DRAFT

QUEENSLAND BIOSECURITY

STRATEGY | OUR NEXT FIVE YEARS

2017 - 2022

Queensland Government

Acknowledgements

This strategy is the result of contributions from individuals working in biosecurity relevant industries, community groups, national organisations and others with a strong interest in biosecurity who want their voices heard.

More than 32 separate organisations and 100 people have directly or indirectly contributed towards the development of this strategy.

Contributors will be invited to co-brand the strategy once the public submission period has closed and its contents are ready for finalisation.

Special acknowledgement goes to the members of the writing group, who volunteered their time to contribute towards the writing and editing of this strategy:

- AgForce
- CSIRO
- Local Government Association of Queensland (LGAQ)
- Queensland Farmers' Federation (QFF)
- Biosecurity Queensland Ministerial Advisory Council (BQMAC)

We also acknowledge individual system participants and other organisations such as the Invasive Species Council, Animal Health Australia and Plant Health Australia, who reviewed drafts of this strategy.

BQMAC have been instrumental in providing leadership across the system and developing arrangements for monitoring ongoing performance under the strategy.

The dedication and hard work of these people is reflected in this strategy and we acknowledge that this would not be possible without their insight and desire to build a better, more collaborative and responsive biosecurity system for Queensland.

This publication has been compiled by Department of Agriculture and Fisheries.

Contents

How was the **strategy developed?**

We have used a range of tools and co-collaboration approaches for this strategy, including:

- ***Queensland biosecurity capability review*** – the findings and recommendations of the *Queensland biosecurity capability review*[1] provided insight into the needs of the future system.
- **strategy and action planning partner forums** – stakeholders collaboratively developed the content of the strategy through partner forums.
- **writing groups** – to cement the concept of co-ownership, our partners literally took to the pen to help write the strategy. References to 'we' in this strategy, are an acknowledgement that key stakeholders have already adopted the goal of our first strategic theme – collaborative governance and leadership.

How is our **strategy different?**

The one thing we all agree on is that to maintain the resilience of Queensland's biosecurity system we need a new approach. We see the edge for this strategy being based on the following:

- **it is co-created** – when we use the term 'we' in this strategy, it means all of us. The partners from across the system created this strategy from the ground up
- **it is for the system** – this is a strategy for adoption and implementation by everyone in the system
- **it is transformative** – building on recent changes, such as the introduction of the general biosecurity obligation on all Queenslanders, this strategy will form the basis of the transformation required in order for each of us to clearly identify our role in biosecurity and how the system is managed overall.

1 Brooks, R, Glanville, R & Kompas,T 2015, *Queensland biosecurity capability review.*

What does **biosecurity** mean to you?

For many of us, biosecurity conjures up media images such as properties being quarantined for animal and plant diseases like Hendra virus, Panama disease tropical race 4 in bananas, or eradication programs for fire ants and electric ants. Biosecurity is much more than this and is relevant to all of us. Some ways we can all get involved include:

- being on the lookout for unusual occurrences of pests, diseases and weeds so that they can be dealt with quickly
- being prepared with systems and trained people to deal with any threats in the most effective way
- developing tools to manage the impact of invasive species, such as weeds and animals that may damage the environment or make life difficult for people
- making sure that outbreaks don't happen in the first place through effective border controls and all of us doing the right thing on our own properties.

Biosecurity is a strategic and integrated approach to analysing and managing risks posed by pests and diseases[2]. All members of the Queensland community will benefit from the protection biosecurity brings to our economy, environment, human health and way of life.

Simple actions - **real impact**

Biosecurity at the individual level could be as simple as opening your latest online purchase over the sink in case it was to contain a pest or contaminant. By checking for and reporting suspicious matter, you are helping to protect Queensland from the potential spread of diseases originating from interstate and overseas.

Our systems and people need to be resilient and prepared to meet the unpredictable. We must proactively plan for the increasing number, scope and complexity of future biosecurity threats we may face. At the same time, we must address the pests and diseases that have already been introduced, established and spread. The community expects that we learn from our past experiences and respond faster, more comprehensively and more cost effectively to each new biosecurity threat, even though the science may be uncertain or ambiguous.

