



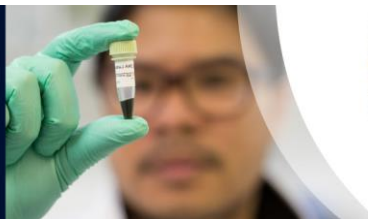
SRA Research Project Final Report

Review of the sugarcane industry Biosecurity Plan and development of a grower Biosecurity Manual - final report 2014/088

SRA Project Code	2014/088		
Project Title	Review of the Sugar Cane Industry Biosecurity Plan and Development of a Grower Biosecurity Manual		
Key Focus Area in SRA Strategic Plan	KFA3/Outcome 2: An enhanced industry capacity to deal with incursions of exotic pests, diseases, and weeds.		
Research Organisation(s)	Plant Health Australia, Biosecurity Queensland, CANEGROWERS, SRA		
Chief Investigator(s)	Ms Alison Saunders		
Project Objectives	<p>The review of the Biosecurity Plan for the sugarcane industry will comprehensively investigate new and emerging sugarcane pests and diseases, identify biosecurity capacity and guide the implementation of projects that effectively prepare industry to avoid, or deal with, biosecurity threats and meet biosecurity obligations.</p> <p>The development of a grower-targeted farm biosecurity information in the form of a Biosecurity Manual for sugarcane producers (GBM) will assist producers and contractors to access the knowledge required to identify endemic threats, implement farm biosecurity measures and meet regional quarantine obligations.</p> <p>Information from a Biosecurity Manual will provide clear direction to those managing regional biosecurity and provide a basis of information for a future Code of Practice that sets out mandatory stakeholder responsibilities supported by legislation.</p>		
Milestone Number	Milestone 5 – Final Report		
Milestone Due Date	1 October 2016	Date submitted	13 January 2017
Reason for delay (if relevant)	Final development and review of the Grower Biosecurity Manual was delayed due to the requirement to include the new Industry Code of Practice developed through Smartcane and the new legislation associated with the General		



	<p>Biosecurity Obligation (<i>Queensland Biosecurity Act 2014</i>) and the General Biosecurity Duty (<i>NSW Biosecurity Act 2015</i>). In addition, increased consultation was undertaken than originally anticipated, to ensure all stakeholders were given an opportunity to provide feedback for incorporation into the final version of the Manual.</p>
Milestone Title	Submit Final Report
Success in achieving the objectives	<input checked="" type="checkbox"/> Completely Achieved <input type="checkbox"/> Partially Achieved <input type="checkbox"/> Not Achieved
SRA measures of success for Key Focus Area (from SRA Strategic Plan)	An enhanced industry capacity to deal with incursion of exotic pests, diseases, and weeds.



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Section 1: Executive Summary

An important component of the future viability and sustainability of the Australian sugarcane industry, is the minimization of the biosecurity risks posed by exotic pests. To support the industry improve its biosecurity preparedness for exotic pest threats, this project has developed deliverables in the form of two products: the Biosecurity Plan for the Sugarcane Industry and the Biosecurity Manual for Sugarcane Producers.

The Biosecurity Plan (BP) is principally designed for decision makers. It provides a framework for industry, governments and stakeholders to better identify and understand the risks posed by new pest threats as well as to identify and improve the industry's current biosecurity position.

The BP was developed in consultation with the Industry Biosecurity Group (IBG), made up of industry, plant health, and biosecurity experts. The IBG was coordinated by Plant Health Australia (PHA) and included representatives from Sugar Research Australia, CANEGROWERS, the Australian Sugar Milling Council, NSW Sugar Milling Cooperative Ltd, and the Queensland Department of Agriculture and Fisheries (DAF). The IBG reviewed the Sugar Industry pest lists, completed pest risk assessments, and identified risk management options to deal with them. The resulting Biosecurity Plan for the Sugarcane Industry has been developed as a partnership approach between industry and government and was endorsed by both industry through CANEGROWERS and government through the Plant Health Committee.

Within the BP, the development of Threat Summary Tables that comprise a list of over 100 exotic plant pests and the potential biosecurity threat that they represent to the Australian sugarcane industry, was key to the industry biosecurity planning process. Each pest on that list was given an overall risk rating based on four criteria; entry, establishment, spread potential, and economic impact. In this biosecurity plan, endemic pests of biosecurity significance for the sugarcane industry were also listed as there are several pests and weeds that are not present in all sugarcane growing regions and biosecurity activities can assist limit their further spread and establishment.

The Biosecurity Plan for the Sugarcane Industry also details current mitigation and surveillance activities being undertaken and identifies contingency plans, fact sheets and diagnostic protocols that have been developed for pests relevant to the sugarcane industry. This assessment enables identification of gaps and prioritises specific biosecurity actions, as listed in the Biosecurity Implementation Table. The development of this table aims to increase industry's biosecurity preparedness and response capability by outlining specific areas of action which could be undertaken through a government and industry partnership.

