Queensland Audit Office
better public services

Biosecurity Queensland's management of agricultural pests and diseases

Report 12: 2016–17

Queensland Audit Office

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Queensland Audit Office
better public services

30 March 2017

The Honourable P Wellington MP
Speaker of the Legislative Assembly
Parliament House
BRISBANE QLD 4000

Dear Mr Speaker

Report to Parliament

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled *Biosecurity Queensland's management of agricultural pests and diseases* (Report 12: 2016–17).

In accordance with s.67 of the Act, would you please arrange for the report to be tabled in the Legislative Assembly.

Yours sincerely

Anthony Close
Auditor-General (acting)

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Summary

Introduction

Queensland’s agricultural industries are significant contributors to the state’s economy. For 2016–17, the Department of Agriculture and Fisheries forecast the total value of Queensland’s agricultural commodities to be $18.55 billion.

Australia has a significant trade advantage in being free of many of the world's major pests and diseases. This is important in maintaining access to valuable domestic and export markets. Agricultural exports from Queensland to overseas markets totalled $7.9 billion in 2015–16. This was 16.5 per cent of Queensland’s export earnings.

Keeping pests and diseases from entering, establishing, or spreading in the Australian landscape is critical to the viability of Australia's agricultural sector. Biosecurity threats can impact on the economy, the environment and the community. To manage these risks, all levels of government invest in biosecurity activities, including preventing, detecting, eradicating, containing and managing a variety of pests and diseases on an ongoing basis.

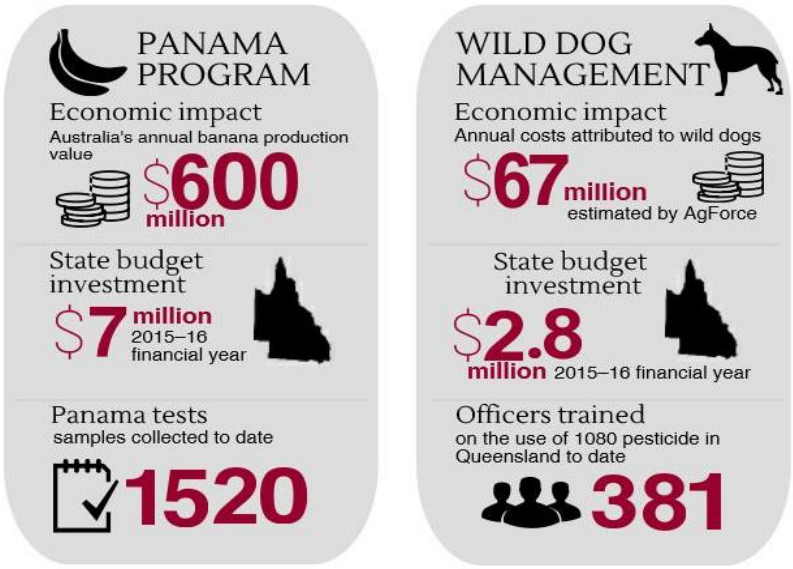
Audit objective and scope

In this audit, we examined whether the Department of Agriculture and Fisheries, through Biosecurity Queensland, has been achieving its agricultural pest and disease management outcomes. Rather than considering whether Biosecurity Queensland has invested in the 'right' activities and initiatives, we focused on how well it measures and reports on the efficiency and effectiveness of its detection, response, and management initiatives and activities. We audited the following activities:

- Panama program—This is Biosecurity Queensland's response to the 2015 outbreak of Panama Tropical Race 4 (TR4) disease in bananas in North Queensland. The program's overall aims are to contain the disease to the one infested property identified and ensure industry resilience and sustainability in the longer term.
- Wild dog management—Queensland has a management strategy which aims to minimise the impact of wild dogs in Queensland. Many stakeholders share responsibility for managing them. Biosecurity Queensland's responsibilities under the current 2011–2016 strategy include
    - planning and developing policies and advisory publications
    - facilitating research and assessing and collecting wild dog impact data
    - facilitating stakeholder engagement
    - providing training and coordinating baiting programs
    - undertaking wild dog population and damage assessment.
- Surveillance—Biosecurity Queensland's state-funded surveillance activities are carried out by its three core program teams. The purposes of surveillance activities are to
    - detect pests and diseases early
    - demonstrate proof of freedom from pests and diseases so Queensland can access international markets
    - manage established pests and diseases.

Key statistics on both the Panama program and the management of wild dogs are shown in Figure A.

Figure A
Key Panama program and wild dog management statistics



Note: AgForce Queensland is a lobbying group representing Queensland's rural producers. 1080 pesticide refers to sodium fluoroacetate, a poison used in meat baits.

Source: Queensland Audit Office

Biosecurity risks and responsibilities

Queensland is inherently vulnerable to biosecurity risks due to its largely tropical climate, diverse agricultural industries, geography, and proximity to neighbours in the Asia Pacific region. The scale of Queensland's mainland and island coastlines (6 973 kilometres and 6 374 kilometres respectively) makes it difficult to protect the state from potential biosecurity incursions.

Because of the nature and complexity of biosecurity risks, governments need to share responsibility for delivering biosecurity activities between many stakeholders. These include:

- state, federal, and local governments
- private landholders
- industry groups
- the community.

The former Department of Primary Industries and Fisheries established Biosecurity Queensland on 1 March 2007 to take the lead on Queensland's biosecurity activities. In 2015–16, Biosecurity Queensland had 521 full-time equivalent staff delivering biosecurity activities across the state, with a total budget of $103 million. It is responsible for:

- leading Queensland's biosecurity preparedness and responses
- building Queensland's biosecurity capability to protect the economy, the environment, and community from biosecurity risks.

In recent years, Biosecurity Queensland has responded to several significant challenges, including red imported fire ants, Hendra virus, and Panama TR4 disease. Most recently, Biosecurity Queensland has been leading the response to white spot disease affecting prawns in South East Queensland.

The *Biosecurity Act 2014* introduced a general obligation on all persons to prevent or minimise the impact of biosecurity risks on human health, social amenity, the economy, and the environment. This means that every Queenslander is now responsible for protecting Queensland from biosecurity risks.

Biosecurity strategy and actions

In response to an independent Queensland Biosecurity Capability Review report released in September 2015, Biosecurity Queensland has been collaborating with industries, community groups, and national organisations on a new biosecurity strategy and action plans. The strategy will explore where the Queensland Government should take the lead in biosecurity activities and where industry and the community are best placed to lead. This strategy is expected to be released in 2017.

Audit conclusions

Biosecurity Queensland is delivering on the activities and outputs it has committed to in most cases, but it cannot always demonstrate it has successfully achieved the ultimate aims or outcomes of its programs.

Where Biosecurity Queensland shares responsibility for managing pests and diseases with other government and non-government entities, the effectiveness of its contributions is not always clear or easy to measure.

This means Biosecurity Queensland cannot always demonstrate the value it has delivered. Wild dog management activities and surveillance activities are examples of this. Although Biosecurity Queensland has met most of its commitments in the strategy, it is unclear what benefits have resulted from the state's investment in wild dog management. Limited data has been collected by Biosecurity Queensland and no evaluation of the strategy has been completed to date by the Queensland Dog Offensive Group (a subcommittee of the Biosecurity Queensland Ministerial Advisory Council).

This is not the case for the Panama program as it is still in the containment stage. Biosecurity Queensland is still leading the response and has not yet passed responsibility to industry to manage the ongoing effects of the disease. Test results for the Panama program indicate Biosecurity Queensland's containment measures have so far succeeded. The disease cannot be eradicated, so Biosecurity Queensland has worked to extend the time it and the banana industry has, through outbreak containment, to develop strategies to manage the disease in the long-term.

Although Biosecurity Queensland has implemented some new systems and technology to improve efficiency, limited data prevents it from knowing whether its activities are as efficient as possible. Recognising this weakness, Biosecurity Queensland is investing in systems to provide the information it needs to monitor efficiency.

It is encouraging to see that Biosecurity Queensland has identified this gap and is investing in better decision support information. This should continue and become widespread across all of its core programs. It will be helpful in better informing senior management whether its biosecurity activities are efficiently delivered and effective in achieving planned outcomes.

Biosecurity management continues to increase in complexity due to several factors. Risks to our economy, environment, and way of life are growing through increasing global trade, e-commerce, and the movement of people interstate and internationally. This increases the potential for new and potentially unknown pests and diseases to arrive in Queensland. Queensland's biosecurity system must be ready to respond. To maintain community confidence, it must also regularly report on its effectiveness in managing these risks.

Audit findings

Managing pests and diseases effectively

Setting objectives and measures of success

For the Panama program and wild dog management, Biosecurity Queensland has documented strategies, objectives, and some performance indicators. However, in the main, the performance indicators are not specific, measurable, achievable, relevant, and timed (SMART). This means that Biosecurity Queensland is not in a position to monitor and report on how effective these activities are.

Biosecurity Queensland has not yet developed a specific strategy or operational plan for state-funded surveillance activities, so it is not able to develop meaningful measures or assess effectiveness of delivery.

Containing Panama

Recognising that it is not possible to eradicate the disease, Biosecurity Queensland has succeeded so far in containing the outbreak to one property. This has given it and the banana industry more time to develop strategies to manage the disease—to ensure there is a sustainable industry in the future.

Managing wild dogs

Biosecurity Queensland has met most of its commitments under the Queensland Wild Dog Management Strategy except for those relating to data collection and performance monitoring. Without this information, Biosecurity Queensland cannot be sure that its efforts towards managing wild dogs, along with the efforts of other stakeholders, are effective and a good use of its resources.

Collecting data and reporting on progress

For the Panama program, Biosecurity Queensland captures a variety of data and information about its progress towards achieving most of its objectives, but there are information gaps for some objectives. Biosecurity Queensland is currently working on these.

In relation to its wild dog management activities and surveillance activities, Biosecurity Queensland has not driven, or coordinated the collection and analysis of, consistent, reliable data to measure performance, undertake evaluation, and inform decision-making. As a result, relevant, comprehensive, and reliable data is not readily available.

Biosecurity Queensland's internal reporting arrangements are not helpful in informing senior management about whether its biosecurity activities are effective. They mainly focus on outputs or actions performed, rather than on progress towards achieving outcomes.

Evaluating programs and initiatives

Biosecurity Queensland has not focused on evaluating the success of its activities, including the key information it (and others) need in order to undertake an evidence-based assessment of its performance.

Acknowledging the gap, it is now developing its part of the Impact and Investment Framework being introduced by the Department of Agriculture and Fisheries. This will ultimately help it to evaluate its key activities and demonstrate their impacts.

Measuring and improving efficiency

Monitoring efficiency

Biosecurity Queensland is not yet able to monitor or report on the efficiency of its biosecurity activities. It does not currently capture reliable and consistent data on the costs of inputs and outputs. However, it has recently committed to implementing an electronic time recording system for officers to record the time they spend on various activities. This will help to overcome this information gap.

It has also started to develop performance indicators and targets to measure efficiency as part of the new Impact and Investment Framework.

In addition, some of Biosecurity Queensland's teams have developed or are using systems aimed at improving the efficiency of their activities. These provide useful examples that Biosecurity Queensland could consider implementing more widely across its business. They include:

- the Panama program's flexible resourcing approach—this involves engaging resources only when needed
- the Panama surveillance data collection methodology—this captures surveillance inputs and outputs, enabling monitoring of the efficiency of surveillance activities
- Biosecurity Sciences Laboratory's analysis of throughput data—it monitors the numbers of samples submitted for testing and trends over time.

Improving efficiency

Biosecurity Queensland has a focus on improving the efficiency of its biosecurity activities and initiatives through innovation and new technology. However, there is still scope to achieve further efficiencies.

Its Biosecurity Information Management System (BIMS) program has already delivered some efficiency improvements, including:

- a new tablet-based 'Journey app' to record Panama surveillance data in the field
- the phased rollout of a new system—the Biosecurity Online Resource and Information System.

During planning for the BIMS program, Biosecurity Queensland identified a range of potential benefits and efficiencies. It has since changed the scope of the BIMS program several times. As a result, some identified efficiencies will not be fully realised. Examples of potential future efficiency gains that are available but not currently resourced include having:

- one single integrated information management system for Biosecurity Queensland with consistent business processes and systems across all business areas
- online collection and distribution of biosecurity information, with a customer portal and end-to-end digital processes
- full biosecurity intelligence capability (although the current program will deliver some data analysis and reporting capability).

Impact and investment framework

The Department of Agriculture and Fisheries is developing a new Impact and Investment Framework for use across the department, including within Biosecurity Queensland. Once this work is complete, Biosecurity Queensland will have a program logic and impact map for each of its business units.

It will also have performance measurement plans (including effectiveness and efficiency measures), monitoring and evaluation plans, consistent business and operational plans, and an activity investment framework with investment principles and criteria for each business unit. As this work is not yet complete, this audit did not consider it in detail; however, we anticipate that successful delivery will go some way towards addressing our findings.

Recommendations

We recommend the Department of Agriculture and Fisheries:

1. continue to develop an appropriate number of specific, measurable, achievable, relevant, and timed key performance indicators for each of Biosecurity Queensland's key activities or initiatives (Chapter 2).

   In doing so, it should

   - plan how Biosecurity Queensland will collect and analyse data to monitor these key performance indicators
   - collaborate with industry and other stakeholders where appropriate on the collection of data to support performance monitoring
   - evaluate the success of key activities or initiatives in delivering the desired outcomes
2. improve quarterly reporting processes by not only reporting on inputs and activities for key biosecurity initiatives, but also on risks and progress towards achieving objectives and outcomes to support strategic management decisions (Chapter 2)
3. ensure that when Biosecurity Queensland participates in pest and disease management strategies which share responsibilities with other entities, it clearly determines
   - its roles and responsibilities compared to the other entities involved
   - the key performance indicators that will be used to assess its contribution to the strategy
   - which entity is best placed to monitor performance of the strategy and evaluate it at appropriate intervals (Chapter 2)
4. monitors and reports on the input costs over time for each of Biosecurity Queensland's key outputs, activities, or initiatives to identify further efficiency improvements (Chapter 3)
5. considers options to implement the efficiency improvements that were identified during the planning of the Biosecurity Information Management System program and are now not within scope (Chapter 3).

Reference to comments

In accordance with section 64 of the *Auditor-General Act 2009*, we provided a copy of this report to the Director-General of the Department of Agriculture and Fisheries.

The Director-General's response is in Appendix A.

Report structure

Chapter	
Chapter 1	provides the background to the audit and the context needed to understand the audit findings and conclusions.
Chapter 2	examines the effectiveness of Biosecurity Queensland's detection, response, and management initiatives and activities in achieving their objectives.
Chapter 3	assesses how well Biosecurity Queensland measures, reports on, and improves the efficiency of its detection, response, and management initiatives and activities.

Report cost

The audit cost $335 000.

1. Context

Background

Biosecurity is about managing risks to the economy, the environment, and the community from pests and diseases entering, establishing, or spreading in the Australian landscape.

Managing biosecurity is critical to maintaining the productivity of Australia's agricultural sector. Freedom from many of the world's major pests and diseases provides agricultural industries with a significant trade advantage and plays an important role in maintaining their access to valuable domestic and export markets. It supports business as usual operating conditions for farmers.

While Australia's geographical isolation has played a key role in maintaining this advantage, our isolation as an island nation is rapidly changing as the barriers of time and distance become less relevant and international travel and trade increase.

