillance needs.

TASKS	POTENTIAL LEAD	PRIORITY	DURATION
4.1.1 Identify existing surveillance data capture tools suitable for use by the FDN or surveillance hubs to assist aggregation of data into national databases	National Coordinator	High	6 months
4.1.2 Modify existing data capture tools or develop new data capture tools and deploy them to assist national aggregation of surveillance data from various sources including FDN and surveillance hubs	National Coordinator	Medium	24 months
4.1.3 Develop and maintain programs to train stakeholders to use and adopt new data capture tools	National Coordinator	Medium	24 months

POTENTIAL PARTNERS	DAWR, PHA, CA, Hort Innovation

ACTION 4.2	DESCRIPTION			
Improve data collection and pest reporting from all stakeholder groups	The identification of barriers for different stakeholders in undertaking surveillance, collecting and providing data and reporting pests will be required. This will facilitate the establishment and maintenance of activities within the National Citrus Biosecurity Surveillance Program by identifying and resolving issues associated with data collection and capture.			
	OUTCOMES			
	▪ An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom. ▪ Improved capacity and capability in industry and community for surveillance. ▪ Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community.			
	TASKS	**POTENTIAL LEAD**	**PRIORITY**	**DURATION**
	4.2.1 Identify barriers for undertaking surveillance, providing surveillance data and pest reporting from the FDN and from peri-urban and urban communities	DAWR	Very high	12 months
	4.2.2 Implement measures to remove barriers and enhance incentives for data collection from the FDN, surveillance hubs and urban and peri-urban communities	National Coordinator	High	24 months
POTENTIAL PARTNERS	DAWR			

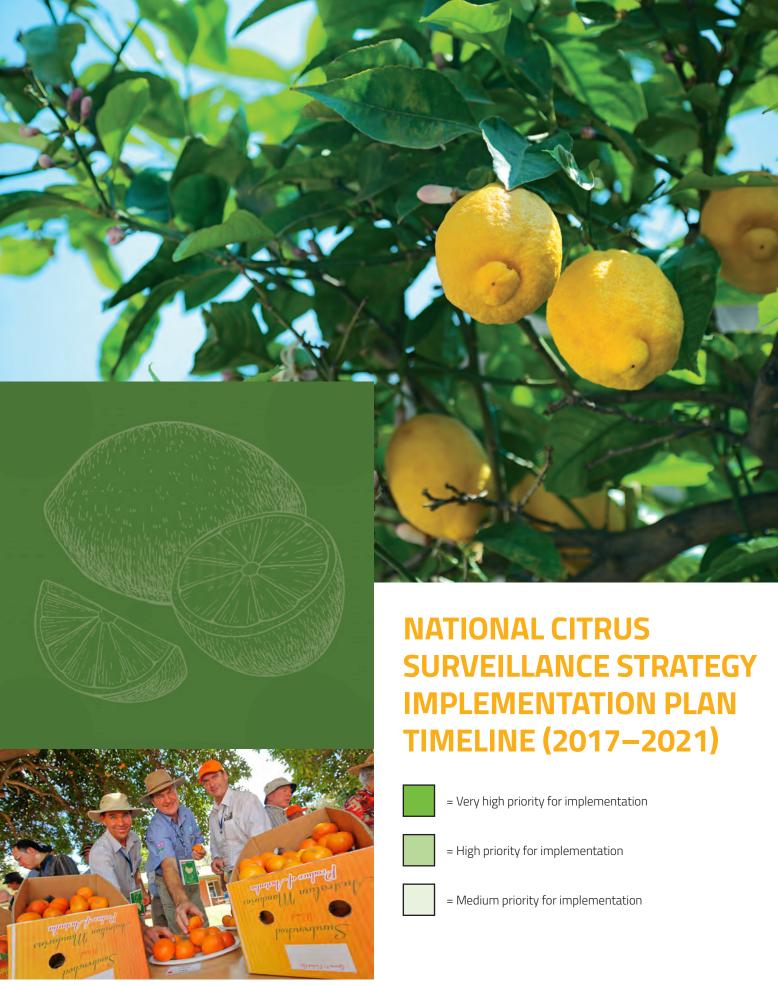| ACTION 4.3	DESCRIPTION			
National capture of surveillance data for citrus pests	Collection of data into a national data aggregation system, such as AUSPest*Check*, that allows reporting and dissemination of information will provide information on pest status to support market access and give confidence in the effectiveness of surveillance for the early detection of exotic pests. National data collection will also provide the ability to undertake a gap analysis of surveillance efforts and ongoing evaluation of the NCBSS.			
	OUTCOMES			
	▪ An integrated, risk-based surveillance system that facilitates early detection of exotic pests and provides evidence of pest status to support area freedom. ▪ Improved capacity and capability in industry and community for surveillance. ▪ Coordination of surveillance and data capture for high priority pests, and pests of market access concern across industry, government and the community. ▪ Coordination and development of a range of support materials and tools to support different stakeholder and surveillance needs.			
	TASKS	**POTENTIAL LEAD**	**PRIORITY**	**DURATION**
	4.3.1 Develop specific pest profiles in national databases including AUSPest*Check* for all high priority pests of citrus	PHA	Very high	6 months
	4.3.2 Identify or develop and deploy mechanisms for transferring surveillance data from various sources to national databases including AUSPest*Check*	PHA	Very high	36 months
POTENTIAL PARTNERS	PHA, DAWR, CA			