The Biosecurity Manual for Sugarcane Producers (BM), has been developed for sugarcane producers, farm managers or contractors to provide information that will assist improve biosecurity practices at the farm level. The BM will help sugarcane producers evaluate the biosecurity risks within their everyday farming and business activities, and provides advice and tools to support and improve biosecurity practices. Producer awareness of biosecurity best practice will help minimise the entry and spread of pests, increase the chance of early pest detection, and support a sustainable growing environment. The BM provides biosecurity best practice principles that link to the CANEGROWERS Smartcane Best Management Practice pest, weed and disease module and the future Industry Code of Practice. This project produced 3,500 copies of the BM

for distribution through SRA and CANEGROWERS, to ensure all growers will have access to a copy to assist with improved farm biosecurity practices.

This project addresses the SRA Key focus area 3 – Pest, weed and disease management to proactively support an enhanced biosecurity capability for the Australian sugarcane industry. It supports the outcome for an enhanced industry capacity to deal with incursions of exotic pests, diseases and weeds by:

- identifying gaps and priorities for specific biosecurity actions at an industry level through the development of the Biosecurity Plan for the Sugarcane Industry
- providing advice and tools for biosecurity actions at a farm level through the development of the Biosecurity Manual for Sugarcane Producers.

Section 2: Background

The Biosecurity Plan for the Sugarcane Industry

Preventing the entry, spread and establishment of unwanted pests and diseases is a key component of the future sustainability of the sugarcane industry. Australia's freedom from many of the exotic pests that affect sugarcane production overseas provides the industry with production advantages and reduced operating associated with pest control.

Biosecurity planning provides a mechanism for the Sugarcane industry, governments and other stakeholders to review current biosecurity and assess future biosecurity requirements and improvements. The review of the Biosecurity Plan for the Sugarcane Industry (BP) undertaken in this project identified, assessed and prioritised exotic pests. It also delivers an overarching framework for biosecurity preparedness through the development of a Biosecurity Implementation Table that identifies biosecurity preparedness activities which could be undertaken through a government and industry partnership.

Biosecurity Manual for Sugarcane Producers

The development of the Biosecurity Manual for Sugarcane Producers (BM), supports improved awareness and adoption of biosecurity practices for growers. Development of the BM incorporated and referenced changes to biosecurity legislation within Queensland and New South Wales that will influence biosecurity management practices in the Sugarcane industry through the transition to the General Biosecurity Obligation/Duty. This transition will require producers to undertake reasonable steps to ensure that biosecurity risks associated with spread of pests are prevented, eliminated or minimized, and tools and information provided in the BM will allow growers to better understand biosecurity risks and activities that can be implemented at a farm level to support their General Biosecurity Obligation/Duty. Changes to Queensland's biosecurity legislation will allow for movement control orders, biosecurity zones and biosecurity programs to strengthen biosecurity management efforts and the BM will assist inform growers about new systems being implemented.

The BM for sugarcane producers will provide the foundation for biosecurity best practice and is aligned with the CANEGROWERS Smartcane BMP pest, weed and disease module. It also provides necessary information for the biosecurity components of the future industry Code of Practice. The manual will also provide the opportunity to road test some of the wider principles intended for the Code of Practice to ensure they are acceptable to industry participants and regulators and that it can be practically implemented.

Both BP and BM complement the existing biosecurity objectives of the industry and are targeted to address key focus area 3: Pest, weed and disease management to proactively support an enhanced biosecurity capability for the Australian sugarcane industry is therefore a key focus area for SRA.

Section 3: Outputs and Achievement of Project Objectives

The original project objectives comprised:

- Review of the Biosecurity Plan to investigate new and emerging pests and diseases, identify biosecurity capacity and provide an implementation plan for projects/activities that effectively prepare the industry to deal with biosecurity threats and meet biosecurity obligations
- Development of a Biosecurity Manual to provide grower-targeted information to assist producers access knowledge to identify pest threats, implement farm biosecurity measures and meet regional biosecurity obligations.