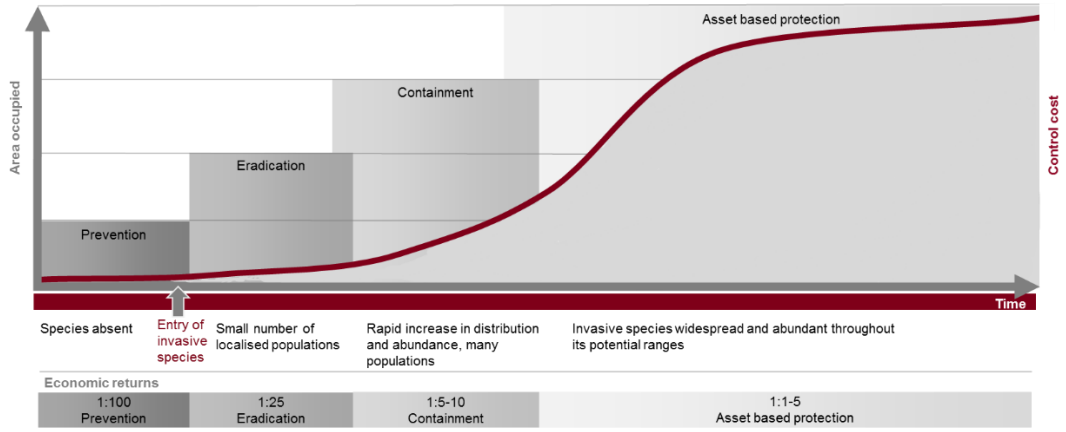
Biosecurity response along the generalised invasion curve

The generalised invasion curve refers to the various types of activities and initiatives that those entities who are responsible for biosecurity may implement in response to a specific biosecurity threat. These activities and initiatives include prevention, detection, eradication, containment, and ongoing management (also referred to as 'asset based protection').

Governments invest in all types of activities and initiatives along the curve to varying degrees. Analyses of biosecurity programs generally show that preventive actions are the most cost-effective and that the benefit–cost ratio decreases as an invasion progresses.

The former Cooperative Research Centre for Australian Weed Management prepared an economic model to help determine the optimum level of investment in weed management in the grains industry. This model (Figure 1A) is now widely used to illustrate the economic return ratio for the different stages of pest and disease control activities.

Figure 1A
Generalised invasion curve showing actions appropriate to each stage



Source: Cooperative Research Centre for Australian Weed Management

Roles and responsibilities

The Department of Agriculture and Water Resources

With more than 60 000 kilometres of coastline offering a variety of entry pathways for exotic pests and diseases, the federal Department of Agriculture and Water Resources screens, inspects, and clears the millions of people, mail parcels, baggage, ships, animals, plants, and cargo containers entering Australia every year. It uses x-ray machines, surveillance, and detector dogs.

The Department of Agriculture and Water Resources is also responsible for eradicating pests and diseases:

- on Commonwealth land
- in Commonwealth waters
- when they are subject to Commonwealth regulatory action.

The Department of Agriculture and Fisheries

The Queensland Department of Agriculture and Fisheries' role is to promote a sustainable and innovative agriculture, fisheries, and forestry sector that adds value to the economy and community. The Department of Agriculture and Fisheries, through Biosecurity Queensland, is responsible for:

- leading Queensland's biosecurity preparedness and responses
- building Queensland's biosecurity capability to protect the economy, the environment, and community from biosecurity risks.

In developing its new biosecurity strategy (due to be released in 2017), the Queensland Government will consider return on investment from the various control activities that are undertaken. In doing this, it will consider where it should take the lead in biosecurity activities and where industry and the community are best placed to lead.

Other responsible parties

Several other entities are also involved in Queensland's biosecurity system. They include the Queensland departments of Environment and Heritage Protection and of National Parks, Sport and Racing; local government; peak bodies representing primary industries, the environment, and communities; Natural Resource Management groups; Landcare groups; primary producers and landholders; supply chain participants; service providers; the research community; and members of the broader Queensland community. (Natural Resource Management groups are regional organisations focusing on the planning and delivery of programs that support healthy and productive country, viable communities, and sustainable industries. Landcare is a community-based volunteer movement that focuses on initiatives to tackle degradation of farmland, public land, and waterways.)

These other parties are outside the scope of this audit.

Although biosecurity management is a shared responsibility and strategies appropriately reflect this, such an approach is not without challenges and risks. These include unclear authority, responsibility, and accountability for progressing biosecurity responses, and for monitoring and reporting progress.

National biosecurity system

Queensland operates within a national biosecurity system that aims to:

- reduce the likelihood of exotic pests and diseases entering, becoming established, or spreading in Australia
- prepare and allow for effective responses to, and management of, exotic and emerging pests and diseases that enter, establish, or spread in Australia
- ensure that, where appropriate, significant pests and diseases already in Australia are contained, suppressed, or otherwise managed.

Intergovernmental agreements

In January 2012, the Commonwealth and all state and territory governments (except Tasmania) entered into the Intergovernmental Agreement on Biosecurity to address Australia's broad range of biosecurity issues.

There are three national cost-sharing agreements under the Intergovernmental Agreement on Biosecurity:

- the National Environmental Biosecurity Response Agreement
- the Emergency Animal Disease Response Agreement
- the Emergency Plant Pest Response Deed.

Together, these three agreements allow for sharing the costs of responding to biosecurity outbreaks, in prescribed circumstances, between the various parties to the agreements. For example, under the National Environmental Biosecurity Response Agreement, the Australian Government (50 per cent) and the participating states and territories (50 per cent) may share the cost of a response only if:

- the pest or disease is of national significance, and
- it is likely to be eradicable.

The states and territories share the costs based on the number of people in potentially affected areas within jurisdictions. Each of the three agreements has a national management group that considers whether a particular incursion meets the requirements for cost sharing. If the national management group does not approve a cost-shared response, the state or territory government where the incursion occurs bears the cost of the response.

The Department of Agriculture and Fisheries is involved in many national cost-shared programs and in ongoing national surveillance, quarantine, and compliance programs.

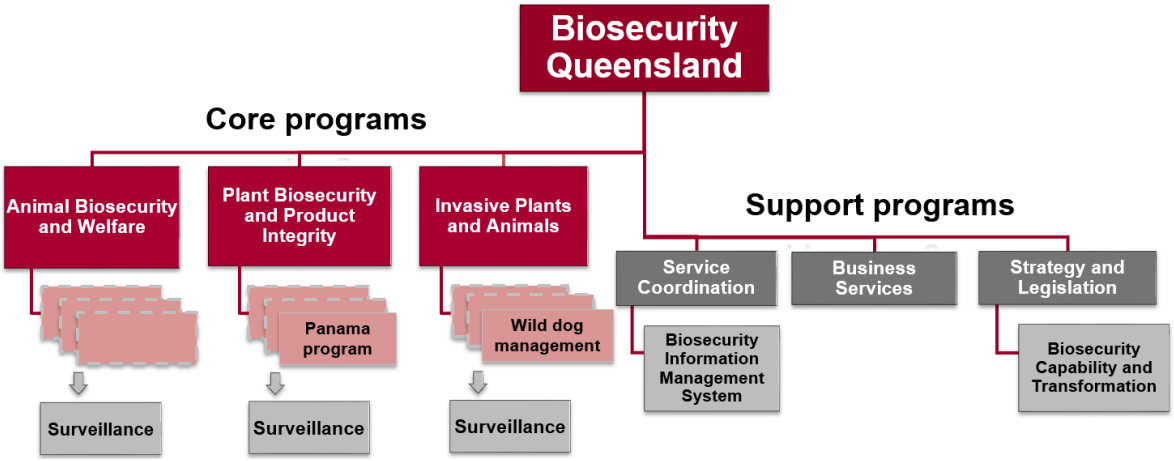
In May 2016, the Queensland Government entered into a project agreement for managing established pest animals and weeds with the Australian Government and all other state and territory governments. The agreement supports the delivery of projects to build the skills and capacity of landholders, the community, and industry in managing common established pest animals (such as wild dogs and foxes) and weeds. This initiative is included in the Australian Government's Agricultural Competitiveness White Paper.

Biosecurity Queensland

Functions and structure

Biosecurity Queensland has three service delivery programs and five support programs, as shown in Figure 1B.

Figure 1B
Biosecurity Queensland's core programs as at December 2016



Note: We have specifically identified the Panama program, wild dog management activities and surveillance activities as we audited them for this report; however, there are many activities operating under these core programs.

Source: Queensland Audit Office

We have outlined the key functions of each of the core programs in Figure 1C.

Figure 1C
Key functions of core programs

Animal Biosecurity and Welfare	Plant Biosecurity and Product Integrity	Invasive Plants and Animals
Policy and operational support	Risk assessment and scientific advice	Policy and stakeholder engagement
Operational management	Program management	Operational management
Biosecurity preparedness program	Incident response and preparedness	Prevention and preparedness
Biosecurity Sciences Laboratory	Laboratory and diagnostic services	Invasive plants and animals science
Tick Fever Centre	Market access	Wild dog barrier fence
Veterinary services	Surveillance, control, and containment	National eradication and response programs
Operations	Agricultural and veterinary (agvet) chemicals and contaminants	Operations
	Operations	

Source: Queensland Audit Office

In 2015–16, Biosecurity Queensland's total revised budget for biosecurity was $103 million, which included:

- Animal Biosecurity and Welfare—$21 million
- Plant Biosecurity and Product Integrity—$19 million
- Invasive Plants and Animals—$22 million
- Biosecurity directorate, including the support programs—$12 million
- National cost-share programs—$29 million.

National cost-share funding of $29 million was split across the core programs as follows:

- Animal Biosecurity and Welfare—$0.5 million
- Plant Biosecurity and Product Integrity—$3 million
- Invasive Plants and Animals—$25.5 million.

Biosecurity legislation

The *Biosecurity Act 2014* (the Act) commenced on 1 July 2016. It replaced several separate pieces of legislation that Biosecurity Queensland previously used to manage biosecurity. The Act introduces a consistent, modern, risk-based, and less prescriptive approach to biosecurity in Queensland.

The main purposes of the Act are to:

- provide a framework for an effective biosecurity system for Queensland that helps to minimise biosecurity risks and facilitates timely and effective responses to impacts and biosecurity events
- ensure the safety and quality of animal feed, fertilisers, and other agricultural inputs
- help align responses to biosecurity risks in the state with national and international obligations and with the requirements for accessing markets for animal and plant produce (including live animals and plants).

One of the ways the Act achieves these purposes is by imposing a general obligation on everyone in Queensland to prevent or minimise the impact of biosecurity risks on human health, social amenity, the economy, and the environment. This general duty of care is consistent with the national principle that biosecurity is a shared responsibility.

Biosecurity Queensland also administers a range of other legislation that the new Act does not replace. This legislation is still the responsibility of the Minister for Agriculture and Fisheries.

Biosecurity strategy

The Queensland Biosecurity Strategy 2009–2014 establishes Biosecurity Queensland's strategic objectives. Biosecurity Queensland, together with key stakeholders, is currently developing a replacement strategy, which it intends to release in 2017. Until then, the 2009–2014 strategy specifies that the goals for biosecurity in Queensland are to:

- prevent exotic pests and diseases from entering, spreading, or becoming established in Queensland
- ensure significant pests and diseases already in Queensland are contained, suppressed, or managed
- contribute to the maintenance of
    - Australia's favourable national and international reputation for freedom from many pests and diseases
    - market access for agricultural commodities
    - product safety and integrity
    - diverse ecosystem sustainability.

The strategy states that Biosecurity Queensland will develop specific action plans to implement the strategy and key performance measures to evaluate its success.

The specific strategies and action plans we considered for this audit were:

- Panama disease Tropic Race 4 (TR4) Response Program Strategy
- Panama disease TR4 Operational Plan—Managed Response Phase 2016–17
- Panama disease TR4 Program Activity Plan 2016–17
- Queensland Wild Dog Management Strategy 2011–16.

We also examined surveillance activities, but Biosecurity Queensland has not yet developed a specific strategy for these.

Summary of initiatives and activities audited

Panama disease TR4 Program

Bananas are Australia's most valuable horticultural crop, with an annual value of production of approximately $600 million. The importance of the banana industry to regional North Queensland and the Queensland economy overall is significant.

On 4 March 2015, Biosecurity Queensland served a quarantine direction on an infested farm in the Tully Valley, North Queensland, due to a positive test result for Panama disease TR4 on Cavendish banana plants.

In August 2015, Biosecurity Queensland established a program and developed the Panama disease TR4 Response Program Strategy. In February 2016, it developed the Panama disease TR4 Operational Plan—Managed Response Phase 2016–17. Then, in September 2016, it built on this with the Panama disease TR4 Program Activity Plan 2016–17.

The program's overall aims are to contain Panama TR4 disease to the one confirmed infested property and to ensure industry resilience and sustainability.

Panama disease TR4 devastated the Northern Territory banana industry in the late 1990s. The disease also affects many other countries, including Southeast Asia, where it wiped out Cavendish banana plantations throughout the region. In Jordan, Panama disease affects around 80 per cent of the banana production area.

The Panama program strategy acknowledges that all stakeholders recognise the risk of further spread and detection of the disease over time and that eradication is not possible. As it is not eradicable (and this is one of the criteria for national cost-sharing programs), this is not a national cost-shared response program.

Biosecurity Queensland and the banana industry, led by the Australian Banana Growers' Council, have worked together to develop and implement the Panama program.

The Queensland Government has predominantly funded the response to date. In 2014–15, the Australian Government provided a grant for various communication and engagement support activities and a grant to establish diagnostic capability for the program. In 2015–16, both the Australian Government and the Australian Banana Growers' Council contributed towards reimbursement costs to banana growers affected by the response program. Figure 1D indicates the Panama program's available revenue from funding sources and expenditure.

Figure 1D
Revenue from funding sources and expenditure for the Panama disease TR4 program

Description	2014–15 Actual $	2015–16 Budget $	2015–16 Actual $
Revenue:			
Queensland Government	1 946 000	6 517 000	6 517 499
Australian Government	201 121	236 960	236 960
Industry	0	228 081	228 081
Total revenue	**2 147 121**	**6 982 041**	**6 982 540**
Expenditure	3 309 261	**6 982 041**	7 008 523
Net total	**(1 162 140)**	**0**	**(25 983)**

Source: Queensland Audit Office. Information obtained from the Department of Agriculture and Fisheries' reports extracted from SAP.

Expenditure for the first four months of the program totalled $3.3 million in the 2014–15 financial year. The budget deficit of around $1.2 million in 2014–15 was due to additional labour hire, supplies, and services needed for the emergency response, not originally budgeted for. In the 2015–16 financial year, the program expenditure was around $7 million.

Biosecurity Queensland allocated 57 full-time equivalent (FTE) positions (including surveillance, diagnostic, and supporting staff) to the Panama program by the end of the 2014–15 financial year. As at 30 June 2016, Biosecurity Queensland had allocated 58 FTE to the Panama program. These were made up of:

- 28 temporarily appointed departmental staff
- 30 contractors.

Wild dog management

Wild dogs have several adverse impacts. AgForce (a lobbying group representing Queensland's rural producers) has estimated that costs attributed to wild dogs in Queensland may be as high as $67 million per annum. The term ‘wild dog’ refers to purebred dingoes, dingo hybrids, and domestic dogs that have escaped or been deliberately released and now live in the wild. Wild dogs attack livestock, prey on native species, spread disease, can dilute dingo genetics, and threaten human safety and the general enjoyment of rural residential properties.

