

The National Plant Biosecurity **Status Report**

2018

Contents

Foreword	6		
INTRODUCTION	9		
The importance of plant biosecurity	10		
Growing threats to plant health	11		
Plant biosecurity highlights in 2018	12		
CHAPTER 1: AUSTRALIA'S PLANT BIOSECURITY SYSTEM	15		
Plant biosecurity framework and legislation	18		
National committees	18		
The revised intergovernmental agreement on biosecurity	20		
The national plant biosecurity strategy	20		
Biosecurity legislation	21		
Government roles	22		
The Australian Government	22		
State and territory governments	26		
Non-government roles	32		
Plant Health Australia	32		
Peak plant industry bodies	34		
Private sector	34		
Research funders and providers	35		
Community	35		
CHAPTER 2: PROTECTING AUSTRALIA'S PLANT RESOURCES	37		
Priority pests and diseases	40		
National Priority Plant Pests	40		
Environmental biosecurity	42		
Plant industry biosecurity preparedness	44		
Biosecurity planning	44		
Contingency planning	54		
Biosecurity manuals for producers	61		
CHAPTER 3: PLANT INDUSTRY PROFILES	63		
Almonds	66		
Apples and pears	68		
Avocados	70		
Bananas	72		
Blueberries	74		
Canned fruits	75		
Cherries	76		
Chestnuts	78		
Citrus	80		
Cotton	82		
		Dried fruits (grapes)	84
		Forestry	86
		Ginger	88
		Grains	90
		Hazelnuts	92
		Honey bees	94
		Lychees	96
		Macadamias	97
		Mangoes	98
		Melons	99
		Olives	100
		Onions	101
		Passionfruit	102
		Pineapples	103
		Pistachios	104
		Processing tomatoes	105
		Production nurseries	106
		Rice	108
		Rubus	109
		Stone fruit	110
		Strawberries	111
		Sugarcane	112
		Sweetpotatoes	114
		Table grapes	115
		Tea tree	116
		Truffles	117
		Vegetables (including potatoes)	118
		Walnuts	122
		Wine grapes	123
		CHAPTER 4: PRE-BORDER AND BORDER BIOSECURITY	125
		Pre-border biosecurity	128
		Obligations under international trade agreements	128
		Pre-border activities to mitigate the risks of imports	129
		Regulating imports to manage risk	130
		Other international activities	134
		Ensuring Australian exports meet required standards	134
		Border biosecurity	142
		Collaborations to reduce border biosecurity risks	142
		Government screening, inspection and surveillance activities	144
		Protecting our northern coastline	146
		Post-entry plant quarantine	146

CHAPTER 5: PLANT PEST SURVEILLANCE AND DIAGNOSTICS

Plant pest surveillance

Oversight of plant pest surveillance	151
Targeted surveillance programs	152
Industry surveillance strategies and programs	153
General surveillance programs	156
Plant pest surveillance programs in 2018	158
Diagnostics – identifying plant pests and diseases	166
Coordination of national plant biosecurity diagnostics	166
National diagnostic protocols	168
Diagnostic services in Australia	172
National reference collections	172
Handbook for the Identification of Fruit Flies	178
Online systems supporting plant biosecurity	179

CHAPTER 6: POST-BORDER BIOSECURITY – ERADICATING NEW PLANT PESTS

Reporting a plant pest or disease	182
Pest response arrangements	182
The Emergency Plant Pest Response Deed	183
Definition of an Emergency Plant Pest	183
Decision making under the EPPRD	183
PLANTPLAN	184
Categorisation of pests	184
Transition to Management	185
Evaluating activities under the EPPRD	185
Managing biosecurity incidents	186
Biosecurity Incident Management System	186
The National Biosecurity Response Team	187
Communication in an Emergency Plant Pest response	187
Responses to Emergency Plant Pest incursions	188
Maintaining the capacity to respond to incursions	194
Oversight of biosecurity emergency preparedness training	194
Qualifications for biosecurity emergency responses	194
Practical training for biosecurity emergency responses	195
Online training in biosecurity	196

CHAPTER 7: POST-BORDER BIOSECURITY – CONTROLLING PESTS AND WEEDS

National and state oversight of domestic quarantine	201
Subcommittee on Domestic Quarantine and Market Access	201
Restrictions for interstate travellers and transport of produce	201
Official control of quarantine plant pests to protect overseas trade	202
Australia's regionalised pests	202
Preventing the spread of fruit flies	207
Community involvement in domestic quarantine	208