The review and update of the existing Biosecurity Plan, and development of the Biosecurity Manual for sugarcane producers are the primary outputs from this project. These documents deliver the following components of the project:

- Identification of exotic pest threats to the industry, including an analysis of pest entry, establishment and spread potentials, coupled with their potential economic impacts
- Identification of risk mitigation activities currently (or proposed to be) undertaken at the national, state, industry and individual grower levels
- Tools and information to enable growers to identify and implement farm biosecurity risk mitigation activities to reduce risks locally, and regionally
- Identification of key areas of biosecurity activity and investment

The Biosecurity Plan for the Sugarcane Industry

To review the existing BP for the sugarcane industry and develop grower-targeted farm biosecurity information, PHA engaged with key representatives from the Sugarcane industry, private sector technical experts, research organisations and government departments. Wide engagement in the process resulted in endorsement of the BP using the following process:

1. Identification of an Industry Biosecurity Group (IBG) (Table 1) including representatives from the sugarcane industry, governments, and scientific experts.
2. Development of the Threat Summary Tables (TSTs) of exotic pest threats to the sugarcane industry.
3. Development of a list of established pests and weeds of biosecurity significance.
4. Meeting of the IBG to assess and review information in the IBP. This included refinement of the TST lists to identify a High Priority Pest list of exotic pests of biosecurity significance and development of a Biosecurity Implementation Table that outlined the specific Actions identified to improve biosecurity preparedness for the industry (Table 2).
5. Coordination of consultation on drafts of the IBP through the IBG. The document was distributed to additional stakeholders for feedback.
6. Endorsement of the IBP by the industry (through CANEGROWERS) and governments (through Plant Health Committee).

Consultation with the sugarcane industry, government departments and scientific experts was sought throughout the development process to ensure that all stakeholders have input into the document. While ownership of this document resides with the sugarcane industry and PHA, all efforts will be made to ensure stakeholders will be satisfied with the final outcomes.

Table 1 Members of the sugarcane Industry Biosecurity Group

Name	Organisation
Barry Croft	Sugar Research Australia
James Ogden-Brown	Sugar Research Australia
Peter Allsopp	Sugar Research Australia
Nicole Thompson	Sugar Research Australia
Rob Magarey	Sugar Research Australia
Nader Sallam	Sugar Research Australia
Peter Samson	Sugar Research Australia
Matt Kealley	CANEGROWERS
Jim Crane	Australian Sugar Milling Council
Christine Horlock	Department of Agriculture and Fisheries, Queensland
Gary Artlett	Department of Agriculture and Fisheries, Queensland
Anthony Young	Productivity Services, NSW Sugar Milling Cooperative
Rick Beattie	Productivity Services, NSW Sugar Milling Cooperative
Greg Shannon	Productivity Services, Tully Sugar Limited
Sam Malfroy	Plant Health Australia
Alison Saunders	Plant Health Australia

The Biosecurity Plan for the sugarcane industry was developed on National Biosecurity Guidelines developed by PHA and is 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 Biosecurity Plan for the sugarcane industry covers the following sections:

- Executive summary
 - Executive summary of the biosecurity plan
 - Implementation options for the biosecurity plan, including potential action items regarding biosecurity in the sugarcane industry.
- Introduction:
 - Introduction and overview of the biosecurity plan and industry-specific introductory information.
- Threat identification and pest risk assessment:

- Identification and analysis of exotic plant pest threats relevant to the industry compiled into Threat Summary Tables (TSTs).
- High Priority Pests (HPPs) identified which pose the greatest risk to the industry.
- A list of established pests and weeds of biosecurity significance.
- Risk mitigation
 - Pre-emptive strategies that can be adopted at the national, state/territory, regional and individual producer levels to reduce the risks posed by exotic plant pests
 - On-farm biosecurity activities recommended, including those currently being implemented within the industry, to reduce the biosecurity risk to individual growers and the industry as a whole. Note that while this section outlines on-farm activities, it is not intended to be a Farm Biosecurity Manual.
 - Sugarcane pest quarantine areas
- Response management
 - Reference to the Emergency Plant Pest Response Deed, including roles and responsibilities of the sugarcane industry and the exotic threats identified within it of relevance to the sugarcane 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 the industry

Table 2 The biosecurity implementation table for the Australian Sugarcane Industry (2016-2020), taken from the Biosecurity Plan for the Sugarcane Industry

Biosecurity theme	Action	Responsible party	Due date
Legislative and regulatory issues of importance	<ul style="list-style-type: none"> The Queensland Department of Agriculture and Fisheries to provide guidance and training to industry representatives and growers as they transition to the new arrangements associated with the <i>Biosecurity Act 2014 (the Act)</i> and the General Biosecurity Obligation (GBO), particularly with respect to management of machinery movements, planting material, varietal selection and biosecurity zones. 	DAF QLD	2016 – 2020
	<ul style="list-style-type: none"> Finalise the Industry Code of Practice for varietal selection and receive endorsement from industry and government through the appropriate channels. 	CANEGROWERS, SRA, ASMC, ACFA, ASA, Sunshine Sugar and DAF QLD	1 July 2016
	<ul style="list-style-type: none"> Once legislation is enacted under the Biosecurity Act (2014) industry and government will work together and promote the GBO and conduct training for industry representatives on regulations and update inspector status as according to the new legislation. 	DAF QLD, CANEGROWERS, SRA and ASMC	2016 – 2017
Nationally coordinated plant pest surveillance	<ul style="list-style-type: none"> Hold an industry workshop and develop a surveillance strategy for the sugar industry informed by government and industry activities. 	DAF QLD, NAQS, SNPHS, CANEGROWERS and SRA. Possible involvement of Ramu Agri-Industries.	2016
	<ul style="list-style-type: none"> Conduct preliminary trials of industry surveillance data capture with Productivity Services and SRA research plantings. 	DAF QLD, CANEGROWERS and SRA	2016/17
	<ul style="list-style-type: none"> Investigate the development of an online industry surveillance data capture system, such as an app, as well as incorporation of surveillance recording with Smartcane. 	CANEGROWERS and SRA	2017