In 2011, Biosecurity Queensland and other entities with an interest in wild dog management developed Queensland's Wild Dog Management Strategy 2011–16. The strategy's vision is to minimise the impact of wild dogs on Queensland's biodiversity, agricultural assets, and social values. The strategy has five intended outcomes:

- achieving zero tolerance of wild dogs inside the wild dog barrier fence (this fence protects 26.5 million hectares of sheep and cattle grazing country and is about 2500 km long)
- controlling wild dogs elsewhere in the state
- reducing wild dog impacts in the coastal, peri-urban (the urban-rural transition zone), and rural residential management zones
- ensuring the community is informed and committed to wild dog management and has the most current control methods and management techniques available
- conserving dingo populations in Queensland.

The strategy remains current and is due for replacement in 2017. It is a statewide strategy and Biosecurity Queensland is only one entity responsible for implementing it. Other entities include the Queensland Dog Offensive Group (a subcommittee of the Biosecurity Queensland Ministerial Advisory Council), local government, Natural Resource Management groups, AgForce and other state government agencies. Primary responsibility for managing wild dogs rests with landholders.

The strategy outlines Biosecurity Queensland's specific responsibilities, which include:

- planning and developing policies and guidelines
- providing regulation, training, and quality control of 1080 pesticide use in Queensland
- ensuring stakeholder engagement and communication
- coordinating and monitoring baiting campaigns
- facilitating research
- undertaking population and damage assessments and collecting impact data.

Since its formation in 2007, Biosecurity Queensland has contributed to managing wild dogs, but the state government participated in the management of wild dogs for many years before that. Over the last three years, Biosecurity Queensland has spent around $8.9 million on the management of wild dogs. This includes $3.3 million to maintain the wild dog barrier fence.

The Queensland and Australian governments funded grant allocations under the Queensland Feral Pest Initiative (QFPI) and the Managing Farm Pests Initiative. Wild dogs are included in the feral pests and farm pest categories. These grant allocations were:

- Queensland Feral Pest Initiative (Queensland Government-funded)—$4 million over three years from 2015–16, of which $1.9 million was spent in 2015–16
- Queensland Feral Pest Initiative (Australian Government-funded)—$9 million from 2015–16, of which $4.9 million was spent in 2015–16
- Managing Farm Pests initiative (Australian Government-funded), of which $4.19 million has been spent since 2013–14.

When organisations receive funding under the Queensland Feral Pest Initiative, Biosecurity Queensland requires them to collect data and to assess and report on project outcomes.

Biosecurity Queensland is also a stakeholder contributing to the delivery of the National Wild Dog Action Plan. On 4 July 2014, the Australian Minister for Agriculture formally launched the plan and provided funding to Invasive Animals Ltd to lead the plan's delivery. The broad intention of the plan is to provide private and public sector investors with confidence that their investments in wild dog control will deliver long-term solutions to the national problem of wild dog management.

Surveillance activities

Biosecurity Queensland defines surveillance as the systematic investigation of a population or area to collect data and information about the presence, incidence, prevalence, or geographical extent of a pest or disease.

Surveillance may be active, such as targeted surveillance activities under national cost-shared agreements. It may also be passive, where industry bodies, other government agencies, members of the community, and landholders notice something unusual and report it, or send samples to Biosecurity Queensland for analysis.

The Queensland Biosecurity Strategy 2009–14 identifies that surveillance activities serve three purposes. They are:

- to achieve early detection, which enables action to prevent the establishment and spread of pests and diseases, thereby reducing potential long-term impacts and associated response and management costs. In many cases, eradication is only possible if the pest or disease is detected before it is widely spread
- to demonstrate proof of freedom or ‘evidence of absence’ of a pest or disease through structured surveys or other targeted methods. This is an increasing requirement for access to important international markets
- to manage established pests and diseases. The ability to predict the possible spread and impact of invasive weeds and pest animals is critical in designing and implementing cost-effective management programs.

Biosecurity Queensland does not have a specific surveillance strategy or operational plan, but the high level Queensland Biosecurity strategy includes the outcome that Queensland's surveillance system provides early detection of biosecurity threats and ensures market access. It also outlines the following objectives:

- Surveillance activities are coordinated and planned to maximise the early detection of biosecurity threats and to ensure national and international market obligations are met.
- Stakeholders are actively involved in surveillance and know what to look for and how to report possible biosecurity threats.
- Queensland has access to the capacity and ability to identify reported pests and diseases.
- Surveillance activities are grounded in good science and prioritised according to risk.
- Information on pest and disease risks is shared between interested parties.
- Surveillance activities are delivered efficiently and effectively and are able to adapt to changing circumstances.

Figure 1E is a list of the various surveillance activities managed by each of Biosecurity Queensland's three core program areas.

Costs associated with state-funded surveillance activities are not easily aggregated as they are spread across the three core program teams. Biosecurity Queensland has not allocated specific cost centres to state surveillance programs/activities. National programs, however, are easily identified in the budgets with allocated cost centres for national reporting purposes.

This audit focused on Queensland surveillance activities.

Figure 1E
Surveillance activities

Core program	Queensland activities	National activities
Animal Biosecurity and Welfare	General passive animal disease surveillance Queensland Ruminant Feed Ban Surveillance Program Queensland Johne's Disease Surveillance Program Cattle Tick Surveillance Program Newcastle Disease Surveillance Program The laboratory support (diagnostics) at Biosecurity Sciences Laboratory and Tick Fever Centre	National Significant Disease Investigation Program National Transmissible Spongiform Encephalopathy Surveillance Program Imported Animal Quarantine and Surveillance Scheme National Arbovirus Monitoring Program Screw-worm Fly Surveillance and Preparedness Program National Sheep Health Monitoring Project
Plant Biosecurity and Product Integrity	Remote and Early Warning Surveillance Surveillance for market access and control and containment Incident Response Surveillance, e.g. Varroa mite	National Plant Health Surveillance National Bee Pest Surveillance
Invasive Plants and Animals	Biosecurity Queensland Contact Centre—National Electric Ant Eradication	National Red Imported Fire Ant Four Tropical Weeds Eradication Red Witchweed Response

Source: Department of Agriculture and Fisheries

Recent audits, reviews, and initiatives

Queensland Biosecurity Capability Review

In May 2015, the Queensland Government commissioned an independent report on the capability of the Queensland biosecurity system to meet the needs of future biosecurity challenges. An independent panel comprised of biosecurity experts undertook the review. This included consultation with many stakeholders, including Department of Agriculture and Fisheries' staff, local government representatives, research bodies, interstate biosecurity agencies, and peak bodies representing primary industries.

The panel provided its report to the government in September 2015. There were 32 recommendations, including:

- the development of a strategy and action plan for building the new biosecurity system
- a transformation plan for building Biosecurity Queensland's capability.

In April 2016, the government released the report together with its interim response. The government supports the majority of the recommendations in principle and intends to consult stakeholders before releasing a final response.

QAO's 2015–16 audit report

In November 2015, we tabled *Agricultural science research, development and extension programs and projects* (Report 3: 2015–16). This report examined how well Agri-Science Queensland, another business unit within the Department of Agriculture and Fisheries, invested in and managed research, development, and extension projects and programs.

Many of the findings and recommendations in this report aligned with those in the Queensland Biosecurity Capability Review report. The Department of Agriculture and Fisheries is implementing the recommendations of both the audit report and capability review.

Department of Agriculture and Fisheries Impact and Investment Framework

In response to the audit and review recommendations, the Department of Agriculture and Fisheries is creating an Investment and Impact Framework. The framework's aim is to help meet accountability requirements, enable the business areas to demonstrate the value of their work, and to improve performance.

The Department of Agriculture and Fisheries will use this framework to prioritise investment within and across its fifteen business units, including Biosecurity Queensland's business units, and evaluate whether that investment is contributing to the Department of Agriculture and Fisheries' and the government's strategic objectives.

When completed, specific outputs from this project will include, for each business unit:

- program logic models (maps, inputs, activities, outputs, outcomes, and impacts against each significant program of work)
- impact maps (showing the impact of the Department of Agriculture and Fisheries' work on economic, environmental, and social objectives)
- performance measurement plans (including effectiveness and efficiency measures)
- monitoring plans
- activity investment frameworks, investment principles, and criteria
- consistent business/operational plans
- evaluation plans.

The first stage of the process focused on developing program logic models and impact maps. The impact maps provide:

- a series of impact pathways to group like activities with common clients and outcomes
- a shared understanding of business drivers and the outcomes targeted by the program of work
- an advocacy tool to show central agencies and the public the benefits of the work
- a consistent framework for whole-of-department business planning and performance management
- a basis for evaluation.

The second stage focuses on identifying effectiveness and efficiency performance measures to support monitoring progress of the impact pathways. The Department of Agriculture and Fisheries is currently developing performance measurement plans that include the performance measures identified. It intends to include these performance measures in senior leaders' performance development agreements as a mechanism to monitor performance.

As part of the Impact and Investment Framework, Biosecurity Queensland has committed to implementing electronic timesheets for staff to record the time they spend on various activities. This will help it to measure efficiency.

The third stage will encompass the development of evaluation plans. Evaluation will assist the Department of Agriculture and Fisheries to build an evidence base about its contribution to economic, environmental, and social wellbeing. This will enable the department to examine its effectiveness and efficiency in delivering outcomes for primary producers, industry, and the community.

As this work was incomplete at the time of the audit we did not consider it in any detail.

Biosecurity Queensland's Risk Based Investment Allocation Framework Model

In addition to the Investment and Impact Framework, Biosecurity Queensland has also initiated a process to develop a Risk Based Investment Allocation Framework Model. This is as a result of recommendations made in the Queensland Biosecurity Capability Review.

This decision-making model will measure, validate, and demonstrate investment costs and benefits compared to the associated risk across Biosecurity Queensland's portfolio of services and projects. It will underpin decision-making that supports redirection of resources to achieve maximum return on investment.

Biosecurity Queensland's intention for this model is to demonstrate the public value of investment across the portfolio of biosecurity services and projects in Queensland.

As this work is yet to be completed it did not form part of the scope of the audit.

Inquiry into barrier fences

At the time of the audit, the Agriculture and Environment Parliamentary Committee was conducting an inquiry into barrier fences in Queensland (including the wild dog barrier fence and rabbit fences). As the inquiry was underway, we did not assess the effectiveness of Biosecurity Queensland's management of the wild dog barrier fence in this audit.

Audit objective and scope

The objective of the audit was to assess whether Biosecurity Queensland effectively and efficiently detects, responds to, and manages significant agricultural pests and diseases.

The audit addressed the objective through the following sub-objectives:

- Biosecurity Queensland's detection, response, and management initiatives and activities achieve their objectives.
- Biosecurity Queensland measures, reports on and improves the efficiency of its detection, response, and management initiatives and activities.

The Department of Agriculture and Fisheries' new investment framework and Risk Based Investment Allocation Framework Model will take some time to take effect. Therefore, this audit did not consider whether Biosecurity Queensland is investing in the ‘right’ initiatives and activities. Rather, we focused on the outcomes of initiatives and activities that Biosecurity Queensland has already invested in, and will likely continue to deliver in the future.

We considered the sub-objectives by reviewing three of Biosecurity Queensland's specific biosecurity activities/initiatives:

- Panama program (response initiative)
- wild dog management program (management activity)
- surveillance carried out by each of Biosecurity Queensland's core programs (detection activities).

2. Achieving pest and disease management objectives

Chapter in brief

Biosecurity Queensland needs to capture and regularly report performance information. In this way, it can give government and the community confidence that it is using its valuable resources effectively and achieving its objectives.

This involves developing clear objectives and key performance indicators, planning for data capture and evaluation, collecting and analysing that data, and reporting and evaluating progress.

In this chapter, we examine the information available about how well Biosecurity Queensland's detection, response, and management initiatives and activities achieve their objectives. We specifically assess the Panama disease Tropical Race 4 (Panama) program, wild dog management activities, and Biosecurity Queensland's surveillance activities.

Main findings

- Despite having clear objectives for Panama and wild dogs, Biosecurity Queensland has not established an appropriate number of specific, measurable, achievable, relevant, and timed performance indicators to measure their success.
- It has not yet developed a specific strategy or operational plan for its state-funded surveillance activities. This means it is not able to develop meaningful measures or assess effectiveness of delivery.
- Test results for the Panama program indicate Biosecurity Queensland's containment measures have so far been successful. Importantly, they have extended the time for Biosecurity Queensland and the banana industry to develop strategies to manage the disease in the long-term.
- Biosecurity Queensland has already reviewed some program elements and made appropriate changes to those activities. This shows it is actively working to improve the program's effectiveness.
- It is unclear what benefits have been gained from the state's investment in wild dog management as Biosecurity Queensland has not driven or coordinated the collection and analysis of consistent, reliable data to evaluate performance. However, it has met most of its commitments under the strategy, except for collecting data and monitoring effectiveness. The collection of data relies heavily on the provision of the relevant information by other stakeholders.
- Biosecurity Queensland has not developed a formal evaluation plan for its Panama program, wild dog management, or surveillance activities.
- For some Panama program activities, industry has captured data that will assist Biosecurity Queensland to evaluate its success. However, Biosecurity Queensland has not as yet collaborated effectively with wild dog stakeholders for data gathering purposes.
- Biosecurity Queensland's internal reporting is activity-focused and lists the actions taken and the outputs delivered, rather than the outcomes achieved. Without this information, Biosecurity Queensland's senior management does not have data to assess whether its activities are effective in delivering outcomes or whether its strategies need adjustment.

Introduction

Biosecurity Queensland's role in managing pests and diseases is different for each activity or program. Its role depends how far the pest or disease incursion has progressed, and whether the pest or disease is eradicable.

For the Panama Tropical Race 4 (TR4) disease (Panama), the aim is to contain the disease to the one confirmed infested property in the short-term and support industry sufficiently in managing the disease in the long-term. All stakeholders acknowledge it is not feasible to eradicate Panama disease TR4. Since this is one of the criteria for a national cost-shared response program, this response is not being funded in that way.

The management of wild dogs is an ongoing pest management or asset protection activity. Effective control of wild dogs requires an integrated, collaborative approach. Biosecurity Queensland shares responsibility for managing wild dogs with many stakeholders, including industry and private landholders. The statewide objective is to minimise the impact of wild dogs on Queensland's biodiversity, agricultural assets, and social values. Social impacts include the loss of companion animals, costs associated with control methods, and risks to human health and safety. Control methods include land management, together with shooting, trapping, fencing, baiting, and using livestock guardian dogs.

Surveillance activities are predominantly aimed at preventing the establishment and spread of pests and diseases. Each of Biosecurity Queensland’s core animal and plant programs carry out inspections in order to detect and confirm the presence of pests and disease.

Sound program design, implementation, and evaluation provide confidence that the resources invested in these programs will produce success at a reasonable cost. We expected to find Biosecurity Queensland's programs:

- designed and coordinated to achieve their outcomes
- implemented as intended
- evaluated
- supported by strong governance and performance reporting.

Audit conclusions

Biosecurity Queensland is delivering many of its activities as planned for Panama and wild dog management. Despite this, it cannot demonstrate that it is achieving the aims or ultimate intended outcomes of these activities.