The biosecurity obligations of all Australians	208
The role of local government	209
Controlling pests through area wide management	209
On-farm biosecurity	210
The Farm Biosecurity Program	210
Biosecurity extension and engagement programs	211
Managing pests on-farm	214
Australia's weed biosecurity system	216
Coordination of weed management	216
Preventing the entry of new weeds	216
Eradication and containment of newly established weeds	217
Managing established weeds	218

CHAPTER 8: PLANT BIOSECURITY RD&E

National Plant Biosecurity RD&E Strategy	223
Australian Government agencies and statutory authorities	224
Australian Centre for International Agricultural Research	224
Australian Research Council	224
Commonwealth Scientific and Industrial Research Organisation	224
Plant Innovation Centre	224
Research and development corporations	226
AgriFutures Australia	227
Cotton Research and Development Corporation	227
Forest and Wood Products Australia	227
Grains Research and Development Corporation	227
Hort Innovation	228
Sugar Research Australia	228
Wine Australia	228
The Plant Biosecurity Research Initiative	229
State and territory governments	230
University and private research institutes	230
Collaborative research arrangements	230
Centre for Crop and Disease Management	230
Centre for Fruit Fly Biosecurity Innovation	230
Centre of Excellence for Biosecurity Risk Analysis	231
Australian Plant Biosecurity Science Foundation	231
Cooperative Research Centres	232
CRC for Honey Bee Products	232
Plant Biosecurity CRC	232
Plant biosecurity RD&E projects in 2018	234

APPENDICES

Organisation contact details	270
Glossary	272
Acronyms	274

INDEX

277

Figures

Figure 1.	Australia's varied climatic zones	10
Figure 2.	Gross value of plant and animal production industries in Australia, 1972–2018	11
Figure 3.	Key components of Australia's plant biosecurity system	17
Figure 4.	National government biosecurity committees and working groups with plant focus	19
Figure 5.	Catchment scale land use in Australia	39
Figure 6.	Comparative value of Australia's plant production industries, based on gross value of production, 2016–17	64
Figure 7–86.	Industry production data	67
Figure 87.	Entity responsibility for biosecurity risks, first points of entry (ports)	143
Figure 88.	Ports of Australia	145
Figure 89.	Biosecurity risk pathways regulated by NAQS	146
Figure 90.	National Plant Biosecurity Surveillance System framework	151
Figure 91.	Surveillance programs by target host	158
Figure 92.	Surveillance programs by target pest type	158
Figure 93.	National Diagnostic Protocol endorsement process	168
Figure 94.	Incident management team structure for biosecurity incursion responses	186
Figure 95.	RD&E projects by pest type	234
Figure 96.	RD&E projects by research type or location	234
Figure 97.	RD&E projects by project value	234

Tables

Table 1.	Plant biosecurity related legislation across Australia	21
Table 2.	Plant Health Australia members	33
Table 3.	Australia's National Priority Plant Pests	40
Table 4.	The top 10 National Priority Plant Pests	41
Table 5.	Current biosecurity plans covering Australia's plant industries	44
Table 6.	High Priority Pest threats	45
Table 7.	Contingency plans	55
Table 8.	Biosecurity manuals for producers	61
Table 9–45.	Industry specific High Priority Pest lists	66
Table 46.	Australian Government import policy advice, final and in progress	131
Table 47.	Australia's export legislation, administered by the Department of Agriculture and Water Resources	135
Table 48.	Market access achievements for pollinator and plant product exports from Australia since 2000	136
Table 49.	Australia's post-entry plant quarantine facilities	147
Table 50.	Australia's plant biosecurity surveillance programs	158
Table 51.	National Diagnostic Protocols	169
Table 52.	Australia's diagnostic services, their capabilities, accreditations and collections	173
Table 53.	Emergency Plant Pest categories and the associated Affected Party Cost Sharing splits	184
Table 54.	Responses to plant pests under EPPRD arrangements	189
Table 55.	Plant Pest detections notified under the EPPRD in 2018	192
Table 56.	Australia's regionalised pests	202
Table 57.	Sales of plant chemicals in Australia, 2016–18	214
Table 58.	Weeds of National Significance	218
Table 59.	Plant biosecurity RD&E projects	236