Biosecurity theme	Action	Responsible party	Due date
Building capacity and capability	<ul style="list-style-type: none"> Build on the existing Biosecurity Act Working Group, with this group to help coordinate and prioritise industry's future biosecurity activities and to review implementation of the IBP annually. 	CANEGROWERS, ASMC, SRA, PHA and DAF QLD. Possible involvement of NAQS.	February 2016-2020
	<ul style="list-style-type: none"> Undertake a levy project to establish a PHA levy and a positive EPPR levy to invest in critical biosecurity projects and to prepare for an exotic pest incursion. 	CANEGROWERS and PHA	2016
Plant biosecurity education and awareness	<ul style="list-style-type: none"> Finalise the development of the sugarcane biosecurity manual and distribute to growers through awareness activities in growing regions. 	PHA, SRA, ASMC and CANEGROWERS	2016
	<ul style="list-style-type: none"> Undertake on-farm biosecurity training exercises in major growing regions, including farm-visits and promote what could be implemented at the farm level, including awareness about the GBO, Code of Practice, Smartcane and possible levy proposals. 	CANEGROWERS, SRA, ASMC and DAF QLD	2016-2017
	<ul style="list-style-type: none"> Review and develop detailed information sheets on the following pests and publish them on the SRA website: 	SRA	2016-2020
	<p>Pathogens</p> <ul style="list-style-type: none"> Ramu stunt (<i>Tenuivirus</i>), Downy mildew (<i>Peronosclerospora philippinensis</i>, <i>P. sacchari</i>) by 1/6/2016 Grassy shoot and Whiteleaf phytoplasma by 1/12/2016 Sugarcane streak mosaic virus (<i>Poacevirus</i>) by 1/6/2017 Leaf scorch (<i>Stagonospora sacchari</i>) by 1/12/2017 Leaf scald (<i>Xanthomonas albilineans</i>) by 1/6/2018 		
	<p>Invertebrates</p> <ul style="list-style-type: none"> <i>Chilo</i> spp. (including <i>C. auricilius</i>, <i>C. infuscatellus</i>, <i>C. sacchariphagus</i>, <i>C. terrenellus</i> and <i>C. tumidicostalis</i>) by 1/12/16 Top borer (<i>Scirpophaga excerptalis</i>), Pink stalk borer (<i>Sesamia grisescens</i>) and African sugarcane stalkborer (<i>Eldana saccharina</i>) by 1/6/2017 Sugarcane leafhopper (<i>Eumetopina flavipes</i>) and Sugarcane planthoppers (<i>Perkinsiella vastatrix</i> and <i>P. vitiensis</i>) by 1/12/2017 Sugarcane pyrilla (<i>Pyrilla perpusilla</i>) and Root borer (<i>Polyocha depressella</i>) by 1/6/2018 Sugarcane whitefly (<i>Aleurolobus barodensis</i>) and Sugarcane woolly aphid (<i>Ceratovacuna lanigera</i>) by 1/12/2018 		
	<ul style="list-style-type: none"> Work to incorporate biosecurity best practice guidelines and the GBO into existing industry best management practices guidelines (Smartcane) as well as investigate the development of online training modules to test knowledge. 	CANEGROWERS and SRA	2016-2018