Image courtesy of Citrus Australia

NATIONAL CITRUS SURVEILLANCE STRATEGY IMPLEMENTATION PLAN TIMELINE (2017–2021)

- = Very high priority for implementation
- = High priority for implementation
- = Medium priority for implementation

GOAL	ACTION	DESCRIPTION	Task	2017/18 Q1	Q2	Q3	Q4	2018/19 Q1	Q2	Q3	Q4	2019/20 Q1	Q2	Q3	Q4	2020/21 Q1	Q2	Q3	Q4
1	1.1	Establish a nationally coordinated Citrus Biosecurity Surveillance Program	1.1.1 Establish a National Steering Group	�	▩														
			1.1.2 Define citrus biosecurity surveillance program and identify key stakeholders			▩	▩												
			1.1.3 Establish capability and funding arrangements for program			▩	▩												
			1.1.4 Appoint and maintain a National Coordinator				▩												
			1.1.5 Identify mechanisms to improve efficiency of surveillance efforts					▩	▩										
2	2.1	Establish, coordinate and maintain a citrus diagnostic network and diagnostic triage system to support surveillance in the citrus industry and surveillance hubs	2.1.1 Establish triage processes for samples to be assessed within citrus diagnostic network					▩	▩										
			2.1.2 Establish processes for feedback and response					▩	▩										
			2.1.3 Establish and maintain a citrus diagnostic node within the National Plant Biosecurity Diagnostic Network							▩	▩	▩	▩	▩	▩	▩	▩	▩	▩

GOAL	ACTION	DESCRIPTION	Task	Timeframe
2	2.2	Maintain and enhance a nationally coordinated First Detector Network (FDN) for surveillance for high priority exotic pests of citrus	2.2.1 Define requirements for a FDN for surveillance	2018/19 Q2
			2.2.2 Identify key FDN personnel in each region	2018/19 Q2
			2.2.3 Develop support material and training for FDN	2018/19 Q4
			2.2.4 Establish and maintain a program for training and engagement with FDN for surveillance for high priority pests of citrus	2018/19 Q4 – 2020/21 Q3
			2.2.5 Develop an accreditation program to authorise key FDN personnel to undertake surveillance for citrus pests of market access concern	2018/19 Q4
	2.3	Establish, coordinate and maintain surveillance hubs in commercial production areas and high risk or high impact urban and peri-urban communities	2.3.1 Define requirements of surveillance hubs	2019/20 Q2
			2.3.2 Develop and implement an engagement plan for surveillance hubs	2019/20 Q2
			2.3.3 Develop and implement a stakeholder engagement plan for surveillance hubs in commercial production, peri-urban and urban areas	2020/21 Q4
			2.3.4 Develop and maintain a web portal and support material for community surveillance hubs in peri-urban and urban areas	2020/21 Q3
	2.4	Improve and enhance surveillance for citrus pests in remote high risk areas	2.4.1 Define capacity and capability needs for surveillance for citrus pests in remote locations	2018/19 Q4
			2.4.2 Investigate cost effective solutions for surveillance in remote locations, using a risk based approach	2020/21 Q2
			2.4.3 Develop and deploy a program for surveillance for citrus pests in remote high risk areas for establishment of exotic citrus pests	2020/21 Q4
3	3.1	Assess exotic citrus pest impacts, establishment potential and entry pathways into and within Australia to design surveillance programs to cost effectively mitigate risks	3.1.1 Assess exotic citrus pest impacts, establishment potential and entry pathways into and within Australia	2018/19 Q4
			3.1.2 Identify high risk areas for entry and establishment of each pest type	2018/19 Q4
			3.1.3 Collate and analyse the types and scope of crop monitoring activities undertaken in different regions to quantify surveillance efforts	2019/20 Q3
			3.1.4 Develop surveillance models that incorporate risks and quantify surveillance efforts to estimate the pest status of citrus pests	2020/21 Q2