This is partly because of the complexity in assessing Biosecurity Queensland's contribution to managing pests and diseases when it shares responsibilities for the activities with other government and non-government entities.

It is also because Biosecurity Queensland has, until recently, focused on monitoring and reporting on activities but not on outcomes.

Without appropriate performance indicators and without planning for data collection, analysis, and evaluation, Biosecurity Queensland is not in a position to collect or drive collection of the data that it and others need to evaluate performance. As a result, decision-makers do not have the information they need in all cases to assess whether the activities are effective or whether the strategies should be continued, changed, or discontinued.

The Department of Agriculture and Fisheries' new Impact and Investment Framework will place Biosecurity Queensland in a better position to report on the effectiveness of its key programs and activities in the future. It has already started to consider internal data and measurement improvement activities.

Biosecurity Queensland also needs to do more to clarify and promote shared understanding of roles and responsibilities, particularly where many stakeholders are responsible for delivering statewide strategies.

Setting objectives and measures of success

Biosecurity Queensland has established clear objectives for Panama and for the management of wild dogs. However, most of the performance indicators established to measure success in meeting the objectives are not specific, measurable, achievable, relevant, and timed (SMART) and there are too many to practically measure and monitor on an ongoing basis. This means it is difficult for Biosecurity Queensland to demonstrate how effective its activities are, along with the activities of other responsible entities.

For surveillance, Biosecurity Queensland has not yet developed a specific strategy or operational plan. It has included the high-level objectives of its surveillance activities in the broader Queensland Biosecurity Strategy 2009–14. However, as Biosecurity Queensland has not updated this strategy since 2014, it would be difficult to develop specific performance indicators for its surveillance activities with any confidence. We are advised that the strategy is currently being updated.

Panama objectives and measures

Biosecurity Queensland is jointly delivering the Panama program with the Australian Banana Growers' Council. Biosecurity Queensland is the program manager and provides most of the funding, and is therefore responsible for ensuring delivery according to the agreed strategy and plans. It has developed program objectives and performance measures to monitor delivery of the activities for each objective.

In Figure 2A we have listed the five Panama objectives, the number of performance indicators for each objective, and the number we assessed as SMART using the Australian National Audit Office's criteria (as outlined in Appendix D).

Figure 2A
Panama objectives and performance indicators

Objectives	Number of performance indicators	Number of indicators that are SMART
Determine the current geographical distribution of Panama disease TR4 in Queensland.	8	1
Minimise the risk of pathogen spread from affected land.	13	0
Support industry adjustment, resilience, and management of the disease through the development of robust biosecurity policies and sustainable biosecurity systems.	3	0
Engage with key stakeholder and community groups to promote understanding of the disease, and encourage early reporting and shared responsibility for biosecurity practice change.	24	0
Deliver a best practice biosecurity program underpinned by accurate data capture, robust diagnostic services, rigorous science, risk based decision-making, and sound corporate practices, and encourage innovation.	70	1
Totals	**118**	**2**

Source: Queensland Audit Office

Many of the indicators are actions to be undertaken or deliverables or outputs rather than measures of achievement of activities or objectives.

For example, indicators that are actions to be undertaken include:

- Repeated surveillance on any known affected land in accordance with the surveillance strategy.
- Work with owners of affected land to ensure understanding of and compliance with their obligations under the *Biosecurity Act 2014* as soon as possible or within three business days of receipt of Notice of Presence of Panama TR4.
- Use regulatory instruments on affected land under the *Biosecurity Act 2014* (when appropriate) to attain compliance with Queensland Biosecurity Manual.

Examples of indicators that are deliverables or outputs are:

- Complete a technical review of the surveillance strategy and make operational changes as required.
- Surveillance field guide, and promotion disease identification videos and the legislation relating to category 1 restricted matter, to be developed, completed, and distributed.
- Development and revision of regulatory tools under the *Biosecurity Act 2014,* for example, Queensland Biosecurity Manual, Biosecurity Regulations 2016, and Surveillance Programs.

In addition, many of the performance indicators are not easily measurable and do not include targets or benchmarks against which to measure achievement.

One or two SMART performance indicators for each objective would provide a better picture of whether Biosecurity Queensland and other responsible parties are achieving the desired outcomes.

Wild dog objectives

Biosecurity Queensland is one of many entities responsible for implementing the activities specified in the Queensland Wild Dog Management Strategy 2011–16. It developed the strategy and objectives in conjunction with 66 stakeholders across Queensland.

The strategy includes a list of performance indicators, but they are for the strategy as a whole, rather than specific indicators for each objective. These indicators are not SMART because they are not easily measurable and they do not include targets or benchmarks against which to measure achievement.

Because of the involvement of a variety of stakeholders in the development of the strategy and objectives, it contains some opposing priorities (for example, conserving of dingo populations at the same time as achieving reductions in wild dog populations). Developing appropriate performance measures to monitor these opposing priorities is difficult.

Biosecurity Queensland has an opportunity to clarify these matters in 2017 while developing a replacement strategy for wild dog management in Queensland.

Containing Panama

Although Biosecurity Queensland has not developed SMART indicators, it is clear that its current activities are working towards achieving its program objectives.

Panama is an example of a significant program of work involving coordinating a response to a complex and potentially devastating disease. No other countries around the world have successfully contained the disease.

Responding to Panama disease TR4 is complex because:

- there is no effective treatment of soil to control TR4 in the field
- TR4 resting spores can survive in the soil for decades
- there are a number of symptomless weed hosts for TR4
- TR4 spreads by humans (soil on machinery and boots), water (a problem in a high rainfall environment), and infected plant material
- quarantine, clean planting material, and disinfection are the only measures available to stop the spread of TR4 by infested soil or water and infected plant material.

In 2015–16, Biosecurity Queensland conducted a range of surveillance activities on banana farms in North Queensland. As at June 2016, Biosecurity Queensland reported it had inspected approximately 80 per cent of banana farms in Queensland. During 2016–17, it plans to complete its surveillance of all remaining banana farms.

Biosecurity Queensland has implemented strict measures to contain the disease to the one infested property. Its reports show that, so far, it has not detected Panama disease TR4 on any banana farm other than the initial infested 242 hectare property, of which 165 hectares were for banana production. Once it has inspected all of Queensland's banana farms, Biosecurity Queensland will know whether the disease is present elsewhere.

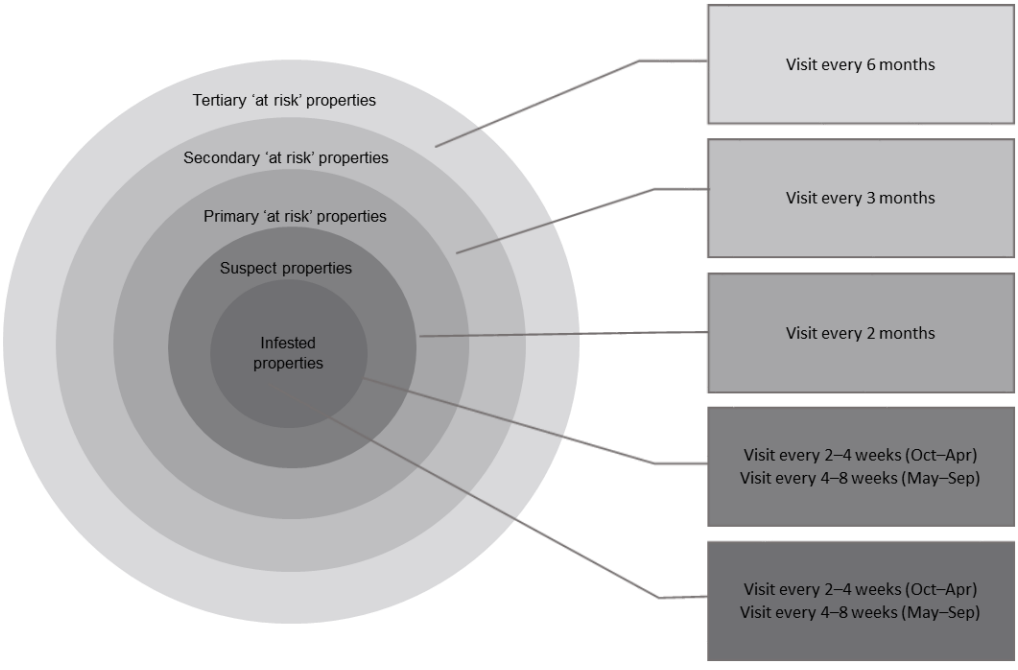
Recognising that it is not possible to eradicate the disease, Biosecurity Queensland has so far succeeded in extending the time for it and the banana industry to develop strategies to manage the disease in the longer term, in order to maintain a sustainable industry in the future.

Monitoring the spread of the disease

The Panama program's first objective is to determine the current geographical distribution of Panama disease TR4 in Queensland. Biosecurity Queensland performs repeated surveillance activities in line with the strategy to achieve this objective.

The frequency of the surveillance activities is shown in Figure 2B.

Figure 2B
Frequency of the Panama surveillance activities on affected properties



Source: Queensland Audit Office

Biosecurity Queensland categorises properties by tracing links each identified property has with a known infested property. The high-level categories include:

- infested property—a property from which a specimen taken confirmed Panama disease TR4 through diagnostics
- suspect property—a property identified to be at extreme risk based on trace information or surveillance samples taken from plants showing internal symptoms consistent with Panama disease TR4
- primary 'at risk' property—one with one or more primary links to the infested property. A property that displays three or more high-risk traces immediately becomes a suspect property
- secondary 'at risk' property—a property, designated as a high- to medium-risk property, with one or more secondary links to an infested property
- tertiary 'at risk' property—a property with a distant link, designated as a low-risk property, but which still requires surveillance.

Biosecurity Queensland uses a property risk assessment to categorise the 'at risk' properties into the three categories, for example:

- a property that provides plant material to an infested property has primary links to an infested property and is categorised in the first category as a primary 'at risk' property
- a property that is within five kilometres of an infested property and is downstream of water or soil movement is considered to have secondary links with an infested property and is categorised in the second category.

Since initiation of the program, Biosecurity Queensland has completed 607 surveillance visits and collected 1 520 samples. We have included the total surveillance activities completed for the program and the test results per property classification in Figure 2C.

Figure 2C
Number of surveillance visits and samples on the Panama program

Description	Number of properties	Number of surveillance rounds to date	Number of samples collected to date	Number of positive test results for Panama
Infested property	1	25	218	29
Suspect property	1	24	9	0
Primary 'at risk' properties	7	50	207	0
Secondary 'at risk' properties	83	379	771	0
Tertiary 'at risk' properties	0	0	0	0
Other properties identified (including zero host properties, assessed negative, or unknown status properties)	244	129	315	0
Total	**336**	**607**	**1520**	**29**

Source: Queensland Audit Office

The results to date show the disease has spread within the infested property, but Biosecurity Queensland has not detected it beyond those boundaries.

Preventing further spread

The disease is contained by having very strict workplace procedures and risk management strategies in place on the property and the surrounding properties.

To avoid spreading the disease, Biosecurity Queensland monitors:

- the movement of packed products and machinery
- the destruction of infected plants
- adherence to the requirements of the Biosecurity Regulations 2016 and the *Queensland biosecurity manual*.

Until recently, Biosecurity Queensland maintained a daily gate register at the infected property and issued inspection certificates that bananas, vehicles, or containers that held bananas were free from soil, plant residues, and other organic matter. It has now installed surveillance cameras at the gates of the infested property to monitor movement on and off the property.

It has also developed risk assessments to inform current activities and decisions taken. One example is the risk assessment entitled *Potential for contamination and disease spread from Panama TR4 Program field activities*. This risk assessment informs decontamination procedures currently followed by field staff to mitigate the risk of spreading the disease.

Actions taken by the Australian Banana Growers' Council to reduce the risk of spreading the disease include:

- delivering workshops to banana industry members that encourage the adoption of on-farm biosecurity practices to avoid the spread of the disease. Over 80 per cent of Far North Queensland's banana industry has attended these workshops
- purchasing the infested property. On 24 October 2016, the Australian Banana Growers' Council entered into an agreement with the owners of the farm to buy the property. This will enable destruction of all banana plants on the quarantined farm.

Managing wild dogs

Queensland's Wild Dog Management Strategy 2011–16 includes responsibilities for all stakeholders involved in its development. Those stakeholders include:

- the Queensland Dog Offensive Group (a subcommittee of the Biosecurity Queensland Ministerial Advisory Council)
- state government agencies
- local government agencies
- local wild dog committees
- land managers
- industry groups
- community and conservation groups.

The strategy reflects the complexity of managing a statewide pest, when so many different, competing interests are involved. Landholders are primarily responsible for managing pests on their properties as they are the main beneficiaries. However, landholder attitudes towards wild dog management vary considerably as wild dogs do not have the same impact on all land uses. For example, wild dogs have a far greater impact on sheep farmers than on horticulturalists. Wild dog control occurs across Queensland with varying degrees of landholder participation.

Local governments are the main coordinators and managers of wild dog control activities.

In these circumstances, where so many different entities play a role and their responsibilities at times overlap, there is a risk that stakeholders are not clear about which entities are responsible for implementing the agreed strategies. Wild dog stakeholders who provided input into this audit expressed frustration that no one entity is driving the strategy's implementation or monitoring progress.

Strategy responsibilities

Biosecurity Queensland has met the majority of its commitments under the strategy with the exception of data collection and performance monitoring. Without this information, Biosecurity Queensland cannot be sure that its efforts towards wild dog management, combined with other stakeholders' efforts, are delivering the desired outcomes and therefore are a good use of public funds.

Figure 2D shows the responsibilities in the strategy allocated solely or jointly to Biosecurity Queensland. It also includes our assessment of whether Biosecurity Queensland has met or started to meet its responsibilities.

Figure 2D
Assessment of Biosecurity Queensland's responsibilities in terms of the Wild Dog Management Strategy 2011–2016

Responsibility	Responsibility performed Yes/No
Plan and develop policies	Yes
Ensure appropriate links and communication between internal and external stakeholders within their area of responsibility	Yes
Undertake wild dog extension activities, including providing advice on control techniques	Yes
Investigate additional control techniques	Yes
Encourage land managers to control wild dogs, and encourage the formation of local wild dog management committees	Yes
Liaise with departments managing Australian and state government lands	Yes
Monitor effectiveness of control agent(s)	No (Note 1)
Develop and implement wild dog extension activities, including media and internet liaison	Yes
Prepare advisory publications on wild dog management for grazing enterprises and the general community	Yes
Provide regulation, training, and quality control for 1080 (pesticide) use in Queensland	Yes
Perform quality control of 1080 solutions	Yes
Investigate complaints about 1080 quality	Yes
Analyse stomach samples and/or baits for 1080 and other toxins	Yes
Coordinate and monitor baiting campaigns	Yes
Undertake population and damage assessments and collect impact data	No
Assess wild dog impacts	Yes
Investigate complaints	No (Note 2)

Note 1: The majority of control agents are now developed by commercial companies and these companies promote their own products. Biosecurity Queensland indicated that it is not the role of government to test their effectiveness. Government developed the regulatory platforms to give landholders flexible options in using these products.

Note 2: Biosecurity Queensland does not have the power to investigate complaints in terms of the misuse of vertebrate pesticides. Biosecurity Queensland only refers complaints to the Department of Health as the Health (Drugs and Poison) Regulation 1996 regulates the use of vertebrate pesticides in Queensland.

