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Final Report

Review of the national biosecurity plan for the potato industry and development of a biosecurity manual for potato producers

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Project code:

PT16004

Project:

Review of the national biosecurity plan for the potato industry and development of a biosecurity manual for potato producers (PT16004)

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Summary

Australia's freedom from many of the exotic pests that affect production overseas provides the potato industry with a yield advantage as well as cost of production and trade benefits. Biosecurity planning provides a mechanism for the potato industry, governments, and other stakeholders to assess current biosecurity practices and future biosecurity needs. The identification, prioritisation, and management of key biosecurity risks through the development and implementation of a biosecurity plan are critical industry biosecurity preparedness. When coupled with AUSVEG being a Plant Health Australia (PHA) member and signatory to the Emergency Plant Pest Response Deed, biosecurity planning provides the potato industry with a framework for risk mitigation and management of potential incursions.

Biosecurity planning in the potato industry was initiated through the review and development of a Biosecurity Plan (Version 3.0) for the Potato Industry. Through this process, the potato industry identified:

- the highest risk pests to the industry (High Priority Pests or HPPs)

- risk mitigation activities required to reduce the biosecurity threat, including farm level activities

- surveillance and diagnostic activities

- available capacity and capabilities

For the review of the Biosecurity Plan (BP):

- industry members and scientific experts met via teleconference to identify high priority pests (exotic and established) for the potato industry in March 2017.

- a post border biosecurity capability assessment was undertaken for all high priority pests to inform the development of a biosecurity implementation table of activities to mitigate risk and prepare for response (undertaken by Plant Health Australia in consultation with industry and government).

- a shared approach to implementing the potato biosecurity plan was developed through a meeting of industry, governments and stakeholders in May 2017.

- The *Biosecurity Plan for the Potato Industry* (Version 3.0) was endorsed at the government level through the Plant Health Committee in December 2018.

- The BP was also formally endorsed by the potato industry (through AUSVEG) in January 2019.

- The Biosecurity Plan for the Potato Industry (Version 3.0) was published in early in 2019.

This project also includes the facilitation of annual Biosecurity Reference Panel (BRP) meetings. The BRP has met annually from 2018 to 2020 to review the BP and recommend amendments as pertinent biosecurity information becomes available. The BRP also documented achievements and monitored the progress of actions outlined in the BP implementation table.

- The Biosecurity Plan for the Potato Industry (Version 3.2) was published and uploaded to the Biosecurity Preparedness portal on 23rd February 2021.

In addition to the biosecurity planning process, the Potato Grower's Biosecurity Manual was developed and published in May 2018 and updated (Version 1.1) in August 2018. The manual is a guide for potato growers and the wider industry to identify and institute farm biosecurity practices to prevent and mitigate impacts from pests, diseases and weeds.

Keywords

Introduction

Australia's biosecurity system has continuously evolved and adapted to address emerging challenges. The relative freedom from many exotic pests (insects, pathogens, and weeds) provides Australian industries with leverage in trade or market access negotiations as well as production advantages (yield and/or quality).

Managing risks to Australian biosecurity is a complex endeavour which involves all tiers of government, a diverse range of industries and stakeholders as well as the community. Maintaining an effective and efficient national system into the future requires a shared responsibility and co-operation between all components within the biosecurity system. All system participants are involved in planning and decision making according to their roles, responsibilities, and contributions.

Biosecurity planning is used to identify biosecurity risks and prioritise risk mitigation activities which is a critical step in ensuring that plant industries can minimise the impact of new pests and diseases. Biosecurity plans are developed to coordinate biosecurity activities and provide a strategic framework for investment into Australia's plant production industries. The planning process documents and prioritises exotic (not currently present in Australia) and established pests of biosecurity concern to ensure there are effective preparedness measures in place to meet and minimise future biosecurity challenges.

Biosecurity manuals outline simple procedures that can be used to minimise the risk of introducing and spreading pests, diseases or weeds on a farm. The potato industry and growers can identify risks and implement measures to prevent or mitigate the impact of exotic taxa. The biosecurity plan and manual aim to improve the biosecurity preparedness of the potato industry.