Biosecurity theme	Action	Responsible party	Due date
Preparation for pest incursions	<ul style="list-style-type: none"> For CANEGROWERS and SRA to develop the following categorisation requests to submit to PHA: <ul style="list-style-type: none"> Downy mildew (<i>P. philippinensis</i>) and Grassy shoot phytoplasma by 1/12/2016 <i>Chilo</i> spp. (including <i>C. auricilius</i>, <i>C. infuscatellus</i>, <i>C. sacchariphagus</i>, <i>C. terrenellus</i> and <i>C. tumidicostalis</i>) by 30/6/2017 African sugarcane stalkborer (<i>E. saccharina</i>), Root borer (<i>P. depressella</i>) and Top borer (<i>S. excerptalis</i>) by 30/6/2018 Sugarcane leafhopper (<i>E. flavipes</i>), Sugarcane planthoppers (<i>P. vastatrix</i> and <i>P. vitiensis</i>) and Leaf scald (<i>X. albilineans</i>) by 30/6/2019 Sugarcane woolly aphid (<i>C. lanigera</i>) and Sugarcane pyrilla (<i>P. perpusilla</i>) by 30/6/2020 	CANEGROWERS, SRA and PHA	2016 – 2020
	<ul style="list-style-type: none"> Review, develop and finalise the following dossiers / contingency plans: <p>Pathogens</p> <ul style="list-style-type: none"> Ramu stunt (Tenuivirus), Downy mildew (<i>P. philippinensis</i>, <i>P. sacchari</i>) by 1/6/2016 Grassy shoot and Whiteleaf phytoplasma by 1/12/2016 Sugarcane streak mosaic virus (Poacevirus) by 1/6/2017 Leaf scorch (<i>S. sacchari</i>) by 1/12/2017 Leaf scald (<i>X. albilineans</i>) by 1/6/2018 <p>Invertebrates</p> <ul style="list-style-type: none"> <i>Chilo</i> spp. (including <i>C. auricilius</i>, <i>C. infuscatellus</i>, <i>C. sacchariphagus</i>, <i>C. terrenellus</i> and <i>C. tumidicostalis</i>) by 1/12/2016 Top borer (<i>S. excerptalis</i>), Pink stalk borer (<i>S. griseocens</i>) and African sugarcane stalkborer (<i>E. saccharina</i>) by 1/6/2017 Sugarcane leafhopper (<i>E. flavipes</i>) and Sugarcane planthoppers (<i>P. vastatrix</i> and <i>P. vitiensis</i>) by 1/12/2017 Sugarcane pyrilla (<i>P. perpusilla</i>) and Root borer (<i>P. depressella</i>) by 1/6/2018 Sugarcane whitefly (<i>A. barodensis</i>) and Sugarcane woolly aphid (<i>C. lanigera</i>) by 1/12/2018 	SRA	2016 – 2020
Management of established pests and weeds of biosecurity significance	<ul style="list-style-type: none"> Include weeds and established pests of significance in the Sugarcane biosecurity manual. 	CANEGROWERS, SRA, ASMC, PHA and DAF QLD	2015/16
	<ul style="list-style-type: none"> Prioritise efforts in relation to the containment and management of established pests and weeds. 	CANEGROWERS, SRA, ASMC and DAF QLD	2016
	<ul style="list-style-type: none"> Review the BMP (Smartcane) and include established pests and diseases and weeds. 	CANEGROWERS	2016
	<ul style="list-style-type: none"> Investigate the possibility of conducting Fiji leaf gall surveys to determine its distribution and feasibility of eradication. 	CANEGROWERS, SRA, ASMC and DAF QLD	2017
	<ul style="list-style-type: none"> Determine whether there is interest in conducting a cost-benefit analysis of the annual eradication of <i>Eumetopina flavipes</i> in northern Australia. 	CANEGROWERS, SRA, ASMC, DAF QLD and NAQS	2018

Biosecurity theme	Action	Responsible party	Due date
Integrated diagnostic network	<ul style="list-style-type: none"> Review, develop and submit final National Diagnostic Protocols to SPHD for endorsement: <p>Pathogens</p> <ul style="list-style-type: none"> Ramu stunt (Tenuivirus) and Downy mildew (<i>P. philippinensis</i> and <i>P. sacchari</i>) by 1/6/2016 Grassy shoot and Whiteleaf phytoplasma by 1/12/2016 Sugarcane streak mosaic virus (Poacevirus) by 1/6/2017 Leaf scorch (<i>S. sacchari</i>) by 1/12/2017 Leaf scald (<i>X. albilineans</i>) by 1/6/2018 <p>Invertebrates</p> <ul style="list-style-type: none"> <i>Chilo</i> spp. (including <i>C. auricilius</i>, <i>C. infuscatellus</i>, <i>C. sacchariphagus</i>, <i>C. terrenellus</i> and <i>C. tumidicostalis</i>) by 1/12/2016 Top borer (<i>S. excerptalis</i>), Pink stalk borer (<i>S. griseascens</i>) and African sugarcane stalkborer (<i>E. saccharina</i>) by 1/6/2017 Sugarcane leafhopper (<i>E. flavipes</i>) and Sugarcane planthoppers (<i>P. vastatrix</i> and <i>P. vitiensis</i>) by 1/12/2017 Sugarcane pyrilla (<i>P. perpusilla</i>) and Root borer (<i>P. depressella</i>) by 1/6/2018 Sugarcane whitefly (<i>A. barodensis</i>) and Sugarcane woolly aphid (<i>C. lanigera</i>) by 1/12/2018 	SRA and SPHD	2016 - 2020
Responding to pest incursions	<ul style="list-style-type: none"> Conduct half-day EPPRD training. Identify Industry Liaison Officers and Industry Liaison Coordinators in major growing areas, such as cane grower district managers <ul style="list-style-type: none"> PHA to conduct a 1-day training workshop for these roles. Review the Evidence Framework for Owner Reimbursement Costs for the Sugarcane Industry (2007) Run an industry wide simulation exercise with PHA to demonstrate the preparedness of an industry and government(s) to an emergency response. 	<p>CANEGROWERS, SRA, AMSC, ACFA, Sunshine Sugar and PHA</p> <p>CANEGROWERS, SRA, AMSC, ACFA, Sunshine Sugar and PHA</p> <p>PHA and CANEGROWERS</p> <p>CANEGROWERS, SRA, AMSC, ACFA, Sunshine Sugar, PHA, DAF QLD and NSW DPI</p>	<p>1/12/2016</p> <p>1/6/2017</p> <p>2017</p> <p>2017 - 2018</p>
RD&E	<ul style="list-style-type: none"> To be most effective, development of biosecurity R&D priorities that are listed and agreed to in this table should have a mechanism to feed into the SRA investment planning process, allowing prioritisation within the overall R&D portfolio. 	SRA	2016 - 2020