Timeline columns: 2017/18 (Q1 Q2 Q3 Q4), 2018/19 (Q1 Q2 Q3 Q4), 2019/20 (Q1 Q2 Q3 Q4), 2020/21 (Q1 Q2 Q3 Q4)

National Citrus Biosecurity Surveillance Implementation Plan — Gantt chart (2017/18 – 2020/21)

GOAL	ACTION	DESCRIPTION	Tasks (timeframe)
3	3.2	Develop surveillance protocols for high priority pest of citrus appropriate for commercial, urban and peri-urban areas	3.2.1 Review existing surveillance protocols for citrus (2018/19 Q1–Q2); 3.2.2 Develop surveillance protocols and a Surveillance Operations Manual for deployment in the Citrus Biosecurity Surveillance Program (2018/19 Q3 – 2020/21 Q4)
3	3.3	Develop and deploy tools that maximise detection of citrus pests from surveillance hubs and remote locations	3.3.1 Identify and develop surveillance tools for high priority pests of citrus; 3.3.2 Deploy surveillance tools for real-time detection of citrus pests in high risk areas of entry and establishment
3	3.4	Develop and deploy diagnostic tests for improved, cost-effective detection of exotic citrus pests and provision of surveillance data	3.4.1 Identify and prioritise citrus pest targets for the development of high throughput and/or field diagnostic tests (2018/19 Q1–Q2); 3.4.2 Develop and deploy high throughput and/or field diagnostic tests to support surveillance for high priority citrus pests
4	4.1	Identify, modify or develop and maintain tools for capturing surveillance data from FDN and urban and peri-urban surveillance hubs	4.1.1 Identify surveillance data capture tools to assist aggregation of data into national data bases (2018/19 Q1–Q2); 4.1.2 Modify existing data capture tools or develop new data capture tools and deploy them to assist national aggregation of surveillance data from various sources including FDN and Surveillance hubs; 4.1.3 Develop and maintain programs to train stakeholders to use and adopt new data capture tools
4	4.2	Improve data collection and pest reporting from all stakeholder groups	4.2.1 Identify barriers for undertaking surveillance and pest reporting (2018/19 Q3–Q4); 4.2.2 Implement measures to remove barriers and enhance incentives for data collection from the FDN, surveillance hubs and urban and peri-urban communities
4	4.3	National capture of surveillance data for citrus pests	4.3.1 Develop specific pest profiles in national databases including AUSPest*Check* for high priority pests of citrus (2018/19 Q1–Q2); 4.3.2 Identify or develop and deploy mechanisms for transferring surveillance data from various sources to national databases including AUSPest*Check*

Year/Quarter columns: 2017/18 (Q1 Q2 Q3 Q4), 2018/19 (Q1 Q2 Q3 Q4), 2019/20 (Q1 Q2 Q3 Q4), 2020/21 (Q1 Q2 Q3 Q4)

Definitions, Acronyms and Abbreviations

ABBREVIATION	DEFINITION
APC	AUSPest*Check*
CA	Citrus Australia
Cryptic pests	Pests, pathogens, symptoms or diseases that are indistinct and/or easily confused with abiotic stresses or similar, established pests.
DAWR	The Department of Agriculture and Water Resources
First Detectors	Personnel with an active role in pest and orchard management supporting citrus commercial production. Examples of first detectors are crop scouts, grower liaison officers, agronomists and chemical resellers.
FDN	First Detector Network
General surveillance	A range of activities outside of specific surveys that can be used to detect the presence or absence of pests.
Pest	Collective term for invertebrates and pathogens that are harmful, injurious or damaging to plants, plant products or bees.
PHA	Plant Health Australia
Surveillance plan	Document outlining purpose, scope, and high level survey design for a region (or regions) to provide information for early detection or area freedom for pest targets or groups of pest targets.
Surveillance protocol	Document outlining surveillance techniques and methods to optimise detection of the target pest or its symptoms in the plant host(s).
Specific survey/ surveillance	A surveillance activity conducted over a defined period of time that records the detection of, or confirms the absence of, specific pests.

PHA 18-002