Source: Queensland Audit Office

Biosecurity Queensland's main activities to address their responsibilities under the strategy include:

- developing policies and procedures
- investigating additional control methods and conducting research
- training on the use of 1080 pesticide
- engaging stakeholders.

Policies and procedures

Biosecurity Queensland has drafted a new 1080 policy, which includes allowing landholders to buy manufactured baits through authorised rural retailers. It also allows landholders to bait for up to two years, and persons authorised by local government to assist in preparing baits. The policy has not yet been implemented in full as some stakeholders are still concerned over how to manage it.

Biosecurity Queensland has also developed:

- a guide to safe and responsible use of sodium fluoroacetate (used to make 1080) in Queensland
- a protocol for the production of 1080 meat baits
- a fact sheet on dingos and their ecology
- 19 fact sheets about the ecology of wild dogs or the control of wild dogs.

Investigating additional control methods and conducting research

Biosecurity Queensland is involved in projects to investigate additional control methods to control wild dogs. These additional control methods include:

- a stationary device, known as a canid pest ejector, which delivers 1080 pesticide into the bait head when a wild dog bites on the bait
- new toxic meat baits developed for the broad-scale management of wild dogs.

Currently, Biosecurity Queensland is also conducting research on the:

- effectiveness of cluster fencing (fencing around multiple neighbouring properties) on production, pasture, and the environment
- impacts and movements of wild dogs in peri-urban (the urban-rural transition zone) environments.

Training on 1080 pesticide

Biosecurity Queensland makes 1080 pesticide and provides training to local government officers on its use. Local governments then apply the 1080 to fresh meat to make baits to poison wild dogs.

As at February 2017, Biosecurity Queensland had trained 381 local government officers. Queensland Health then approves those officers to obtain, possess, and use 1080 pesticide under the Health (Drugs and Poisons) Regulations 1996.

Biosecurity Queensland also provides landholders with best practice control methods, for example, trapping—it demonstrates how to set traps, where and how to place foot traps, and the different lures to use.

Coordinating and monitoring baiting campaigns

In cases where local governments do not have the capacity, Biosecurity Queensland organises and facilitates baiting programs. It also participates in baiting programs coordinated by local governments.

Officers prepare baits at baiting stations and distribute them to landholders to place in the local area, as part of a coordinated baiting program. In some cases, officers distribute baits aerially.

Engaging stakeholders

Biosecurity Queensland engages with local government, wild dog management committees, other government departments, and the community. Biosecurity Queensland's weekly reports identify the types of engagement activities staff participate in, including:

- having discussions with local government, wild dog management groups, and landholders on control methods available in managing wild dogs
- having discussions on the success or progress of baiting and other control programs
- referring complaints from the community about 1080 pesticide misuse to the Department of Health
- facilitating and supporting the establishment of local pest management groups
- attending wild dog committee and Queensland Dog Offensive Group meetings
- providing secretariat support for the Queensland Dog Offensive Group.

Other initiatives for managing wild dogs

Apart from its Wild Dog Management Strategy 2011–16 responsibilities, Biosecurity Queensland also:

- manages and maintains the wild dog barrier fence
- administers funding grants to industry groups and local governments under various initiatives.

Collecting data and reporting on progress

For the Panama program, Biosecurity Queensland captures a variety of data and information to demonstrate that it is progressing towards achieving most of its objectives. There are, however, information gaps for some objectives. Biosecurity Queensland is currently working on these.

In relation to its wild dog management and surveillance activities, Biosecurity Queensland has not driven or coordinated the collection and analysis of consistent, reliable data to measure performance, undertake evaluation, and inform decision-making. The collection of data relies heavily on other stakeholders to provide the relevant information. As a result, this data is not readily available.

The heads of Biosecurity Queensland's core programs prepare regular reports for senior management on their activities and achievements. However, the reports we reviewed do not provide management with sufficient information about whether the programs are on track to achieve their objectives or intended outcomes. They only list the outputs and the activities performed, rather than showing progress towards achieving outcomes.

While it is important for Biosecurity Queensland to monitor whether its programs are meeting the required level of output-based activity, this information alone will not tell its senior management whether those activities are achieving or contributing to the desired objectives.

Panama

Figure 2E lists the type of data that Biosecurity Queensland is currently capturing to monitor performance against the Panama objectives. Biosecurity Queensland has data that shows it is successfully progressing towards the objectives associated with determining the distribution of the disease and minimising the spread.

However, there are some information gaps identified during the audit. The main one is about the extent to which Biosecurity Queensland's support of the banana industry is leading to 'industry adjustment, resilience, and management of the disease' (the third Panama program objective). However, the Australian Banana Growers' Council has started to fill this gap. It has collected survey data about:

- the level of on-farm biosecurity banana growers have in place
- the level of knowledge of Panama disease TR4 before and after attendance at its workshops
- perceptions of agri-business suppliers about the industry's adaptation to the threat of Panama disease TR4 and adoption of biosecurity practices.

This information will go some way to informing Biosecurity Queensland about whether the banana industry is sufficiently prepared to take over responsibility for managing Panama TR4 disease in the long-term.

Figure 2E
Panama objectives and available data to measure performance

Objectives	Data available to the program for analysis	Information gaps at the time of the audit
Determine the current geographical distribution of Panama disease TR4 in Queensland	Surveillance data e.g. number and frequency of visits Locations of most banana farms in Queensland Laboratory test results Records of tracing activities	Size and location of all banana farms in Queensland (potential source—Queensland Land Use Mapping Program) (Note 1)
Minimise the risk of pathogen spread from affected land	Standard operating procedures Work instructions Risk assessment procedures and documents Biosecurity manual—Panama section	Evidence of scientific findings to inform development of best practice procedures (Note 1)
Support industry adjustment, resilience, and management of the disease through the development of robust biosecurity policies and sustainable biosecurity systems	Biosecurity manual—Panama section Biosecurity policies and systems Records of on-farm biosecurity extension	Level of 'industry adjustment, resilience, and management of the disease' at the beginning and end of the program (Note 2) Extent to which biosecurity policies are robust and systems are sustainable
Engage with key stakeholder and community groups to promote understanding of the disease, and encourage early reporting and shared responsibility for biosecurity practice change	Data on stakeholder engagement activities Data on education and engagement materials	Survey data on levels of stakeholder understanding Extent of practice change
Deliver a best practice biosecurity program underpinned by accurate data capture, robust diagnostic services, rigorous science, risk based decision-making, and sound corporate practices, and encourage innovation	Standard operating procedures Work instructions Risk assessment procedures Banana growers kit (a kit of information about the disease and on-farm biosecurity practises, specifically to banana growers)	Evidence of accuracy of data capture, robustness of diagnostic services, extent to which decision-making is evidence-based, and corporate practices are sound Evidence of scientific findings to inform development of best practice procedures (Note 1) Evidence of encouragement of innovation

Note 1: Biosecurity Queensland has since reported to the QAO that it has now identified the size and location of all banana farms in Queensland. It also confirmed that recent scientific findings confirm that the program is implementing best practice procedures for managing Panama.

Note 2: As reported above, the Australian Banana Growers' Council has started to fill this gap.

Source: Queensland Audit Office

Reporting progress

The Panama quarterly reports are very detailed and include a detailed description of the activities undertaken in the quarter for each of its 118 performance indicators.

The Panama quarterly reports also include a red, orange, or green status to indicate whether there are any risks or issues. The majority of the indicators are reported as green. For the first objective—determining the current geographical distribution of the Panama disease TR4 by implementing the surveillance strategy—we found inconsistencies in the quarterly reports between the:

- status recorded for the indicators
- description of progress
- evidence supporting those activities.

We have provided examples of these inconsistencies to Biosecurity Queensland to further investigate.

The Panama program manager keeps senior management and other stakeholders informed about issues arising from implementation of the program's key activities. While this is valuable, formal program reports on these activities must be accurate.

Wild dogs

None of the data needed to monitor the performance of the Queensland Wild Dog Management Strategy 2011–16 is readily available on a Queensland-wide basis. Some of the reasons for data not being available include:

- In developing the strategy, Biosecurity Queensland did not clearly allocate responsibility for collecting and maintaining data to measure all key performance indicators.
- It was a significant challenge just to get Queensland's stakeholders to agree on a set of performance indicators. For example, the stakeholders in the National Wild Dog Action Plan could not agree on a standard set of metrics to measure wild dog impacts nationally.
- Many of the performance indicators require landholders to provide data about the status of dogs on their properties, and none of the responsible parties to the strategy have established systems and processes to capture the necessary data.
- One of Biosecurity Queensland's specific responsibilities in the strategy is to undertake population and damage assessments and collect impact data. Biosecurity Queensland has not collected this data.

In cases where multiple stakeholders share responsibility for delivering strategic outcomes, it is critical that government, from the outset, takes responsibility for negotiating and agreeing what evidence they will need. Then, responsible parties need to decide who will collect, analyse, and report on it to show that the entities have collectively delivered the strategy effectively. This is particularly important when the government is investing a significant level of public money towards achieving the strategic objectives.

Figure 2F outlines the key performance indicators in the strategy. Data to measure most of these performance indicators is not readily available and it is not viable to collect it now. Many of the measures need a baseline from which to assess whether they have increased or decreased, and these baselines have never been established.

Figure 2F
Performance indicators in the Queensland Wild Dog Management Strategy 2011–2016

Performance indicators
1. Effective network of wild dog committees cover the state
2. Reduced level of livestock losses, damage, and encroachment by wild dogs
3. More effective, targeted baiting using nil tenure approach (an approach where problems and solutions are recognised as crossing land borders and require high levels of collaboration among affected and unaffected stakeholders)
4. Increased number of landholders participating in coordinated control programs
5. Increased enterprise selection for landholders (diversity of livestock)
6. Reduced number of reports of wild dog impacts from graziers
7. Reduced economic impact on livestock industries
8. Reduced negative media interest
9. Increased acceptance of the management of dingoes in protected areas
10. Increased acceptance of the management of dingoes elsewhere
11. Size, number, and purity of dingo populations identified and maintained sustainably
12. Public acceptance of wild dog control programs
13. Reduced number of pets and domestic animals lost to wild dog attacks
14. Safety—reduced number of attacks on humans
15. Increased awareness of livestock industry viability
16. Increased acceptance of control techniques and commensurate welfare issues
17. Increased awareness of the properties and use of 1080
18. Increased number of groups actively involved in local wild dog issues

Source: Queensland Wild Dog Management Strategy 2011–2016

For the 18 performance indicators, data is only available for the first indicator, and that data only partially addresses the indicator.

The strategy refers to a network of wild dog committees, but does not define what constitutes a wild dog committee.

In Western Queensland, 13 shire councils have each established a formal committee to advise them on how best to control wild dogs in their shires. Australian Wool Innovation and AgForce jointly funded a wild dog coordinator for the Western Queensland region, which has established the Western Queensland Dog Watch Committee, made up of the chairs of each of the 13 wild dog committees. The Western Queensland Dog Watch Committee coordinates aerial baiting across the 13 shires.

This network of committees does not cover the state and, while there has been no evaluation about their effectiveness to date, the wild dog coordinator has recently implemented a monitoring and evaluation framework to help measure their effectiveness.

In addition to these formal committees, in November 2015, AgForce provided Biosecurity Queensland with a list of community-based pest management groups active in wild dog control across Queensland. At that date, 67 groups were listed.

There is no evidence to show the level of increase in these groups since the strategy commenced in 2011. There is also no evidence about their effectiveness.

Other data sources

Biosecurity Queensland could collect wild dog impact data through collaboration with other entities.

For example, in 2010 and 2014, the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) undertook a national landholder survey funded by Australian Wool Innovation. The objectives included examining landholders' perspectives on changes in wild dog problems and severity, personal and financial impacts, control methods, and attitudes to management between 2010 and 2014.

Biosecurity Queensland could collaborate with ABARES and Australian Wool Innovation to explore ways that future surveys could assist in gathering relevant impact data to measure the effectiveness of wild dog management in Queensland. If Biosecurity Queensland works with ABARES to encourage landholders to complete surveys and ensure relevant questions form part of the survey, it could have access to much needed information to inform policy direction.

Reporting progress

Biosecurity Queensland's regional operations staff report on their wild dog management activities through weekly reports to their program head. These weekly reports do not clearly discuss Biosecurity Queensland's specific responsibilities or report on the key performance measures in the Wild Dog Management Strategy 2011–16. They are also not clearly aligned to the Invasive Plants and Animals annual operational plan. Instead, these weekly reports just list the activities each officer has completed in the week.

Surveillance

Biosecurity Queensland's three core programs each collect different information about their state-funded surveillance activities. Figure 2G shows that they also use different systems to record that information. The data that Biosecurity Queensland collects in these systems is largely activity data.

Figure 2G
State-funded surveillance activities and available data

Surveillance activities	Information system	Type of data
	Animal Biosecurity and Welfare	
General passive animal disease surveillance Queensland Ruminant Feed Ban Surveillance Program Queensland Johne's Disease Surveillance Program Cattle Tick Surveillance Program Newcastle Disease Surveillance Program Laboratory support (diagnostics) at Biosecurity Sciences Laboratory and Tick Fever Centre	Microsoft Excel spreadsheets Laboratory Information Management System (LIMS)	Records of field visits and samples taken, including property address Clinical history of tested animals and herd size Diagnostic test results
	Plant Biosecurity and Product Integrity	
Remote and Early Warning Surveillance Surveillance for market access and control and containment Incident response surveillance e.g. for the Varroa mite	Biosecurity Surveillance Incidence Response and Tracking system (BioSIRT) Biosecurity Online Resources and Information System (BORIS) KEMU (collections database laboratory system)	Records of field visits and samples taken, including property addresses Diagnostic test results
	Invasive Plants and Animals	
Biosecurity Queensland Contact Centre—National Electric Ant Eradication	Call centre register Microsoft Excel spreadsheets Pest Central (spatial database) Electric Ant Information System	Records of inquiries made to call centre Locations of pests and weeds identified (data incomplete)

Source: Queensland Audit Office

Biosecurity Queensland's surveillance activities also include specific national cost-shared programs. Biosecurity Queensland delivers those programs under specific agreements, which include requirements for performance monitoring and reporting. These programs are generally subject to evaluation and a level of external scrutiny. For this reason, we did not review any of the national surveillance programs.

Biosecurity Queensland is currently implementing the Biosecurity Information Management System (BIMS) program. Once this is complete, Biosecurity Queensland will have better information about the effectiveness of surveillance activities. Key outcomes expected from the BIMS program include:

- the collection of biosecurity data at the source, into a single information system, reducing the amount of manual data entry, the risk of errors, and duplicate data sources
- consistency and efficiency across the program areas of Biosecurity Queensland in the way it responds to incidents, with consistent business processes aligned with an integrated information management solution.

More information about the BIMS program is included in Appendix C. The 2015 Queensland Biosecurity Capability Review confirmed this program is appropriate and adequately resourced to be a platform for improved data analysis in the future.

Reporting progress

All three of Biosecurity Queensland's core animal and plant programs undertake state-funded surveillance activities. Despite this, the only available examples of quarterly reports on these activities are in the Plant Biosecurity and Product Integrity program's quarterly reports.

Similar to Panama, these quarterly reports only outline specific activities undertaken in relation to that program's state-funded surveillance activities. Although the report refers to the activities as 'key performance indicators', they are descriptions of activities performed, not measures of performance effectiveness.