Queensland's future generations expect and deserve nothing less.

2 Committee on Agriculture 2003, 'Biosecurity in Food and Agriculture', *Proceedings of the seventeenth session of the Committee on Agriculture*, Food and Agriculture Organization of the United Nations, Rome, Italy, viewed on 3 November 2016 <http://www.fao.org/biosecurity>

Queensland - the **frontline** of biosecurity

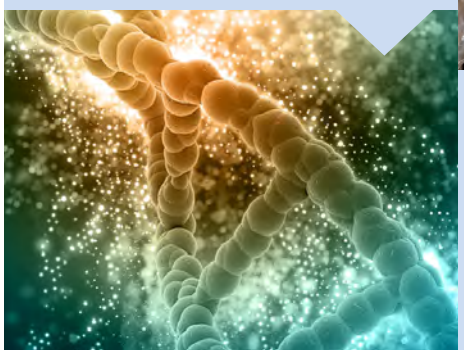
Pressures driving our strategic direction

Increasing global trade, e-commerce and movement of people increases the potential for pests and diseases to be introduced to Queensland.

Changing patterns of human activity impact on ecosystems. Urban sprawl brings people into closer proximity with wildlife and agriculture, increasing biosecurity risks. More densely populated cities increase the risk of an infectious disease outbreak.

We have a long and often remote coastline that is difficult to monitor. Many exotic pests and diseases are present in countries to our north.

Emerging technologies have the potential to revolutionise how we detect and manage biosecurity risks. Harnessing these technologies will help keep us ahead of biosecurity risks.



Exotic pests, diseases and weeds increasingly impact our terrestrial, marine and aquatic ecosystems. Invasive animal and plant species have been identified as a major threat to biodiversity and contribute to habitat loss and degradation.

Many of our primary industries are heavily reliant on export markets, including for the movement of livestock populations, animal and plant products. Effective disease surveillance and control is essential to maintain market access.

In addition to managing existing drivers and their associated risks to biosecurity, our system will need to cope with future trends such as those identified by the CSIRO report *Australia's biosecurity future: preparing for future biological challenges*[3].

The effort and cost to prevent a threat from entering and establishing in Queensland is far lower than its eradication and control. Unfortunately, we can't predict with any certainty how relentless global change will affect the specific biosecurity threats Queenslanders will face into the future. The large number of previously unknown animal diseases that have emerged globally in the last 30 years, and the sheer number of plant pests and diseases that could potentially arrive here, demonstrate the difficulty in predicting what we may face next.

3 CSIRO 2014, *Australia's biosecurity future: preparing for future biological challenges.*

Transforming our system -

our goals, principles and strategic themes

We will protect Queensland's ecosystems, our industries and our way of life, maintain Queensland's national and international reputation for product safety and integrity and ensure ongoing market access for our commodities.

Our goals

While our way of doing things will transform, the reason we do them is timeless. In operating the system together, our goals 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 Queensland's favourable reputation for safe and high quality trade
- protect Queensland's ecosystems and our way of life.

Our guiding principles

Our collective partnership will be the cornerstone of our success. We acknowledge that the road to partnership will have challenges, particularly over time as easy wins give way to the need to balance competing values and interests.

We will all commit to:

- consistency, openness and honesty in our dealings
- collaboration and a commitment to put the integrity of Queensland's biosecurity system's collective needs beyond any individual's needs
- fostering a culture of continuous learning and a commitment to transforming the biosecurity system.

The result of that commitment should be increased trust and inclusiveness between all players in the biosecurity system. Our collective commitment to these values will be outlined in a statement of intent. The statement of intent will be a bridge between the commitment to the strategy and moving toward collective action planning for the whole of the biosecurity system.