Biosecurity Manual for Sugarcane Producers

The grower-targeted farm biosecurity information extends relevant information from the Biosecurity Plan for the sugarcane industry. It aims to capitalize on current practices that manage endemic pests and diseases. Allowing growers to have ready access to key biosecurity messages, hygiene practices, reporting processes, and contacts throughout industry and governments. The manual contains the following sections:

- Introduction
 - Defining the importance of biosecurity
 - Grower obligations for biosecurity
- Biosecurity Overview
 - Defining biosecurity
 - Defining who is responsible for national, regional, and farm biosecurity
 - New biosecurity legislation in Queensland and NSW.
- Easy ways to protect your farm
- Farm biosecurity practices
 - Farm Biosecurity essentials
 - Farm inputs
 - Variety control
 - Fertiliser and other inputs
 - People vehicles and equipment
 - People movement
 - Signage and visitor record keeping
 - Vehicle and equipment wash down
 - Queensland Sugar Cane Biosecurity Zones
 - Production practices
 - Crop monitoring and record keeping
 - Reporting unusual pests
 - Chemicals
 - Smartcane BMP
 - Farm outputs
 - Hygiene and post-harvest risks
 - Feral animals and weeds
 - Train, plan, and record
- Pest-specific fact sheets
 - Exotic pests
 - Established pests
 - Regionalised weeds
- Other information
 - Biosecurity checklists
 - Visitor and surveillance templates

The production of grower-targeted farm biosecurity information (in printed and on-line formats) for distribution to producers, and other relevant supply chain stakeholders (including contractors and industry service providers) will raise the awareness of the industry's endemic and exotic pests, and provide a practical understanding of biosecurity best practice.

Section 4: Outputs and Outcomes

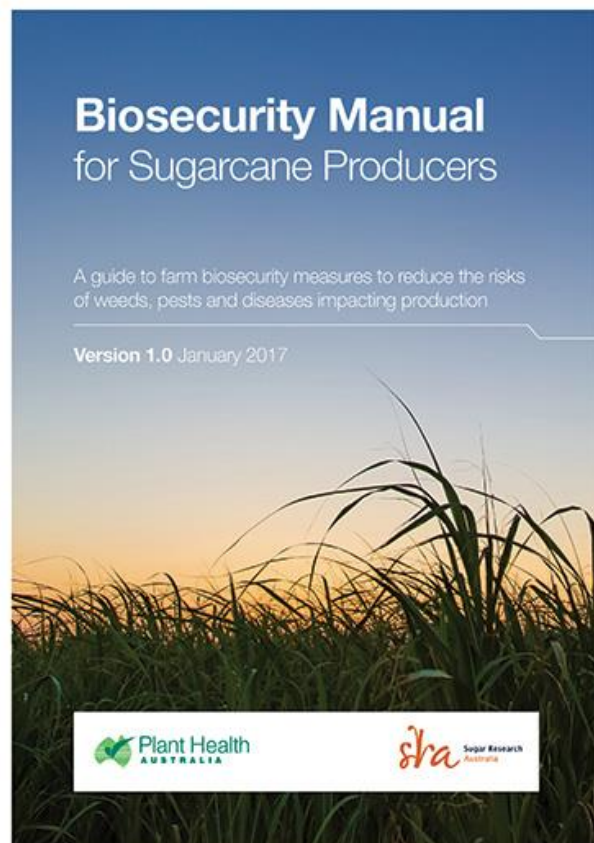
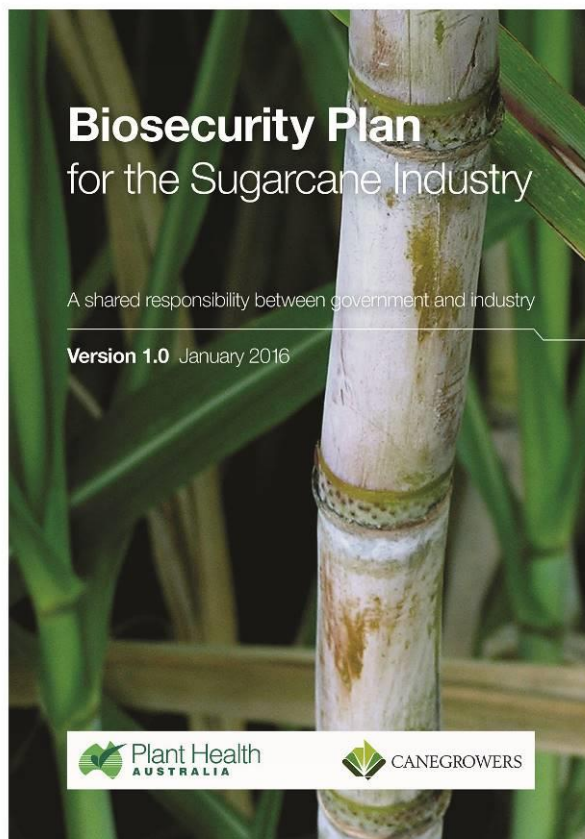
Outputs