Image courtesy of Jane Richter

Case studies

Chapter 1	Sowing the seeds for an international movement system	23
	Growing plant biosecurity in the Pacific region	24
	Review of hitchhiker pest and contaminant biosecurity risk management	25
	Plant biosecurity highlights in Victoria in 2018	31
	International Year of Plant Health 2020	35
Chapter 2	Improving preparedness for spotted wing drosophila	38
	Biosecurity plan for acacia species	43
	Wheat rust outbreak could cost Australia up to \$1.4 billion	54
	New biosecurity manuals for potato and onion growers	61
Chapter 4	First Australian avocados land in Japan	136
	Reinstating Tasmania's fruit fly free status	140
	Solomon Islands surveillance manages off-shore risk	141
	Strong action keeps bugs at bay	143
	Don't be sorry, just declare it	144
	Collaboration in the north building biosecurity awareness	147
Chapter 5	Partnership delivering cost-effective surveillance in northern Australia	153
	Varroa detection at the Port of Melbourne	155
	Biosecurity Blitz harnesses public spirit	156
	Measures to encourage early reporting	157
	Establishing a surveillance network in Australia's botanic gardens and arboreta	157
	Development opportunities for diagnosticians	167
Chapter 6	Eradicating citrus canker in the north	188
	Exercise Fastidious tests response to xylella	195
	Exercise Bee Prepared	196
Chapter 7	National Fruit Fly Symposium helps set direction	209
	Banana growers recognised in biosecurity awards	210
	Recognition for grains farm biosecurity efforts	211
	Plant Sure scheme to weed out invaders	219
Chapter 8	Biosecurity Behaviour and Market Research Knowledge Base	222
	Workshop prioritises xylella action	223
	Australia and NZ join forces on plant biosecurity research	229
	Research to protect Australian wheat from overseas threat	231
	Australia and New Zealand consider future innovations	232



Image courtesy of the Canned Fruits Industry Council of Australia



Foreword

Australia maintains its freedom from many serious plant pests by devoting considerable resources to plant biosecurity. While often taken for granted, this benefits all Australians. Our unique ecosystems, plant production industries, high standard of social amenity and rural way of life are sustained by our biosecurity system.

The goal is the delivery of an internationally first-class biosecurity system capable of supporting sustainable plant production and environmental health while maintaining and enhancing market access.

The National Plant Biosecurity Status Report is one of several tools that assists in monitoring continuous improvement in the plant biosecurity system.

The 2018 National Plant Biosecurity Status Report is the 11th such report, with the first report being published in 2008. For the first time, a timeline of notable biosecurity events during 2018 is provided, which link to features throughout the report.

The report touches on governance of biosecurity in Australia, the role of many stakeholders and the most concerning exotic plant pests. It features our plant industries, pre-border, border and post-border biosecurity efforts, pest surveillance and diagnostics, emergency responses and domestic quarantine matters. It also lists more than 600 plant biosecurity research, development and extension projects being undertaken around Australia.

I believe that Australia has developed a modern, dynamic and integrated system through the cohesive partnership between government and industry. We are all working together to fill the gaps that have been faced and preparing for future challenges.

Compiling the 2018 National Plant Biosecurity Status Report relies on input of more than 100 organisations. We are very grateful for your cooperation that allows the monitoring of the plant biosecurity system and the publication of this report annually.

I encourage you to share the report widely with those who would benefit from its content.

Steve McCutcheon
Chairman
Plant Health Australia





Introduction

A wide-angle landscape photograph showing a vast mountain range. The foreground is dominated by a dense, lush green forest with various tree species. In the middle ground, several mountain peaks are visible, their slopes covered in thick vegetation. The background shows more distant, hazy mountain ranges under a bright blue sky with scattered white and grey clouds. The overall scene is vibrant and natural.

The importance of plant biosecurity

Australia is fortunate to be free from many serious plant pests that exist overseas, due to more than a century of effective quarantine measures and our geographic isolation.

Our enviable plant health status confers significant benefits to us all. Without biosecurity efforts, plant pests such as insects, fungi, bacteria and viruses spread to suitable host plants in new areas and countries aided by the movement of people and goods.

Due to wide climate variability across Australia (see Figure 1), there are many varied natural ecosystems and crop species grown. Each ecosystem and crop has a set of pests that pose a threat.