Biosecurity implementation is a structured and industry-specific approach to achieving preparedness goals. Specific actions are identified, prioritised, and assigned to responsible parties. Biosecurity Reference Panels aim to annually review and monitor progress of implementation activities through a process that has been agreed to by PHA industry members and Plant Health Committee (PHC).

The biosecurity planning process is also a mechanism for industry, governments, and stakeholders to better prepare for and respond to incursions of exotic high priority pests (HPPs). Furthermore, biosecurity planning ensures that plant industries comply with their legal obligations as signatories to the Emergency Plant Pest Response Deed (EPPRD). It is important that the Australian potato industry responds effectively to plant threats and minimises risk to ensure its future viability and sustainability.

Biosecurity for the potato industry focused on five key areas to be implemented over the life of the biosecurity plan (2017-2021):

• Threat identification and pest risk assessments

• Exotic HPPs and established pests of biosecurity significance

• Implementing biosecurity for the Australian potato industry

• Risk mitigation and preparedness

• Response management

These areas underpin the biosecurity planning and preparedness process to ensure Australia plant production industries are both profitable and sustainable into the future.

Methodology

The development of a biosecurity plan for the potato industry will be undertaken using the National Industry Biosecurity Guidelines developed by Plant Health Australia. This approach has been established in consultation with industry members and endorsed by the Australian Chief Plant Protection Officer and the state Chief Plant Health Managers through Plant Health Committee (PHC).

The biosecurity plan will be consistent with other biosecurity plans recently developed or reviewed and will reflect the additional elements endorsed by PHC and PHA industry members to strengthen implementation and monitoring of risk mitigation activities. Any additions or modifications to the template throughout the development process will be determined in consultation with industry.

Biosecurity Plans typically cover the following sections:

Executive summary/Introduction:

The executive summary provides the high-level information and data from the development of the Biosecurity Plan for the Potato Industry.

Threat identification and pest risk assessment:

Guidelines are provided for the identification and ranking of biosecurity threats through a process of qualitative risk assessment[1]. The primary goal is to coordinate identification of exotic pest threats that could impact productivity or marketability at a national level. The biosecurity plan strengthens risk assessment work already being done both interstate and overseas. All exotic 'pests' considered in the biosecurity plan are detailed in Threat Summary Tables (TSTs). From the prioritisation process undertaken in the TSTs, pests with an overall high rating were identified as a High Priority Pests.

A key outcome of a biosecurity plan is the identification of exotic High Priority Pests (HPP) and established pests of biosecurity significance for the potato industry. Exotic HPPs are the most significant potential exotic pest threats affecting the potato industry that were identified through the risk rating process. Identification of high priority exotic plant pests provide a basis for the prioritisation of resources to areas of greatest potential threat and impact. Established pests of biosecurity significance are identified in consultation with scientific experts and industry representatives.

The identification of exotic HPPs and established pests of biosecurity significance will allow industry and government to better prioritise preparedness activities that will assist in the implementation of (i) effective grower and community awareness campaigns; (ii) targeted biosecurity education and training programs for growers as well as (iii) the development of surveillance programs, diagnostic protocols and pest-specific mitigation activities.

Implementation

A gap analysis is undertaken to identify the current level of preparedness for HPPs of the potato industry which supports the prioritisation and implementation of biosecurity activities. Both industry and government representatives develop an implementation plan that sets out shared biosecurity goals and objectives over the next five years. Action items were detailed in the biosecurity plan and assigned to responsible parties. It is intended that the implementation plan is revisited (e.g. annually) by the Biosecurity Reference Panel (BRP) to maintain its relevance.

