

Final Report

Review of the biosecurity plan for the sweetpotato industry

Project leader:

Stuart Kearns

Delivery partner:

Plant Health Australia

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Review of the biosecurity plan for the sweetpotato industry (PW17000)

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Level 7

141 Walker Street

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Telephone: (02) 8295 2300

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Public summary

Australia's freedom from many of the exotic pests that affect sweetpotato production overseas provides the industry with potential advantages in yield, quality, and trade. Biosecurity planning provides a mechanism for the sweetpotato industry, governments, and other stakeholders to assess current biosecurity practices and future biosecurity needs. The identification, prioritisation, and management of key biosecurity risks, through development and implementation of a biosecurity plan for the industry are critical industry biosecurity preparedness activities. When coupled with Australian Sweetpotato Growers Inc. being a Plant Health Australia (PHA) member and signatories to the Emergency Plant Pest Response Deed, biosecurity planning provides the industry with the framework for risk mitigation and management of the impact of potential incursions.

Biosecurity planning will provide the sweetpotato industry with a roadmap for future investment for activities in biosecurity. Through the Biosecurity Plan development process, the industry will identify:

- the highest risk exotic pests,
- established pests and weeds of biosecurity significance,
- risk mitigation activities required to reduce potential biosecurity threats, including farm level activities,
- current surveillance and diagnostic activities.

For the development of the Biosecurity Plan (BP) for the Sweetpotato industry, the following activities were undertaken:

- a meeting of industry members and scientific experts to identify and prioritise high priority pests (exotic and established) for the industry,
- a post border biosecurity capability assessment for all high priority pests to inform the development of biosecurity implementation activities to mitigate risk, prepare for response and plan for business continuity needs if an exotic pest establishes in Australia,
- an enhanced approach to implementing biosecurity through formation of a Biosecurity Implementation Group (BIG),
- a face-to-face meeting and coordination of the BIG to review and finalise the BP,
- endorsement of the BP at the industry level, through Australian Sweetpotato Growers Inc. (ASPG), and the government level, through Plant Health Committee, for launching at an appropriate industry event.

Keywords

Sweetpotato, biosecurity, exotic pests, diagnostics, surveillance, preparedness.

Introduction

The Australian sweetpotato industry is free from a range of exotic pests and diseases which have the potential to cause significant impact on production if they were present. The industry is focused on producing high quality products free of pests and diseases. Maintenance of plant health status is important to ensure the sustainability of the industry.

Biosecurity planning is a key risk mitigation strategy that gives the industry the best opportunity of future viability and sustainability. This project will review the biosecurity plan of the sweetpotato industry

The review and development of the new biosecurity plan provides the opportunity to bring industry and government together in a collaborative framework where knowledge and ideas are freely shared. As a part of this project, exotic pests (invertebrates and pathogens) are assessed by technical experts and prioritised to identify high priority exotic pests, as well as established pests and weeds of biosecurity significance. Having identified the pests that pose the greatest threat to the industries, expert groups were convened from government and industry to agree to mitigation measures to protect against them. The Biosecurity Plan has been reviewed regularly over the life of the project through the efforts of the Sweetpotato Biosecurity Reference Panel (BRP).

Methodology

The Sweetpotato Biosecurity Plan has been developed based on National Industry Biosecurity Guidelines developed by PHA and are consistent with other biosecurity plans developed or reviewed recently. Additions or modifications to the generic template were determined through the development process in consultation with industry and government.

The Sweetpotato Biosecurity Plan cover the following topics:

- Threat Summary Tables - list of exotic pests (invertebrates and pathogens) and high priority pests
- Established pests of biosecurity significance
- Preparedness status – identification of documents prepared, and activities implemented to improve preparedness for exotic pests
- Biosecurity Implementation Plan - describes current and future preparedness and response activities

The process of reviewing and developing these BPs involved:

1. Identification of representatives from the sweetpotato industry, government, and scientific experts to form a Technical Expert Group (TEG) to consider risks associated with exotic and established pests of biosecurity significance.
2. Compilation and review of exotic pest threats to sweetpotatoes into Threat Summary Tables.
3. Development of High Priority Pest (HPP) lists from the Threat Summary Tables. The HPP lists are developed based on the assessment by the TEGs on the entry potential, establishment potential, spread potential and economic impact of each exotic pest. These ratings are then assessed to provide an overall risk rating. Generally, those pests with a high or extreme overall risk rating are included in the list of HPP's.
4. Analysis of biosecurity capacity for each high priority pest in terms of both preparedness and response.
5. Development and review of core components of the biosecurity plans by PHA, in association with the Biosecurity Implementation Groups (BIG). These components include the HPP lists, lists of established pests and weeds, Biosecurity Implementation Plan, and the Preparedness status, which identifies available resources and gaps in resources.
6. Development of a shared approach to implementing biosecurity through meetings of Biosecurity Implementation Group (BIG) for the sweetpotato industry, comprising industry and state/territory government representatives.
7. Endorsement of the biosecurity plans by the industry through Australian Sweetpotato Growers Inc. and government, through the Plant Health Committee (PHC).
8. Launch at an appropriate industry event, supported by media releases.
9. Review of implementation activities by industry and state government representatives through the biosecurity reference panel process. Biosecurity Reference Panel meetings will be held to review emerging pests, determine biosecurity priorities, and monitor activities recommended in both biosecurity plans.

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

- Biosecurity Plan
- High priority pest list
- Biosecurity implementation plan
- Preparedness status table
- Established pests of biosecurity significance

The Biosecurity Preparedness Portal is an on-line support tool that will assist in coordinating and monitoring the activities of each Biosecurity Reference Panel.

Consultation with each industry, government departments and scientific experts was sought throughout the development process to ensure that stakeholders have input into the document. Members of the Sweetpotato Technical Expert Groups, Biosecurity Implementation Group and Biosecurity Reference Panel are included in the tables below.

Table 1 Members of the Sweetpotato Technical Expert Group

Name	Organisation	Area of expertise
Lynne Jones	DAFF	Pathology
Richard Davis	DAFF	Pathology
Christine Horlock	QDAF	Biosecurity
Sandra Dennien	QDAF	Generalist
John Fletcher	Consultant	Scientific consultant
James Paddon	Industry	Grower
Bree Wilson	University of Southern Queensland	Pathology
Michael Hughes	QDAF	Generalist
Craig Henderson	Industry	Consultant
Mary Finlay-Doney	NT DITT	Entomology
Melinda Moir	WA - DPIRD	Entomology
Victoria Ludowici	PHA	Biosecurity
Kathleen DeBoer	PHA	Biosecurity

Table 2 Sweetpotato Biosecurity Implementation Group.

Name	Organisation	Area of expertise
Melinda Moir	WA DPIRD	Entomology
Richard Davis	DAFF	Pathology
Lynne Jones	DAFF	Pathology
Christine Horlock	QDAF	Pathology
Jenny Corbon	QDAF	Nematology
Sandra Dennien	QDAF	Generalist
Bree Wilson	University of Southern Queensland	Pathology
Mike Hughes	QDAF	Generalist
John Duff	QDAF	Entomology
James Paddon	Grower	Industry
Allan Mahoney	Greensill Farming Group	Industry
Doug MacPherson	Greensill Farming Group	Industry
Craig Henderson	Henderson RDE	Industry
Trevor Dunmall	PHA	Biosecurity

Results and discussion

This project has provided the sweetpotato industry and government with a new Biosecurity Plan for the Sweetpotato industry. The key components of the biosecurity plan are the Threat Summary Tables which form the basis for the development of the high priority pest list and the Biosecurity Implementation Plan which describes the current and planned preparedness activities.

The processes used in the development of biosecurity plans is important and the foundation of each biosecurity plan are the Threat Summary Tables (TST) which describes the known exotic pests of each industry. The information contained in the TST includes:

- the list of hosts – which has potential implications for the entry, establishment and spread of a pest,
- the part of the plant affected – which has potential implications on yield, quality, and trade/market access,
- means of movement and dispersal – implications for establishment and spread (distance and time),
- geographic distribution – implications for entry and spread,
- vectors present - knowledge of known and potential vectors which may have implications for entry, establishment and spread of a pest, in particular pertinent to some pathogens.

This information and the knowledge of technical experts informs the discussion on the appropriate ratings to be applied to the entry potential, establishment potential and spread potential. The ratings applied to the potential economic impact are based on both technical and industry knowledge of the crop and pest.

These four ratings are used to establish the overall risk each pest poses to the crop and industry and the pests which pose the highest risk are termed the high priority pests. These are the pests which are usually the focus for biosecurity.

The implementation plan describes the activities the industry and government plan to implement to strengthen biosecurity preparedness and response capacity and capability.

While the development of the biosecurity plan is a fundamental need for each industry, the strength of the biosecurity planning processes come from the shared approach by industry and government. Ideally the plan should be used to guide future biosecurity activities, ranging from communication and engagement to RD&E. The sweetpotato industry may use their biosecurity plan to underpin industry and government biosecurity activities.