Figure 1. Australia's varied climatic zones

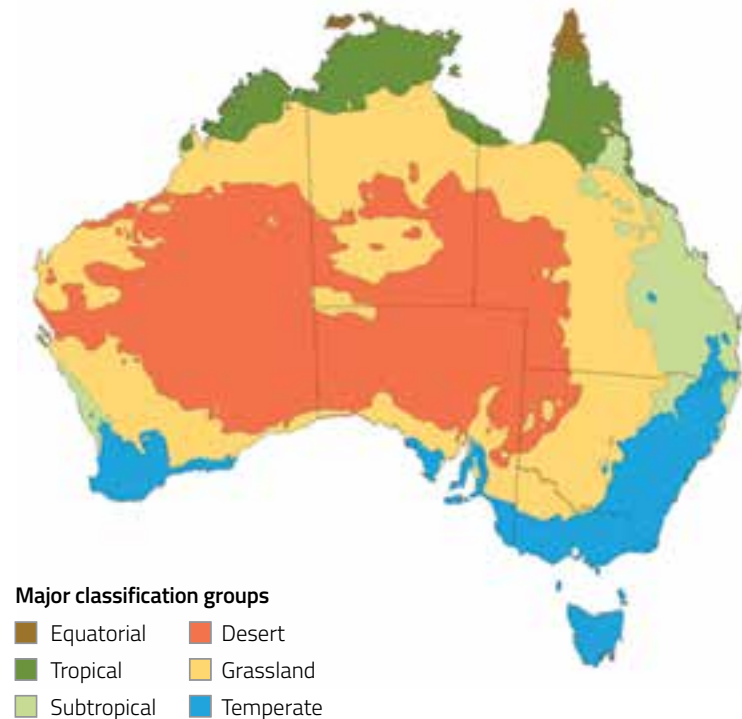


Image courtesy of the Bureau of Meteorology

Almost half of Australia's total land area is used for agriculture. In the tropical and subtropical zones, crops such as bananas, sugarcane, pineapples, mangoes and ginger are grown. In more southern temperate zones, pome and stone fruits, grapes, nuts, onions and potatoes can be cultivated. Vast areas with grassland climate are suited to broadacre production of grains, pulses, cotton, forestry, and pasture for livestock production, and vegetables are grown in many areas.

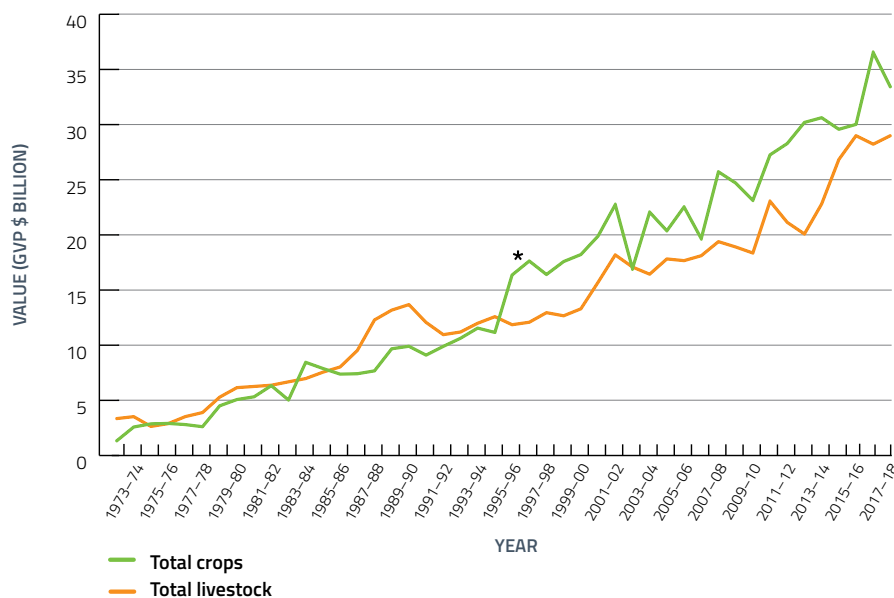
Plant industries make a significant contribution to agricultural production and exports. In 2016–17, around 394 million hectares was farmed by 88,073 crop and livestock businesses, with plant industries representing a gross value of \$33.5 billion¹ (see Figure 2). Plant exports were worth more than \$31 billion, including large quantities of grains (such as wheat, barley and canola) as well as sugar, wine, forestry, cotton and horticultural products.

Produce destined for overseas must meet the standards set for market access, which often includes evidence that production areas are free from certain pests. Production and trade could be jeopardised by an incursion of a new pest that makes its way into our fields, orchards and plantations.