Evaluating programs and initiatives

Biosecurity Queensland has not developed a formal evaluation plan for its Panama program, wild dog strategy, or surveillance activities. This means that Biosecurity Queensland has not yet:

- specified criteria for determining the success of the activities
- focused on the key information that will inform decision-making
- used a systematic and evidence-based approach to assess performance.

Biosecurity Queensland's rollout of its part of the Department of Agriculture and Fisheries' new Impact and Investment Framework will help it to identify the data it needs to demonstrate its effectiveness. Until that work is complete, it does not have all the evidence it needs to show that it is delivering these activities successfully.

However, as outlined in following paragraphs, Biosecurity Queensland has started to identify the information it (and its industry partners) will need to evaluate Panama and wild dog activities.

In relation to surveillance, Biosecurity Queensland measures and monitors the surveillance activities it performs under national cost-shared agreements. These agreements generally require Biosecurity Queensland to undertake surveillance with specific performance targets, and with monitoring, evaluation, and reporting requirements. Biosecurity Queensland does not, however, undertake regular comprehensive evaluation of its state-funded surveillance activities.

Panama

Evaluating activities

Since the Panama program commenced in August 2015, Biosecurity Queensland has used a flexible and collaborative approach to developing, implementing, and modifying the program approach. While Biosecurity Queensland has not planned a formal, systematic evaluation of the program's implementation and progress towards achieving its objectives, it has already completed or commissioned several reviews of specific aspects of the program's activities.

Over time, and with this information, it has refined the program's objectives, organisational structure, and staffing as well as policies and procedures. It has also implemented new technology to improve systems and processes. This shows the program is responsive and that it is adapting as research and knowledge about the Panama TR4 disease and control techniques become available.

Reviews completed so far include:

- risk assessment on the potential for contamination and disease spread from Panama TR4 program field activities. Activities assessed included
  - movement of surveillance personnel onto a property
  - assessment of a symptomatic plant for disease
  - movement of sampling personnel between sample sites on a property
  - movement of surveillance personnel off a property
  - sample of collection, integrity, and packaging
- risk assessment surrounding the use of a vehicle wash-down facility at Innisfail. Activities assessed included
  - movement of Panama program surveillance vehicles from banana production areas to the wash-down facility
  - movement of Panama program surveillance vehicles from a banana property known to be infested with Panama disease to the wash-down facility
  - movement of Cassowary Coast Regional Council vehicles from the field to the wash-down facility
  - operation of the wash-down facility during vehicle decontamination
  - off-site sludge treatment
  - operation of the wash-down facility during vehicle decontamination—use of detergents and disinfectants
- assessment of vehicle decontamination at a wash-down facility in Innisfail. This included a high-level assessment of chemicals used during vehicle decontamination and the assessment of risk of the potential for viable spores to enter the waterway
- assessment of decontamination and wash-down facility access and decontamination options with the relocation of the Tully office to Moresby
- Australian Banana Growers Council's review of the program's operational plan
- evaluation of the communication and community engagement activities undertaken on the Panama program during the period from 4 March 2015 to 11 March 2016
- analysis of feedback received by participants attending the Panama education, information, and training sessions
- analysis of maps showing surveillance coverage on known commercial banana production properties to inform progress of surveillance activities
- assessment of results of a community survey that explored factors associated with
  - the wellbeing of community members
  - the perceptions of risk associated with Panama disease
  - how the banana industry and wider community are preparing for the future
- validation reviews of diagnostic methods used by the Plant Biosecurity Sciences Laboratory that confirm that the diagnostic methods were fit for purpose as part of the Panama program.

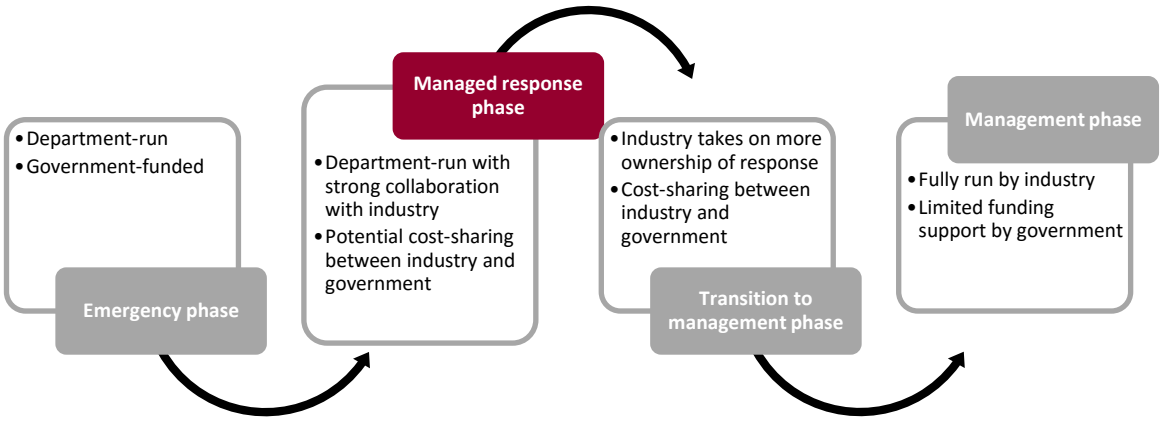
Biosecurity Queensland has also recently committed to an independent epidemiological review on the Panama program. It will review all information about the positive detections of the Panama disease on the infested property and provide an assessment of the possible source, history, and distribution of the pathogen and the current spread minimisation measures.

Evaluating outcomes

The program's overall aims are to contain Panama disease TR4 to the one infested property and to ensure industry resilience and sustainability in the longer term. As the disease cannot be eradicated, Biosecurity Queensland needs to know whether the banana industry is ready to take over responsibility for managing the disease itself if and when the time comes.

As shown in Figure 2H, the Panama program comprises four phases.

Figure 2H
Panama program phases



Source: Panama TR4 Program Activity Plan 2016–17

Biosecurity Queensland's strategy, operational plan, and activity plan for 2016–17 include 'triggers' for reviewing the current strategy. These reviews occur in consultation with stakeholders. The reviews consider whether the program should move from the 'managed response phase' to the 'transition to management phase' and ultimately to the ongoing 'management phase'.

The program moved from the emergency response phase to the managed response phase on 1 September 2015 and is still in that phase. In the management phase, the banana industry will be responsible for managing the disease in the long-term.

The triggers for reviewing whether the program should move to the next phase include when:

- five per cent of banana farms, scattered throughout North Queensland, are infested (approximately 15 properties)
- fifteen per cent of the banana production area in the greater Tully area or any other production areas are under quarantine due to infestation
- infested properties are present in all or most of the major production areas (greater Tully, Mareeba, Innisfail, and Lakeland)
- there is a positive detection outside of the North Queensland production areas.

Biosecurity Queensland has started to plan how it will evaluate the success of its communication and engagement strategy. It has also recently started to use an online survey tool to capture information about the success of its education activities. The surveys it is using include questions about the participants' level of knowledge about Panama disease and good biosecurity practices. It is too soon for Biosecurity Queensland to have any data from these surveys for analysis, but it is a step in the right direction.

Wild dogs

The Queensland Wild Dog Management Strategy 2011–16 includes a section on evaluation, but none of the entities responsible for implementing it have developed a comprehensive evaluation plan or coordinated collection of sufficient data to undertake an appropriate level of evaluation. None of the parties responsible for the strategy have collected information about the effectiveness of current wild dog activities to inform future direction.

The strategy states that the Queensland Dog Offensive Group will evaluate the strategy annually and that local government will evaluate it every four years through their pest management plans. The Queensland Dog Offensive Group has begun discussions about evaluating the strategy, including sending a brief survey to all local governments, but it has not yet completed that work. While local governments have pest management plans specific to their regions, they do not evaluate the Queensland Wild Dog Management Strategy 2011–16 as part of developing and implementing those plans.

Even if relevant parties had identified and captured the necessary data, the Queensland Dog Offensive Group does not have sufficient resources to enable it to collect and analyse that data to monitor performance of the strategy or evaluate its effectiveness. The strategy allocated this important responsibility to a non-government body, which the government did not establish or fund to do this task.

Biosecurity Queensland provides secretariat support to the Queensland Dog Offensive Group on a part-time basis. However, this support is not sufficient to enable the Queensland Dog Offensive Group to undertake the level of data collection and analysis that would be required to evaluate the strategy at a sufficient level.

3. Measuring and reporting on efficiency

Chapter in brief

Measuring and monitoring Biosecurity Queensland's efficiency provides valuable information about how the agency is performing over time, and how it compares with other like agencies. With this information, it can make informed decisions about how to best use its resources to deliver its intended objectives. The information also gives government and the community confidence that Biosecurity Queensland is delivering value for money.

In this chapter, we assess how well Biosecurity Queensland measures, reports on, and improves the efficiency of its detection, response, and management initiatives and activities.

Main findings

- Biosecurity Queensland has recently committed to implementing an electronic staff time recording system. Until this is implemented, it is not able to monitor or report on the efficiency of its biosecurity activities. It cannot currently capture reliable and consistent data on the costs of those activities' inputs and outputs.
- It has started to develop performance indicators and targets to measure efficiency as part of implementing the Department of Agriculture and Fisheries' new Impact and Investment Framework.
- It has also recently implemented new technology to improve aspects of its efficiency and continues to do so with the rollout of its Biosecurity Information Management Systems (BIMS) program. It has not yet quantified the full benefits these improvements have delivered or will deliver in terms of cost savings.
- Biosecurity Queensland has identified a range of potential benefits and efficiencies that the BIMS program could deliver. It has needed to change the scope of the BIMS program several times due to project delays and budget overruns. Because of these changes, some of the identified efficiencies will now not be realised.

Introduction

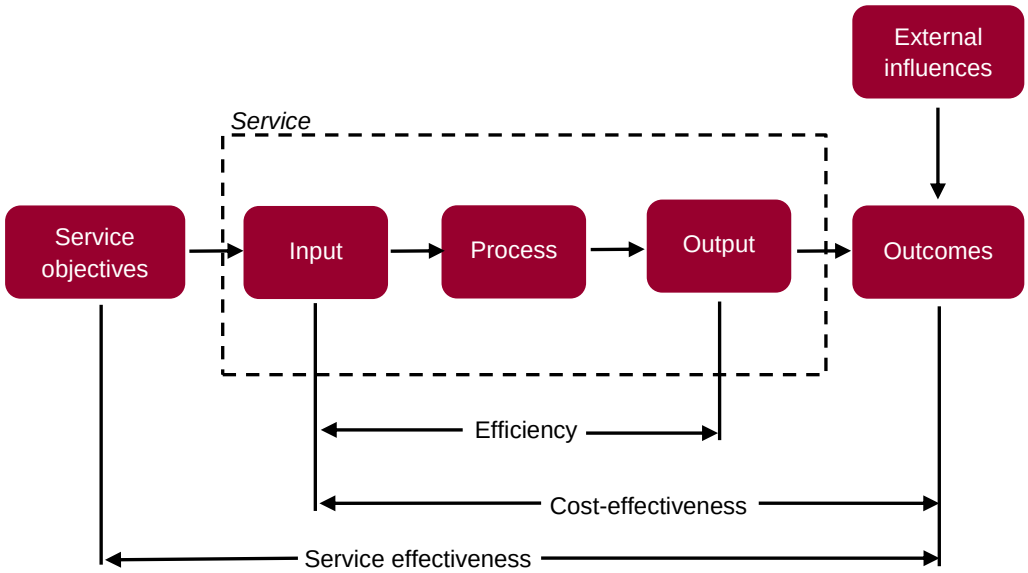
Biosecurity Queensland is under ever increasing pressure to deliver results in a complex environment with limited resources.

This makes it critical that its operations are as efficient as possible, which means it must optimise the use of biosecurity resources to achieve the intended objectives. Streamlining systems and processes, using new technology, introducing innovative management approaches, and reducing waste are all ways Biosecurity Queensland can use resources more efficiently. In turn, more efficient systems and practices can generate savings that free up funds for high priority biosecurity activities.

Measuring the efficiency of specific biosecurity activities requires a clear understanding of the inputs and outputs of those activities, supported by consistent and reliable data. Analysis of that data over time will allow Biosecurity Queensland to assess whether its efficiency is improving.

Figure 3A shows the difference between assessing efficiency and effectiveness.

Figure 3A
Service logic diagram



Source: Queensland Audit Office adapted from Report on Government Services 2015, Productivity Commission

We expected to find that Biosecurity Queensland focuses on improving efficiency by closely monitoring its use of resources and by implementing new technology to streamline processes and reduce waste.

This chapter assesses whether Biosecurity Queensland:

- has systems in place to record specific inputs and outputs for each of its key biosecurity activities
- monitors and reports on its efficiency data over time
- improves the efficiency of its biosecurity activities.

Audit conclusions

Government and the community cannot be confident that Biosecurity Queensland is using public funds as efficiently as possible. It has shown a willingness to adopt new technology and more efficient practices, but it cannot show whether its efficiency is improving over time.

This is because Biosecurity Queensland does not yet have mature systems for measuring, monitoring, and reporting on the resources used to deliver its activities.

Recognising this, it has recently decided to adopt an electronic staff time recording system. This will provide it with a basis to assess efficiency, set targets, and compare the efficiency of its activities, both within Biosecurity Queensland and against other like agencies.

This, combined with the rollout of the Department of Agriculture and Fisheries' new Impact and Investment Framework, will position Biosecurity Queensland well to demonstrate that it is delivering value for money.

Monitoring efficiency

Biosecurity Queensland is not yet able to monitor or report on the efficiency of its biosecurity activities, as it does not currently capture reliable and consistent data on the costs of inputs and outputs. However, it has recently committed to implementing an electronic time recording system for staff to record the time they spend on various activities.

It has also started to develop performance indicators and targets to measure efficiency as part of implementing the Impact and Investment Framework. Together, these initiatives will allow Biosecurity Queensland to develop efficiency targets, assess whether efficiency is improving over time, and determine whether some activities are more efficient than others.

In the meantime, some teams have implemented approaches that will assist Biosecurity Queensland to monitor its efficiency and deliver more efficient operations. These examples demonstrate Biosecurity Queensland's commitment to improving efficiency:

- the Panama Tropical Race 4 (TR4) disease program's flexible resourcing approach
- the Panama surveillance data collection methodology
- Biosecurity Sciences Laboratory's analysis of throughput of diagnostic tests.

Panama program approach

Biosecurity Queensland’s flexible resourcing approach to the Panama TR4 disease (Panama) response means it only uses resources when it needs them.

Its response to the March 2015 detection of Panama disease on a North Queensland banana farm involved establishing a discrete program coordinated by a local control centre. The program has dedicated resources who only work on the Panama response. Taking a program approach results in all the costs associated with the response being recorded against specific cost centres. This makes it easy to monitor efficiency. For example, for Panama:

- Biosecurity Queensland contracts surveillance officers through a supplier of field staff. This arrangement allows Biosecurity Queensland to contract officers on a flexible basis. If surveillance activity stops for any reason, for example, the weather or a change in strategy, Biosecurity Queensland is able to reduce the workforce. Similarly, it is able to increase the workforce rapidly if it detects any additional infested properties.
- Panama's Community Engagement and Communications team also includes contractors. The workload in this area is variable and the use of contractors allows Biosecurity Queensland to engage appropriately trained staff quickly to respond to heightened incidence of community concern or interest.

Panama surveillance data

Biosecurity Queensland has the ability to measure the efficiency of its Panama surveillance activities and monitor them over time, but it does not routinely do so.