Outputs

Table 3. Output summary

Output	Description	Detail
Biosecurity Plan for the Sweetpotato industry (versions 1.0, 1.1, 1.2)	Biosecurity Plans are developed for the use primarily by the industry organisation and governments	The Biosecurity Plan was developed in the first year of the project. Following this each year the Biosecurity Reference Panel would meet to review the plan. If there were amendments made, then a revised version of the plan was produced.

Outcomes

Table 4. Outcome summary

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
Identification of the range of exotic pests of sweetpotatoes	Outcome 2: Industry supply, productivity and sustainability - Improve industry productivity (inputs/outputs) to maintain local and international competitiveness, while maintaining viability and sustainability of supply. Strategy 3: Develop and optimise fit-for-purpose pest and disease management strategies KPI: Crop loss reduced by sustainable pest and disease practices 4. Improve industry preparedness and resilience to biosecurity threats KPI: Maintained business continuity and market access during an exotic pest incursion by encouraging industry support for management actions (eradication, containment, transition to management). KPI: Improved systems approach that show effective biosecurity protocols and processes, supporting access to domestic and export	The identification of the exotic pests of sweetpotatoes was undertaken through a literature search, followed by input from a technical expert group with members experienced in sweetpotato entomology and pathology.	Participation and informal feedback from industry and governments through the life of the project

	markets.		
Implementation of risk mitigation activities to increase the sweetpotato industries preparedness and response capabilities	As above	The development of risk mitigation measures was undertaken through a consultative process which focused on the development of biosecurity priorities and activities to improve preparedness and capacity/capability with input from a biosecurity implementation group comprising of members experienced in sweetpotato production and biosecurity	As above
Regular reviews and updating of the Sweetpotato Biosecurity Plan	As above	The review of the Biosecurity Plan and its components was undertaken through a consultative process which focused on ensuring information of important pests was maintained and planned activities monitored. This was undertaken by a biosecurity reference panel comprising of members experienced in sweetpotato production, biosecurity, entomology, and pathology	As above

Monitoring and evaluation

Table 5. Key Evaluation Questions

Key Evaluation Question	Project performance	Continuous improvement opportunities
To what extent has the project achieved its expected outcomes?	The project achieved its outcomes by developing a Biosecurity Plan for the Sweetpotato industry which was reviewed regularly and updated as necessary	As the threats posed by exotic pests change through movement across hosts and/or geographic distribution, the importance to regularly monitor and update biosecurity plans remains important

How relevant was the project to the needs of intended beneficiaries?	Biosecurity planning is important to provide industry and government with the information to plan preparedness and response activities pertinent to the priority exotic pests	As industry and government resources are under pressure it becomes more imperative to continue to review the processes used in developing biosecurity plans. PHA is regularly reviewing aspects of biosecurity planning to account for the changing dynamics of pest/host interactions while gaining industry and government input through efficient and effective methods
How well have intended beneficiaries been engaged in the project?	The intended beneficiaries (industry and government) have been engaged throughout the life of the project and play an important role in providing both technical and industry information to the project	The intended beneficiaries have been engaged through the life of the project. Travel restrictions due to Covid 19 have limited the number of face-to-face meetings, but the use of videoconferencing has been an effective method of engagement.
To what extent were engagement processes appropriate to the target audience/s of the project?	The engagement process is appropriate to the target audience (industry organisations and governments)	Engagement processes are appropriate, but the Covid 19 travel restrictions did impact on the quality of engagement. In the future (without travel restrictions), a blended approach of face to face and videoconference meetings should be planned.
What efforts did the project make to improve efficiency?	The development of biosecurity plans is undergoing a cycle of continuous improvement, both to the process used in developing and reviewing the plans and in ensuring the content of the plan is relevant.	Regular engagement with industry, government and research funders should be encouraged to gain their input into process improvement.

Recommendations

1. PHA continues to work with Hort Innovation and the sweetpotato industry to monitor industry biosecurity preparedness and develop a long-term plan to deliver enhanced biosecurity preparedness to industry.
2. PHA to continue to review planning processes to enable agile adaptation of processes to industry and government needs and resource availability.

Intellectual property

No project IP or commercialisation to report.

Acknowledgements

The project team would like to acknowledge the contributions of members of the Sweetpotato Technical Expert Group, the Biosecurity Implementation Group, and the Biosecurity Reference Panel. These people have contributed to improving the sweetpotato industry's biosecurity preparedness and therefore are contributing to a sustainable future for Australian sweetpotato growers.