Protecting our unique, biodiverse, natural environments is also a very high priority. Australia has more than 500 national parks, which cover over 28 million hectares and four per cent of the total land area. A further six per cent or more of Australia is protected and includes conservation areas within state forests, nature reserves, indigenous protected areas and conservation reserves². In 2017 the Australian Bureau of Statistics estimated these areas brought more than \$6 trillion worth of benefits to Australia. Invasive exotic plant pests and weeds could threaten native species, disrupt ecosystems and change the face of these landscapes, along with parklands and other public amenities³.

1. Australian Bureau of Agricultural and Resource Economics, Canberra. Agricultural commodities March Quarter 2019 – Statistics Data Table 13. Accessed online 31 May 2019 agriculture.gov.au/abares/research-topics/agricultural-commodities/mar-2019#download-report
2. Commonwealth of Australia 2007. Conserving Australia: Australia's National parks, conservation reserves and marine protected areas. Accessed online 19 July 2019 aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Completed_inquiries/2004-07/nationalparks/report/index
3. Australian Bureau of Statistics, Canberra. ABS 2017, Australian environmental–economics accounts, 2017, Cat. No. 4655.0. Accessed online 19 July 2018 abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4655.0Main+Features12017

Figure 2. Gross value of plant and animal production industries in Australia, 1972–2018*



* Includes forestry from 1995–96

The definition of a pest used in this report covers insects, mites, snails, nematodes, pathogens (diseases) and weeds that have the potential to adversely affect food, fibre, ornamental crops, bees and stored products, as well as environmental flora and fauna. Exotic pests are those not currently present in Australia. Established or regionalised pests are those currently present within Australia.

Growing threats to plant health

Factors such as globalisation, international and interstate movement, climate change, tourism and the increasing volume of goods moved are all contributing to increasing biosecurity risks⁴.

Plant pests and diseases spread in three main ways:

- through trading goods and movement of people
- by environmental forces including water and wind
- carried by vectors such as insects.

The growth in trade and international movement of people presents biosecurity challenges for Australia. Annually there is now nearly 100 million tonnes of freight arriving by sea⁵, 1 million tonnes by air⁶, and 21 million international travellers arriving⁷, including 8.5 million foreigners.

To maintain Australia's favourable biosecurity status in this age of increased global trade and travel, a high priority is placed on plant biosecurity. During 2018, Australian biosecurity officers intercepted more than 350,000 items of biosecurity concern across the country, including 60,000 items sniffed out by biosecurity detector dogs⁸.

It takes a great effort to keep exotic pests out of Australia. With a total coastline stretching almost 60,000 km, our borders can only be protected from plant pests by collaborative partnerships, and by coordinated activities that occur pre-border (overseas), at the border and within Australia (post-border).

Some 370 high priority pests have been identified for Australia's plant industries through biosecurity planning by Plant Health Australia (PHA) (see **Chapter 2**). The high priority plant pests for the environmental landscapes will be identified in 2019.

Just as important as keeping exotic pests out of Australia is the management of established or regionalised pests that are already present.

Some of the highlights relating to significant plant biosecurity events in 2018 are shown over the page. They include exotic plant pest detections, biosecurity surveillance and preparedness activities, public awareness activities, international collaborations, significant reports, innovations, events and announcements.

4. Commonwealth of Australia. Priorities for Australia's Biosecurity System: Response from Australian agriculture ministers (November 2018). Accessed online 16 July 2019 agriculture.gov.au/SiteCollectionDocuments/igab-review-response.pdf
5. Department of Infrastructure, Regional Development and Regional Economics. Australian Sea Freight 2015–16. Accessed online 16 July 2019 bitre.gov.au/publications/2018/asf_2015_16.aspx
6. Department of Infrastructure, Regional Development and Regional Economics. Aviation Statistics. Accessed online 16 July 2019 bitre.gov.au/statistics/aviation
7. Austrade. Latest International Visitor Survey Results, March 2019. Accessed online 16 July 2019 tra.gov.au/International/International-tourism-results/overview
8. Department of Agriculture and Water Resources. Biosecurity Matters Edition 1 2019. Accessed online 16 July 2019 agriculture.gov.au/biosecurity/australia/reports-pubs/biosecurity-matters/2019-01

Plant biosecurity highlights in 2018

Below is a timeline of some key plant biosecurity related events during 2018 that involved a broad range of stakeholders across Australia working to protect our plant resources. These events are referenced throughout the report.