Risk mitigation and preparedness

A set of guidelines for managing risk at all operational levels is critical to instil preparedness and resilience to the potato industry. Many pre-emptive practices can be adopted by plant industries and government agencies to mitigate risk. The major themes covered in the biosecurity plan include:

- Barrier quarantine

- Surveillance

- Training

- Awareness

- Farm biosecurity

- Reporting of suspect pests

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[1] plainthealthaustralia.com.au/biosecurity/risk-mitigation

A summary of pest-specific information and preparedness documents, such as fact sheets, contingency plans and diagnostic protocols are also described to indicate the preparedness for exotic pest incursions. Consultation was provided to best align preparedness activities with Research, Development and Extension (RD&E) and cross-sectoral opportunities.

Farm biosecurity is a set of management practices and activities carried out to protect a property from the entry and spread of pests. A biosecurity manual provides growers and the wider industry with simple measures and information that aims to prevent or mitigate the impacts from pests, diseases, and weeds. The on-farm biosecurity practices and tools highlighted in the biosecurity manual will support industry productivity and sustainability.

Response management

Processes are summarised to respond to emergency plant pest (EPP) incursions that would affect the potato industry. The development of industry-specific response and communication procedures are essential to prepare for and manage pest incursions and include:

- Reference to the Emergency Plant Pest Response Deed, including generalised roles and responsibilities of plant production industries.

- Reference to the overarching framework, PLANTPLAN (the National Emergency Preparedness and Response Plan).

- The general procedures, organisations and contacts responsible for handling an emergency plant pest incident within both industries.

- A communication chain/strategy for communication in an incursion.

The general process for the development of a biosecurity plans entails:

1. Identification of representatives from the potato industry, governments and scientific experts to consider risks associated with exotic and established pests of biosecurity significance.

2. Compilation and review of exotic pest threats to potatoes into Threat Summary Tables.

3. Analysis of biosecurity capacity for each high priority pest in terms of both preparedness and response.

4. Consultation with industry on the potential inclusion of an impact assessment on high priority pest incursions on current export markets. Consideration of market access impact of exotic pests on the industries' market aspirations can also be included where these aspirations are known.

5. Development of a shared approach to implementing biosecurity through a meeting of a Biosecurity Implementation Group (BIG) for the potato industry which comprises industry and state government representatives.

6. Development of a biosecurity implementation table in consultation with the appropriate industry representatives.

7. Endorsement of the biosecurity plan by the industry (through the AUSVEG) and governments (through PHC).

8. Launch at an appropriate industry event, supported by media releases.

9. Annual review of implementation activities by industry and state government representatives through the biosecurity reference panel process. Annual Biosecurity Reference Panel meetings will be held sector to review emerging pests, determine biosecurity priorities and ensure that activities recommended in the potato biosecurity plan are being accomplished.

10. The project will link into the Biosecurity Preparedness Portal which was recently developed by PHA. The potato industry will have a site within the portal which will act as a repository for the:

    • Biosecurity plan

    • High priority pest list (linked to a pathway vulnerability analysis for each pest)

    • Biosecurity implementation table

    • Pest gap analysis table

    • Established pests of biosecurity significance

    • Information on tasks for completion and meetings

The Biosecurity Preparedness Portal is an on-line support tool that will assist in coordinating and monitoring the

activities of each Biosecurity Reference Panel.

Outputs

The *Biosecurity Plan for the Potato Industry* (Version 3.0) was funded by AUSVEG and developed by Plant Health Australia (PHA) through consultation with the potato industry Technical Expert Group (TEG) and Biosecurity Implementation Group (BIG; Table 1). These groups were coordinated by PHA and included representatives from state/territory and commonwealth government agencies, industry members, potato biosecurity and scientific experts.

Table 1. Members of the Technical Expert Group (TEG) and Biosecurity Implementation Group (BIG).