Planning activities to safeguard sugarcane production against exotic pest threats will ensure the long-term sustainability of the industry and benefit the wider community.

Outputs from this project included:

- The Biosecurity Plan for the Sugarcane Industry
- The Biosecurity Manual for Sugarcane Producers

To achieve these Outputs, engagement was undertaken with industry and government stakeholders through establishment of an Industry Biosecurity Group. Engagement occurred using meetings (face to face and teleconference). Documents were circulated by email to provide feedback and input.



Outcomes

The development of the Biosecurity Plan for the Sugarcane Industry will be used by decision makers in industry and government to improve biosecurity preparedness activities at an industry level. It will achieve this through:

- Documenting the current status of biosecurity capacity and activities being undertaken at a national level.

- Development of the High Priority Pest list to ensure activities are targeted at the pests identified as highest biosecurity concern for the industry.
- Development of the Biosecurity Implementation Table (provided in Section 8 of this report) which outlines the activities identified as gaps to be addressed to increase and improve biosecurity preparedness in the sugarcane industry.

Three thousand five hundred copies of the Biosecurity Manual for Sugarcane Producers will be distributed through SRA to growers and contractors and millers in the sugarcane industry to:

- Provide the foundations for biosecurity best practice aligned with the CANEGROWERS Smartcane BMP pest, weed and disease module
- Provide information and tools to assist growers improve farm biosecurity practices to identify new pests and diseases and limit their establishment and spread.
- Provide information and tools to assist growers meet General Biosecurity Obligation/Duty to comply with Queensland and New South Wales legislation.

Economic benefits

The establishment of exotic pests would increase the costs of sugarcane production if they cannot be controlled through current practices. Measures taken to identify and prevent exotic pest threats can reduce these potential costs to industry. Extension materials that help growers proactively manage biosecurity threats will ultimately increase production and/or reduce costs of inputs to control pests.

Social benefits

Exotic pest incursions and eradication campaigns can create tension among growers, industry groups, governments and communities. Increasing the preparedness of the industry to respond to exotic pest incursions increases the resilience of individual farming practices and rural communities.

Section 5: Intellectual Property (IP) and Confidentiality

This project has produced IP in the form of biosecurity knowledge and the Biosecurity Plan and Biosecurity Manual. The Biosecurity Plan will not be placed in the public domain but will be made available to CANEGROWERS and SRA. The Biosecurity Manual will be released as a print run of 3,500 copies to the sugarcane industry.

Section 6: Industry Communication and Adoption of Outputs

Key messages from this project are:

- Improved biosecurity preparedness at an industry level through the development of the Biosecurity Plan for the Sugarcane industry.
- Development of the Biosecurity Manual for Sugarcane Producers. This document provides information and tools to assist growers understand and apply farm biosecurity practices to limit the chance that new pests will enter and spread on their properties. Prevention is better than cure and becoming familiar with and embedding good biosecurity practice into farm activities provides the best chance of stopping the need for long-term, costly management of a new pest or disease.

Initial discussion has been held with SRA regarding a media release to promote the development and availability of the Biosecurity Manual.