Panama is a discrete program with a defined budget and set of deliverables. Panama staff conduct surveillance on the one farm infested with Panama disease TR4 and other related and local banana farms, according to an agreed surveillance schedule. All surveillance officers are contractors, so information about the input cost of their work is readily available.

Those officers record data electronically on their surveillance activities—the surveillance outputs. Those outputs include, for example:

- the number of farms surveyed and the dates of each visit
- the number of rows of banana plants inspected on each farm.

Current monitoring of Panama includes quality assurance over the records of surveillance activity but not the level of efficiency of this activity. While it is important for Biosecurity Queensland to monitor the quality of its data, it is also important for it to use the data to monitor its efficiency over time.

Biosecurity Sciences Laboratory

Biosecurity Queensland has the data available to monitor throughput of samples submitted to the Biosecurity Sciences Laboratory (BSL), but it has not established target time frames for processing those samples. Setting these as performance targets would drive efficient service delivery.

Biosecurity Queensland staff, private or industry veterinarians, and some farmer groups submit samples to the BSL for testing. Submitters complete a specimen advice sheet with each sample. That sheet requires the submitter to identify, for example:

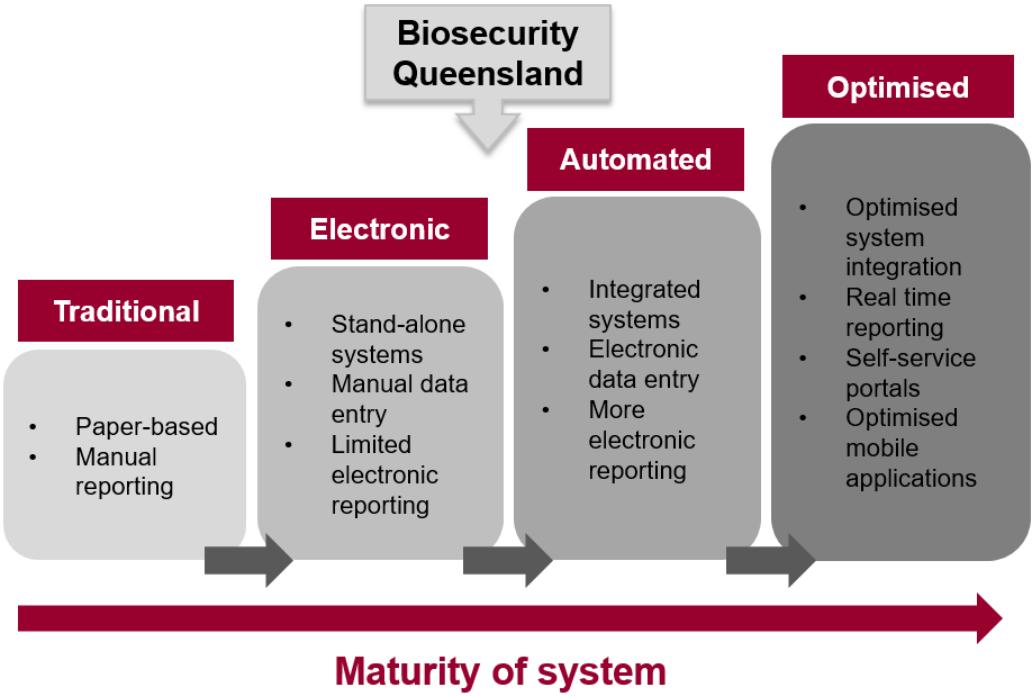
- details of the animal and the property where it is kept
- details of the animal's clinical history and any other sick animals on the property
- details of the sample, date collected, and submitted
- the reason for the test, which governs whether the submitter is required to pay for the testing, as some tests are partly or fully subsidised by Biosecurity Queensland and others are not.

Biosecurity Queensland inputs the data from these sheets into the Laboratory Information Management System (LIMS). BSL's section leaders discuss this data at their monthly meetings. This enables them to monitor the numbers of samples submitted for each of the various reasons, the time it takes to process and finalise the tests, and any trends or changes over time. This gives an indication of sample throughput and is a good start towards monitoring efficiency. Biosecurity Queensland could use this data to establish performance targets for the different types of tests performed.

Improving efficiency

Biosecurity Queensland has a focus on improving the efficiency of its biosecurity activities and initiatives through innovation and technology. However, there is still scope to achieve further efficiencies. Our observation of the systems it uses to capture and maintain surveillance and diagnostic data indicates that it is currently between an electronic and automated system in terms of maturity, as indicated in Figure 3B.

Figure 3B
Maturity of Biosecurity Queensland's current surveillance and diagnostic systems



Source: Queensland Audit Office

During the audit, we saw good examples of efficiency improvements or of potential improvements from implementation of Biosecurity Queensland's Biosecurity Information Management System (BIMS) program. Those examples were:

- a new tablet-based 'Journey app' to record Panama surveillance data in the field
- a phased rollout of the Biosecurity Online Resource and Information System (BORIS).

However, at the time of the audit, Biosecurity Queensland had not quantified the amount of staff time and effort that it had saved or will save by implementing these and other improvements.

We have provided more information about the BIMS program in Appendix C.

Panama Journey app

Biosecurity Queensland implemented new technology for the Panama program to replace manual processes. At the time of the audit it had not yet assessed how much this technology had improved efficiency.

From March to September 2015, surveillance officers recorded their activities using paper forms, which they then provided to a full-time database administrator to manually enter into the Biosecurity Surveillance Incidence Response and Tracking system (BioSIRT).

On 28 September 2015, surveillance officers started using the Journey app on hand-held devices to record their activities. The app captured information from the field into a 'cloud' server, which the database administrator later copied and pasted into BioSIRT. While this was faster than manually typing all the information from the paper forms into the system, it still required manual input.

The database administrator reported spending more time quality assuring and analysing the information rather than entering it into BioSIRT, which was a step in the right direction.

In late 2016, Biosecurity Queensland replaced BioSIRT and the Journey app with BORIS for the Panama program. BORIS enables automatic upload of surveillance information in the field without the need for an administrator to copy and paste it.

Although Biosecurity Queensland has not yet quantified the amount of staff time and costs it had saved, it estimates that moving from a paper-based process to a full digital process for surveillance on the Panama program reduce effort by 10 per cent.

Biosecurity Online Resource and Information System (BORIS)

BORIS is Biosecurity Queensland's new online portal. It houses several different solutions or modules developed through the BIMS program. Apart from the Panama program, some of the other modules that Biosecurity Queensland has already rolled out in BORIS during 2016 include:

- Plant health surveillance—this replaces BioSIRT and is used by the Plant Biosecurity and Product Integrity program to record property, customer, surveillance, observation, and sample collection details on tablets in the field, providing spatial mapping and reporting of captured data
- Varroa mite response—this manages data collected from activities in the current Varroa mite response and includes the ability to collect surveillance and sample data in the field using tablets.

During the first part of 2017, the following responses are scheduled for integration into BORIS:

- restricted places and animals
- weed eradication and management
- locust management
- pest animal eradication
- pest animal management
- fruit fly surveillance
- animal biosecurity and welfare surveillance.

Once fully implemented, BORIS will replace several of Biosecurity Queensland's existing systems, including those that it currently uses to record surveillance data. This is important because Biosecurity Queensland officers have been recording surveillance data in different systems and spreadsheets and for different purposes. Comparison of the surveillance data from those various systems is not easy or practicable because each system captures different information in different formats. There are also some gaps in the data, which means that meaningful comparison of data sets is not possible.

Further opportunities for efficiency gains

Electronic timesheet system

The Department of Agriculture and Fisheries has recognised the need for better time recording as part of its Impact and Investment Framework project. In October 2016, the director-general approved a new electronic timesheet solution (Tadpole) for the whole department. The department has started the project and expects to complete implementing it by the middle of 2017. Recording time against key program activities will assist Biosecurity Queensland in measuring and monitoring efficiency, by comparing staff costs against outputs delivered.

Other efficiencies identified as part of the BIMS program

The BIMS program commenced in March 2014 and we are advised that it will be completed by September 2017. During the planning phase, Biosecurity Queensland identified a range of potential benefits and efficiencies. It has since changed the scope of the BIMS program several times. Some of these changes were necessary because of funding constraints due to budget overruns in earlier project phases. The program reported delays due to spending more time than planned exploring interstate technology options.

As a result of the scope changes, some potential efficiencies will not be fully realised. Examples of what the program will now not deliver include:

- one single integrated information management system for Biosecurity Queensland with consistent business processes and systems across all business areas. The Animal Biosecurity Sciences Laboratory will continue to use its stand-alone system (LIMS) for registering surveillance samples
- the online collection and distribution of biosecurity information with a customer portal and end-to-end digital processes. This would have allowed landholders and industry stakeholders to take a major role in surveillance and risk mitigation activities through exchanging information online. It is consistent with one of the recommendations made in the September 2015 final report on the independent Queensland Biosecurity Capability Review (the capability review), which was to consider opportunities for data capture and analysis in collaboration with the community, business, other jurisdictions, and agencies. Currently, the only online component will be through public access to a Dog Breeder Registration System
- full biosecurity intelligence capability, although there will still be some data analysis and reporting capability. This will affect Biosecurity Queensland's ability to provide meaningful information and analysis, enabling a more proactive approach to the prevention and management of disease and pest incidents. The BIMS business case identifies that Biosecurity Queensland currently holds information in silos for its business-as-usual activities, and for each surveillance and response activity. Even if the BIMS program brings the information together, Biosecurity Queensland will now not have all the tools it needs to analyse and use that information strategically.

New and emerging technologies

Similar to the findings of the capability review, we identified other opportunities that could assist Biosecurity Queensland to strengthen its passive surveillance capability and promote a shared responsibility for managing pests and diseases.

Passive surveillance involves industry bodies, other government agencies, members of the community, and landholders noticing something unusual and reporting it, or sending samples to Biosecurity Queensland for analysis. This differs to the active or targeted surveillance that Biosecurity Queensland performs under, for example, national cost-shared agreements such as structured surveys, testing, or trapping programs.

The technology exists for biosecurity agencies to receive real-time surveillance information electronically from landholders and industry bodies for analysis and intelligence purposes. Biosecurity Queensland has an opportunity to investigate these options as it implements the capability review recommendations. Examples are:

- The Western Australian Department of Agriculture and Food has released the PestFax Report app, which allows members of the community to quickly and easily report observations of pests and diseases using their GPS location. Reporters can also upload photos and seek a reply to their report. The department uses the data to produce a PestFax newsletter each week to keep the community better informed about what is happening in their area.
- The Fulcrum app which is similar to PestFax. A number of Natural Resource Management Groups are already using the Fulcrum app within Queensland to identify feral animals and weeds. (Natural Resource Management groups are regional organisations focusing on the planning and delivery of programs that support healthy and productive country, viable communities, and sustainable industries.) This technology also allows the community to report observations of different biosecurity matters—using GPS locations and uploading photos.
- Another example is FeralScan, developed by the Invasive Animals Cooperative Research Centre. The FeralScan Pest Mapping Suite is a free resource for farmers, landholders, pest controllers, and the community to upload on their smartphones or tablets to
    - map sightings of pest animals
    - record the damage they cause
    - document or plan control activities in their local area.

These examples show that there are emerging technologies that Biosecurity Queensland could consider as an alternative to developing its own online information exchange portal, or as a supplement to it. Although the data that becomes available through these platforms may produce biased samples and is unverified, it may help to improve operational efficiency and promote shared responsibility in managing biosecurity risks. Currently, Biosecurity Queensland receives this type of information through its telephone call centre and does not collect the data automatically or holistically.

Appendices

Appendix A—Full responses from agencies

As mandated in Section 64 of the *Auditor-General Act 2009*, the Queensland Audit Office gave a copy of this report with a request for comments to the Department of Agriculture and Fisheries.

The head of the agency is responsible for the accuracy, fairness and balance of their comments.

This appendix contains their detailed responses to our audit recommendations.

Comments received from Director-General, The Department of Agriculture and Fisheries

Queensland Government

Department of
Agriculture and Fisheries

Reference: CTS 04128/17

27 MAR 2017

Mr Anthony Close
Acting Auditor-General
Queensland Audit Office
PO Box 15396
CITY EAST QLD 4002

Dear Mr Close

Thank you for your letter of 7 March 2017 providing the proposed Report to Parliament for the performance audit on Biosecurity Queensland's management of agriculture pests and diseases and the acquittal of issues raised in the department's response to the preliminary draft.

Attached is the department's response for inclusion at Attachment A of the report. The response indicates my agreement with the five recommendations and a series of actions and milestones for their implementation.

Again, thank you for the opportunity to comment on the proposed report.

Yours sincerely

Elizabeth Woods

Dr Elizabeth Woods
Director-General
Department of Agriculture and Fisheries

Att

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Responses to recommendations

Queensland Audit Office
better public services

Department of Agriculture and Fisheries, Biosecurity Queensland's management of agricultural pests and diseases (Report No. XX: 2016–17)

Response to recommendations provided by the Director-General, Department of Agriculture and Fisheries on March 2017.

Recommendation	Agree / Disagree	Timeframe for implementation (Quarter and year)	Additional comments
1. Continue to develop an appropriate number of specific, measurable, achievable, relevant, and timed key performance indicators for each of Biosecurity Queensland's key activities or initiatives. In doing so, it should:	Agree	March 2017	Impact maps that describe the expected outcomes of all Biosecurity Queensland programs finalised.
		March 2017	Biosecurity Queensland has finalised performance plans for 2016/17 across all programs.
▪ plan how Biosecurity Queensland will collect and analyse data to monitor these key performance indicators		June 2017	Performance monitoring plans for 2017/18 finalised.
		December 2017	A whole-of-DAF evaluation framework and tools established.
▪ collaborate with industry and other stakeholders where appropriate on the collection of data to support performance monitoring		December 2017	A rolling schedule of evaluation of key BQ activities will be established, in line with the whole-of-DAF evaluation program.
▪ evaluate the success of key activities or initiatives in delivering the desired outcomes (chapter 2)		March 2018	Evaluation of the implementation of the *Wild Dog Management Strategy 2011- 2016* completed with emphasis on available data, including Local Government Biosecurity Plans, and targeted interviews with representative local governments.
		March 2018	Monitoring and evaluation requirements included in wild dog funding agreements ($13 million) with industry, local government and NRM groups.
		June 2018	Final project data evaluations completed.

Responses to recommendations

QAO
Queensland Audit Office
better public services

2.	Improve quarterly reporting processes by not only reporting on inputs and activities for key biosecurity initiatives, but also on risks and progress towards achieving objectives and outcomes to support strategic management decisions (chapter 2)	Agree	June 2017	Biosecurity Queensland Leadership Team's Quarterly Strategic Business Meeting reports will be extended to address progress and risks to achieving objectives and outcomes.
3.	Ensure that when Biosecurity Queensland participates in pest and disease management strategies which share responsibilities with other entities, it clearly determines: ▪ its roles and responsibilities compared to the other entities involved ▪ the key performance indicators that will be used to assess its contribution to the strategy ▪ which entity is best placed to monitor performance of the strategy and evaluate it at appropriate intervals (chapter 2)	Agree	December 2017 March 2018 June 2017	The Queensland Biosecurity Strategy and Action Plan, being co-developed with all key stakeholders, will achieve broad agreement and understanding of roles and responsibilities of everyone in the biosecurity systems. The National Wild Dog Action Plan (NWDAP) define roles and responsibilities for wild dog management. The Wild Dog Strategy will include formulation of SMART KPIs and baseline targets that will be used to assess Biosecurity Queensland's contribution to wild dog management in the future. The Panama TR4 2017-18 Operational Plan will document the roles and responsibilities of all program stakeholders. A biometrician has been engaged to evaluate the effectiveness of the TR4 surveillance program and an independent epidemiology review will be completed. Key performance indicators and nomination of entities to monitor and evaluate performance of strategies will be undertaken as stated as part of the implementation of recommendation 1.