Name	Organisation	Area of expertise	Member of TEG	Member of BIG
Alison Saunders	Plant Health Australia	Biosecurity	✔	✔
Barbara Hall	SARDI	Pathology	✔	
Brendan Rodoni	DJPR	Pathology	✔	
Callum Fletcher	AUSVEG	Industry	✔	✔
Darren Long	MG Farm Produce	Industry		✔
Dolf de Boer	DJPR	Pathology	✔	
Fiona Constable	DJPR	Virologist		✔
Gary O'Neill	Mitolo Group	Industry		✔
Jacky Edwards	DJPR	Pathology	✔	
Jessica Lye	AUSVEG	Industry		✔
Joanne Lee	PHA	Biosecurity		✔
Kevin Clayton-Greene	Vegetable Biosecurity Advisor	Industry		✔
Kyla Finlay	DEDJTR	Entomology	✔	
Lionel Hill	TAS DPI	Entomology	✔	
Mandy Christopher	QDAF	Risk analysis	✔	✔
Michael Holmes	Plant Health Australia	Biosecurity	✔	✔
Mike Hodda	CSIRO	Nematology		✔
Nader Sallam	DAWE	Biosecurity	✔	
Nigel Crump	Victoria SPA	Industry (seed potato)	✔	✔
Pennie Patane	Patane Produce	Industry		✔
Richard Haynes	Elders and Potatoes SA	Industry		✔
Rosa Crnov	DJPR	Biosecurity		✔
Stephen Harper	QDAF	Research Scientist	✔	
Stu Jennings	Young Potato People	Industry		✔
Toni Chapman	NSW DPI	Bacteriology	✔	✔
Tonya Wiechel	DJPR	Plant Pathology	✔	

The development of Threat Summary Tables (TST) is integral to the biosecurity planning process. Initially, a total of 206 (118 invertebrates and 88 pathogens [including nematodes]) exotic plant 'pests' were identified for the Australian potato industry. Of the 206 identified pests, a total of 13 pests were categorised as having at least a 'high' overall risk to the potato industry. These 13 pests (6 invertebrates and 7 pathogens [including nematodes]) represent the High Priority Pests (HPPs) of the potato industry.

The HPP gap analysis and Biosecurity Implementation Table describe industry and government's preparedness and response capabilities in the event of exotic or established pests of biosecurity concern. While the identification of pests and weeds of significance are important aspects of the biosecurity plan, the implementation process drives future investment and assign activities to plant industries, governments, and stakeholders.

The *Biosecurity Plan for the Potato Industry* (Version 3.0) was endorsed by industry and governments through Plant Health Committee. The biosecurity plan was published and made available to industry members through the Biosecurity Preparedness Portal in early 2019.

The Potato Grower's Biosecurity Manual (*see* Attachment 1) was also developed and published in accordance with project milestones. Further refinements were made to deliver an effective guide for potato growers and the wider industry to identify and institute farm biosecurity practices that prevent and mitigate impacts from pests, diseases, and weeds.

Biosecurity Reference Panels were formed to undertake the annual review of the Biosecurity Plan (Table 2). The review process is a valuable addition to the normal Biosecurity Plan development process, as it adds an additional layer of monitoring and evaluation to the project and planning process.

Table 2. Members of annual Biosecurity Reference Panel (BRP) meetings.

Name	Organisation	Area of expertise
Andrew Vossen	PHA	Biosecurity
Angela Monks	DPIPWE	Plant pathologist
Bonny Vogelzang	SARDI	Policy Principal & Plant Health Officer
Callum Fletcher	AUSVEG	Biosecurity Coordinator
David Gale	PHA	Biosecurity
David Lovelock	AgVic	Research diagnostician
Dolf De Boer	DJPR	Senior Research Scientist
Doris Blaesing	RMCG	NRM and RD&E Associate
Emily Lamberton	PHA	Biosecurity
Greg Chandler	Hort Innovation	RD&E Manager
Jamie Davies	DPIPWE	Entomology
Jane Wightman	Hort Innovation	Business Development and Extension Manager
Liz Minchinton	DJPR	Senior Officer – Plant Pathology
Madeleine Quirk	AUSVEG	Biosecurity Officer
Marc Poole	WA DPIRD	Senior Entomologist
Penny Measham	Hort Innovation	RD&E Manager
Rachel Mann	DJPR	Research Scientist - Microbiology
Sharl Mintoff	NT DITT	Senior Plant Pathologist
Victoria Ludowici	PHA	Biosecurity
Vincent Lanoiselet	WA DPIRD	Senior Research Officer (Pathology)
Zarmeen Hassan	AUSVEG	National Manager - Engagement and Extension