New information within the Biosecurity Manual includes the links to the new biosecurity legislation in Queensland and New South Wales and the Smartcane BMP modules and apps.

A media release on the development and availability of the Biosecurity Manual for Sugarcane Producers. No media releases from this project have been released

The Biosecurity Plan for the sugarcane industry is an output targeted at and government decision makers and ideally should be considered annually in the context of continuous improvement, implementation and monitoring of the plan. Key industry participants have been largely involved in the development of the BP so will be ideally placed to encourage adoption of the plan.

The Biosecurity Manual has been issued as a print run of 3,500 copies and is intended for a grower audience with a more direct communication strategy involving SRA staff and productivity services. The manual will become a useful tool in initiating improved on-farm biosecurity and planning activities and will also assist growers in meeting their General Biosecurity Obligation/Duty. A communication and distribution plan for the Biosecurity Manual, as well as follow up activities to promote the Manual and its information to growers, has been identified as a recommendation of this project.

Section 7: Environmental Impact

New pests that affect the sugarcane industry have the potential to impact on the environment in two main ways:

- Pests may directly attack alternate/environmental host species
- Additional chemical controls, higher rates of application and/or altered management practices for new pests may indirectly impact on the environment

Providing guidance to growers on ways to reduce the establishment of new pests and diseases will have both immediate and long term benefits to both the production of sugarcane and the surrounding environment.

Section 8: Recommendations and Future Industry Needs

The review of the Biosecurity Plan for the sugarcane industry provides a blueprint of the biosecurity requirements within the industry. The review and identification of existing biosecurity resources and capability provides an opportunity for the industry and governments to focus on gaps in biosecurity preparedness and coordinate future biosecurity investment. Recommendations from this project that Sugar Research Australia may wish to consider include the actions identified in the Biosecurity Implementation Table developed and endorsed as part of the BP (see Table 2). Actions of importance to SRA have been summarised below:

- Finalise the Industry Code of Practice for varietal selection and receive endorsement from industry and government through the appropriate channels.
- Promotion of General Biosecurity Obligation/Duty to industry to raise awareness of the new legislation in Queensland and New South Wales.
- Investigate the current state of industry and state government surveillance of sugarcane high priority pests in order to develop a surveillance strategy. It is suggested that consultation in the form of a Workshop(s) may be required to identify current activities and gaps.
- Conduct preliminary trials of industry surveillance data capture with Productivity Services and SRA research plantings.
- Investigate the development of an online industry surveillance data capture system, such as an app, as well as incorporation of surveillance recording with Smartcane.
- Establish a biosecurity reference panel that builds on the Industry Biosecurity Group and the Biosecurity Act Working Group to help coordinate, prioritise and monitor implementation of the Biosecurity Plan annually.
- Develop a distribution plan and communications strategy to ensure the Biosecurity Manual is distributed widely. Although industry events may serve as the basis for material distribution, any awareness programs and distribution of information outside of these events will need to be defined.
- Undertake on-farm biosecurity training exercises in major growing regions, including farm-visits and promote what could be implemented at the farm level, including awareness about the GBO, Code of Practice, Smartcane and possible levy proposals.
- Review and develop detailed information sheets on key high priority pests and publish them on the SRA website.
- CANEGROWERS and SRA develop categorisation requests for key high priority pests to initiate the process of categorization through the Emergency Plant Pest Response Deed.
- Review, develop and finalise dossiers / contingency plans for key high priority pests.

- Prioritise efforts in relation to the containment and management of established pests and weeds.
- Investigate the possibility of conducting Fiji leaf gall surveys to determine its distribution and feasibility of eradication
- Determine whether there is interest in conducting a cost-benefit analysis of the annual eradication of *Eumetopina flavipes* in northern Australia
- Review, develop and submit final National Diagnostic Protocols for high priority plant pests to the Sub-Committee for Plant Health Diagnostics.
- Conduct Emergency Plant Pest Response Deed training for key stakeholders/decision makers in the sugarcane industry.
- Identify Industry Liaison Officers and Coordinators in major growing areas, such as cane grower district managers and conduct a training workshop(s) on their roles and responsibilities.
- Run an industry wide simulation exercise to demonstrate the preparedness of an industry and government(s) to an emergency response.
- To be most effective, development of biosecurity R&D priorities that are listed and agreed to in the Biosecurity Implementation Table of the Biosecurity Plan should have a mechanism to feed into the SRA investment planning process, allowing prioritisation within the overall R&D portfolio.
- Prepare submissions to the APVMA for emergency chemical use permits for high priority pests

Section 9: Publications

Copies of the Biosecurity Plan for the sugarcane industry and the Biosecurity Manual for sugarcane producers have been provided to Sugar Research Australia. The Biosecurity Manual will be publicly available on the PHA website, while the Biosecurity Plan is available on request to PHA.