Responses to recommendations

Queensland Audit Office
better public services

4.	Monitors and reports on the input costs over time for each of Biosecurity Queensland's key outputs, activities, or initiatives to identify further efficiency improvements (chapter 3)	Agree	June 2017	A DAF wide system is being implemented that aligns inputs to activities and expected impacts. This will underpin measurement of efficiency and cost effectiveness, and will be updated each Financial Year. E-timesheet implementation completed.
5.	Considers options to implement the efficiency improvements that were identified during the planning of the Biosecurity Information Management System program and are now not within scope (chapter 3).	Agree	December 2017	The BIMS program elements taken out of scope will be re-considered as part of the Better Intelligence Systems feasibility analysis being undertaken for the Queensland Biosecurity Strategy and Action Plan.

Appendix B—Audit objectives and methods

Audit objective and scope

The objective of the audit was to assess whether Biosecurity Queensland effectively and efficiently detects, responds, to and manages significant agricultural pests and diseases.

The audit addressed the objective through the following sub-objectives:

- Biosecurity Queensland's detection, response, and management initiatives and activities achieve their objectives.
- Biosecurity Queensland measures, reports on, and improves the efficiency of its detection, response, and management initiatives and activities.

The audit addressed the sub-objectives through the following lines of inquiry and criteria.

Figure B1
Lines of inquiry and audit criteria

Lines of inquiry		Criteria	
1.1	Biosecurity Queensland clearly defines the objectives of its detection, response, and management initiatives and activities.	1.1.1	Biosecurity Queensland has documented and communicated the objectives of each initiative and activity.
1.2	Biosecurity Queensland evaluates whether its detection, response, and management initiatives and activities achieve their objectives.	1.2.1	Biosecurity Queensland captures quantitative and/or qualitative key performance data for each initiative and activity.
		1.2.2	Biosecurity Queensland regularly analyses and reports on its performance towards achieving the objectives.
1.3	Biosecurity Queensland's detection, response, and management initiatives and activities achieve their objectives.	1.3.1	Evidence is available to show that those initiatives achieve their intended objectives.
2.1	Biosecurity Queensland's management structure, systems, and practices (controls) allow measurement and reporting on efficiency of its detection, response, and management initiatives and activities.	2.1.1	Biosecurity Queensland has a consistent approach to measuring inputs and outputs of its initiatives and activities.
		2.1.2	Biosecurity Queensland monitors and reports on input and output performance data over time.
2.2	Biosecurity Queensland uses performance data to improve the efficiency of its detection, response, and management initiatives and activities.	2.2.1	Biosecurity Queensland's management analyses performance data on a regular basis.
		2.2.2	The efficiency of Biosecurity Queensland's initiatives and activities is improving over time.

Source: Queensland Audit Office

We assessed the lines of inquiry by undertaking a detailed review of three specific initiatives/activities:

- Panama Tropical Race 4 disease (response initiative)
- wild dogs (management activity)
- surveillance carried out by each of Biosecurity Queensland's core programs (detection activities).

Audit focus

This audit focused on:

- predominantly state-funded Biosecurity Queensland activities
- Biosecurity Queensland's operational level effectiveness, not strategic intent
- how effectively and efficiently Biosecurity Queensland has delivered the initiatives and activities that it has already invested in, and will likely continue to deliver in future
- key activities that are at the core of Biosecurity Queensland's role in detecting, responding to, and managing significant pests and diseases.

The Department of Agriculture and Fisheries' involvement in national programs occurs under formal, specific agreements. These are subject to monitoring and reporting requirements in terms of their effectiveness and efficiency. For this reason, this audit did not consider these activities in any detail. Instead, we focused on activities and initiatives that Queensland largely delivers outside the national arrangements.

We note that the state government is still to release its final response to the Queensland Biosecurity Capability Review and implement the recommendations that it accepts. Therefore, we designed this audit to assess Biosecurity Queensland's initiatives and activities at an operational level rather than revisit the report's more strategic recommendations.

The Department of Agriculture and Fisheries is currently implementing our recommendation from *Agricultural science research, development and extension programs and projects* (Report 3: 2015–16), which was to implement a new impact and investment framework. This will take some time to take effect, so this audit did not consider whether Biosecurity Queensland is investing in the 'right' initiatives and activities.

Performance audit approach

We conducted the audit in accordance with the Auditor-General of Queensland Auditing Standards, which incorporate Australian Auditing and Assurance Standards.

We conducted the audit between September 2016 and December 2016. The entity included in this audit is the Department of Agriculture and Fisheries.

We selected three initiatives/activities (Panama Tropical Race 4 disease, wild dog management, and surveillance) to focus on based on the following factors:

- Biosecurity Queensland's annual budget allocation for them
- estimated economic impact on relevant industries, where relevant
- auditability, including existing strategies and plans
- length of time each has been, or is likely to be, conducted
- reference to each initiative/activity in the 2015 Queensland Biosecurity Capability Review report.

The audit included:

- interviews with a selection of officers from the Department of Agriculture and Fisheries, the Australian Banana Growers' Council, the federal Department of Agriculture and Water Resources, the Queensland Dog Offensive Group committee members, local government, AgForce and the Local Government Association Queensland
- visits to the Panama project office in Moresby and the regional office in Cairns
- review and analysis of available department and stakeholder data sets
- scrutiny of publicly available information and of information obtained as part of the audit.

Appendix C—Biosecurity Information Management System (BIMS) program

Background to the BIMS program

In 2013, Biosecurity Queensland identified that its information systems were not sufficient to respond effectively to a major biosecurity emergency. Current systems were approaching end of life, and current support arrangements established by the Australian Government for the national Biosecurity Surveillance Incidence Response and Tracking system (BioSIRT) were due to expire at the end of June 2016.

In late 2013, Biosecurity Queensland developed a business case. The BIMS program was started in March 2014 and was due to be completed by June 2017.

In March 2015, Biosecurity Queensland's Chief Biosecurity Officer directed the program to focus on assisting the Panama program emergency response. This diversion of resources reduced access to key business stakeholders, and affected the time and cost parameters of the program.

In March 2016, the program board approved a reduced program scope and an extension of time to 30 September 2017. The program budget was originally $18.08 million over five years.

During August 2016, the program board gave approval for the Dog Breeder Registration System project to form part of the scope, with an additional $0.46 million added to the project budget.

In November 2016, the program board gave approval to put the Plant Biosecurity Laboratory Information Management System project back in scope and added an additional $0.83 million to the budget.

The project additions bring the total program budget to $19.37 million.

Program vision and objectives

The objective of the BIMS program is to transform Biosecurity Queensland's information management systems, providing a new information management capability and associated business processes. This is to ensure legislative responsibilities and the state's biosecurity obligations, including the sharing of information nationally, are met. Specific objectives are shown in Figure C1.

Figure C1
BIMS objectives

Objective	Description
Scale resources	Scale up in the event of an incident response using proven, efficient, and effective business processes and systems.
Optimise knowledge	Optimise the value of the Department of Agriculture and Fisheries' specialised knowledge in biosecurity management, technical, and scientific areas through a focus on strategic information management rather on collating and managing isolated data sets.
Leverage technology	Leverage a technology platform that will allow for the use of modern technology, including handheld devices, web interfaces, and geospatial data.
Manage information	Manage information efficiently to meet state, national, and international biosecurity reporting obligations.
Evolve biosecurity	Evolve biosecurity policy, process, and operating procedures within the Department of Agriculture and Fisheries, other government agencies, and industry to meet increasingly complex and varied biosecurity threats involving pests and diseases or animals, plants, and invasive species.
Manage risk	Manage the risks associated with managing a large-scale incident response such as a foot-and-mouth disease incursion within appropriate tolerances.

Source: Queensland Audit Office—extracted from Biosecurity Queensland's BIMS Program—Program Plan version 2.0, March 2016

Program benefits

The main benefit focus of the BIMS program is mitigation of the risk that the Department of Agriculture and Fisheries' information systems and associated business processes are not sufficient to support the effective management of biosecurity in Queensland.

In Figure C2, we have listed the specific benefits identified for this program.

Figure C2
BIMS program benefits

Benefit	Description
1. More accurate and reliable information	There is enormous business value in having confidence that information is accurate and decision-makers are properly informed with the best information possible. Repeating patterns of information can be relied upon, and decisions are defensible.
2. Sharing of information and intelligence with industry partners and landholders, and other jurisdictions	As biosecurity threats increase in number and become more complex, the Department of Agriculture and Fisheries will struggle to meet its obligations without partnering with industry. Through sharing information with industry and landholders, the capacity available to mitigate known risks and identify new and emerging risks will be greatly enhanced.
3. Scalable, sustainable, and affordable systems	Reducing risks associated with system continuity, functionality, and usability is very important. So is avoiding the escalating cost of legacy systems. It is also important to reduce the cost of the information management for responses and to have more immediate capacity to support responses.
4. Latest information, including field information, readily available to decision-makers	Access to real-time, comprehensive information is essential for managing biosecurity events. The Department of Agriculture and Fisheries can be more responsive and more certain about response decisions.
5. Minimal lead time to set up information systems for emergency responses	Less time and effort will be wasted setting up for responses, little (if any) additional training will be required to use information systems for responses, and response information will be available from the time the response is initiated.
6. Savings from less resources required to manage and report information	Direct digital data capture, more accurate data and single points of truth delivered through BIMS should release staff from re-entering, correcting, and manipulating data unnecessarily. Reporting will be more automated and more people will have direct access to information, negating the need for copious reporting from the more restricted set of people who had access in the past.
7. Savings from more efficient and standardised business processes	Reengineering processes as part of systems renewal, including unifying and standardising them where possible, will streamline them, reduce effort to participate in them, and make it easier for staff and customers to be proficient in their roles in business processes.
8. Optimum customer choice and experience through digital capabilities	There will be greater self-service capability for customers, leading to an improved customer experience. Over time, as customers migrate to self-service, there are potential savings for full-service channels.
9. Better information for cost-recovery, resource estimation, and post-incident reviews	This should deliver resource savings and cost minimisation, maximised cost-recovery, improved resource readiness for responses, and a strong business management reputation.
10. Predictive information that supports pre-emptive actions	Being more predictive and pre-emptive in managing biosecurity threats and risks ultimately reduces the number and impact of incidents and emergencies. The cost of responses would also be reduced.

Source: Queensland Audit Office—adapted from Biosecurity Queensland's BIMS Program—Business Case, version 2.2, November 2016

The benefits quantified for the BIMS project in the latest available business case were:

- 60 per cent reduced cost, business continuity, and emerging preparedness risks
- 20 per cent more accurate, real time, and predictive information
- 10 per cent reduced work effort
- 10 per cent improved customer satisfaction.

Program outcomes

The program plan states that BIMS will transform the information management systems and associated business processes for the Department of Agriculture and Fisheries, to ensure the department continues to meet legislative responsibilities and Queensland's biosecurity obligations. The program will reduce risks and ensure Queensland's long-term biosecurity capability by enabling the outcomes listed in Figure C3.

Figure C3
Program outcomes for the BIMS project

Program outcomes
1. The collection of biosecurity data, at the source, into a single information management system, reducing the amount of manual data entry, the risk of errors, and duplicate data sources
2. The collection and distribution of biosecurity information online with targeted, authenticated, groups
3. A single source of truth that can be integrated with internal and external information sources, providing simplified and automated reporting to support timely decision-making
4. The ability to analyse data across the biosecurity continuum and program areas, providing meaningful information and analysis and enabling a more proactive approach in the prevention and management of disease and pest incidents
5. A biosecurity systems toolkit that embraces newer technologies, with the ability to scale up in responses through flexible architecture (the ability to cost-effectively and rapidly scale and vary the biosecurity information management platform to cater for variations in its use)
6. The migration of existing systems to the BIMS, with legacy systems decommissioned as appropriate
7. Increased effectiveness during responses achieved through improved data quality, system accessibility (day-to-day system also used for emergency response), and integrated processes and tools
8. Increased transparency of workforce activities to inform cost of services, assess priority of activity, and improve ability to forecast resource requirements
9. Improved audit trail of events and support for cost sharing and compensation claims
10. Consistency and efficiency across the program areas of Biosecurity Queensland in the way we respond to incidents, with consistent business processes aligned with an integrated information management solution
11. Improved customer service through digital delivery of Biosecurity Queensland services, consistent with the Department of Agriculture and Fisheries' digital service delivery strategy and channels

Source: Queensland Audit Office—extracted from Biosecurity Queensland's BIMS Program—Program Plan version 2.2, November 2016

Appendix D—Performance indicators

Assessment criteria

Figure D1 shows the Australian National Audit Office's criteria and considerations for developing key performance indicators (KPIs) that are specific, measurable, achievable, relevant, and timed (SMART).

Figure D1
SMART criteria

Criteria	Consideration
Specific	Key question: Is there a description of a precise or specific behaviour/outcome that is linked to rate, number percentage, or frequency? Are the KPIs in plain English? Do they contain jargon or unexplained acronyms? Are the deliverables and KPIs different? Could a reasonable person understand the meaning of the KPIs?
Measurable	Key question: Is there a reliable system in place to measure progress towards the achievement of the objective? Does each KPI show a trend over years? Is there a target or benchmark against which to measure achievement? Is the form of measurement used clear and in a quantifiable amount? (e.g. numeric or %) Is the form of measurement used appropriate to express success of the program?
Achievable	Key question: With a reasonable amount of effort and application, can the objective be achieved? Have the deliverables or KPIs changed significantly over years without a reasonable explanation? (e.g. an increase or decrease in the budget)
Relevant	Key question: Does each KPI link to the program objective? Is there an obvious link between the outcome, program, program objective, deliverables, and each KPI?
Timed	Key question: Does each KPI specify a timeframe? Is a timeframe specified for achieving each KPI (over several years)?

Source: Queensland Audit Office—adapted from Appendix 1 of the Australian National Audit Office: Audit Report No. 5 2011–12 Development and Implementation of Key Performance Indicators to Support the Outcomes and Programs Framework

Auditor-General Reports to Parliament

Reports tabled in 2016–17

Number	Title	Date tabled in Legislative Assembly
1.	Strategic procurement	September 2016
2.	Forecasting long-term sustainability of local government	October 2016
3.	Follow-up: Monitoring and reporting performance	November 2016
4.	Criminal justice data—prison sentences	November 2016
5.	Energy: 2015–16 results of financial audits	November 2016
6.	Rail and ports: 2015–16 results of financial audits	November 2016
7.	Water: 2015–16 results of financial audits	December 2016
8.	Queensland state government: 2015–16 results of financial audits	December 2016
9.	Hospital and Health Services: 2015–16 results of financial audits	January 2017
10.	Effective and efficient use of high value medical equipment	February 2017
11.	Audit of Aurukun school partnership arrangement	February 2017
12.	Biosecurity Queensland's management of agricultural pests and diseases	March 2017

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