Amended versions of the biosecurity plan (Version 3.1 and 3.2 - current) are based on the updates made by the Biosecurity Reference Panel over time. The primary components that are refined are:

(i)   the HPP table (and TST where appropriate) (Appendix 1)

(ii)   established pests of biosecurity significance (Appendix 2)

(iii)   the gap analysis (Appendix 3), and

(iv)   the implementation table (Appendix 4)

Review and revision of these components ensures that biological information and preparedness actions remain relevant over the life of the project. For example, fall army worm (*Spodoptera frugiperda*) and serpentine leafminer (*Liriomyza huidobrensis*) were removed from the HPP and/or TST list(s) and added to the established pest list in version 3.2 of the vegetable biosecurity plan upon their recent establishment in Australia. Formalising this process also generates actions (Appendix 5) that responsible parties can work towards in between BRP meetings.

The *Biosecurity Plan for the Potato Industry* (Version 3.2; *see* Attachment 2) was recently published and uploaded to the Biosecurity Preparedness portal on 23rd February 2021.

Outcomes

In delivering this project, Plant Health Australia has provided the potato industry with a thorough biosecurity plan that has evolved over time to accommodate priorities and needs of the industry. The plan includes information on the high priority potato pests, established pests and weeds of biosecurity significance and an overview of the status of both industry and government activities that relate to potato biosecurity in the form of the Biosecurity Implementation Table. Additionally, the gap analysis provides both industry and governments with information on the status of national diagnostic protocols, surveillance programs, fact sheets, contingency plans, Emergency Plant Pest Response Deed (EPPRD) categorisation for each HPP. Industries that share HPPs were identified to encourage cross-industry partnerships and investments in preparedness.

Plant Health Australia fosters a collaborative environment which involves industry, government, stakeholders, and scientific experts to develop each biosecurity plan. Through this collaborative development process, the priorities of each organisation involved can be openly shared and discussed. Importantly information gaps can be acknowledged, and future biosecurity RD&E can be prioritised and supported.

Holding regular reference panel meetings has provided an opportunity to document achievements and update the plan as new information becomes available. Responsibilities and inherent constraints become transparent to all parties involved in the Biosecurity Implementation Group and Biosecurity Reference Panel meetings. This important improvement to the biosecurity planning process is evident by the revisions of the potato biosecurity plan (Version 3.2) throughout the project.

All stakeholders are acutely aware of the importance of biosecurity. Encouraging a cross-sectoral and integrative approach to biosecurity preparedness and response procedures will bolster the future productivity and sustainability of the potato industry in Australia. This plan clearly demonstrates the continuing commitment by both industry and government to biosecurity and Australia's potato industry.

Monitoring and evaluation

The annual Biosecurity Reference Panel review process, involving industry and government experts has ensured that actions and outcomes from the Biosecurity Plan are monitored and evaluated. Biosecurity activities have been prioritised as an outcome of the annual review process. These priorities are conveyed to Hort Innovation for future biosecurity research, development and extension activities.

Recommendations

1.	PHA continues to work with Hort Innovation and AUSVEG to review and develop a long-term plan to deliver enhanced biosecurity preparedness to the potato industry. This plan would focus on gaps and cross-sectoral synergies to link current and future priorities for RD&E and preparedness.

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Acknowledgements

The project team would like to acknowledge the members of the Technical Expert Group, the Biosecurity Implementation Group and/or Biosecurity Reference Panel(s). Their contributions have substantially enhanced the biosecurity preparedness and sustainability of Australia's potato industry.

Appendices (not publicly available)

Appendix 1. High Priority Pest list of the potato industry (v3.2)

Appendix 2. Established pests of biosecurity significance for the potato industry (v3.2).

Appendix 3. The Biosecurity Implementation Table (v3.2) for the potato industry (2017-2021).

Appendix 4. High Priority Pest list gap analysis (v3.2).

Appendix 5. Potato Biosecurity Reference Panel meeting (#3), November 2020 - Actions.