Six strategic themes

THEME 1
Collaborative governance and leadership

THEME 2
Every Queenslander plays their part

THEME 3
Empowered to act

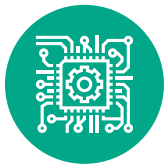
THEME 4
Bright ideas and better ways

THEME 5
Valuing and building on our investments

THEME 6
Better intelligence systems

The principles underpinning our strategy

		THEME 1 Collaborative governance and leadership	THEME 2 Every Queenslander plays their part	THEME 3 Empowered to act
PRINCIPLES	**Consistency, openness and honesty**	Government, industry and the wider community will share information and decision making.	We will be open and honest about how we see our roles in managing the system.	We will work together to identify and address skills gaps in the system. We will mutually define our roles in the system and support each other to achieve them.
	Collaboration and commitment	We will promote the value and requirements of the broader biosecurity system, rather than focusing on our individual interests.	Each of us will contribute to the best of our ability. This may include some financial resources, but is more often a simple change in the way we do things.	We will identify collective resourcing and skill development opportunities, even if there may not be primary or immediate benefits to our own organisations.
	A culture of continuous learning and commitment	Leaders in the system will champion involvement of others and help move us towards our strategic goals.	We will be open to new ways of doing things. Our goal is to ensure that good biosecurity practice will be as automatic as putting on a seatbelt.	We will commit to the transfer of knowledge throughout the system, in order to meet the changing nature of biosecurity and the role we all play.

		 THEME 4 Bright ideas and better ways	 THEME 5 Valuing and building on our investments	 THEME 6 Better intelligence systems
PRINCIPLES	Consistency, openness and honesty	We will consult with each other to promote innovation. We will have a wider view on what the costs and benefits of innovation are.	We will acknowledge the nature and scope of investment across the system and opportunities for efficiencies and reinvestment.	We will implement systems which encourage and support consistent, evidence-based decision making, to build trust between all participants.
	Collaboration and commitment	We will share ideas and support each other in innovation, so that everyone benefits.	We will promote collective investment in areas that build system-wide capability rather than private gain.	We will look to gather intelligence from a range of new sources, including the private sector. All levels of government will work harder to coordinate our systems and frameworks.
	A culture of continuous learning and commitment	We will capture great ideas in a systematic manner and provide time and supportive environments for development of these ideas.	We will tell a collective story to the community, business and decision makers about the social, economic and environmental value that avoided risk delivers.	We will increase our focus on predictive systems or frameworks which support the prevention of threats.

Theme 1

Collaborative governance and leadership

We need to work together to build a resilient system aligned to common goals that deals effectively with the complexity of biosecurity. Our goal is a partnership approach that allows all interest groups to contribute meaningfully to our governance structure, system design and decision making.

In this way we can create a partnership in the truest sense and a biosecurity system that is robust enough to deal with the unpredictability of threats.

We also recognise that true collaborative governance is not only about the formal structures, strategies and operations we put in place. There is a great need for *all* partners to ensure our underpinning behaviours enable us to make true change in every layer of the biosecurity system.

The development of Queensland's future biosecurity system calls for a collective and collaborative partnership between government, industry and interest groups.

Areas of focus

- Developing agreed governance arrangements with clear roles, responsibilities and accountabilities for all partners.
- Supporting community champions to promote the importance of good biosecurity.
- Forums to reach agreement on collective biosecurity priorities, issues and investment.
- Transparency in monitoring and reporting to help us to continually improve and be accountable.
- All biosecurity agencies across Australia acknowledging and leveraging off each other's strengths for better biosecurity outcomes (e.g. engaging with supermarket chains, e-commerce stores, agricultural importers, etc.).

Our aspirations

- Widespread community understanding of, and commitment to, our common goals.
- Bipartisan support for our strategic priorities.
- Understanding and alignment of the priorities and challenges facing the Queensland biosecurity system.
- Decision making that includes participants at all levels, with the reasons behind our decisions being transparently and efficiently shared with all participants.
- Effective partner forums to promote collaboration and to assist in changing the mindset and behaviours of partners in the biosecurity system.

Image credit: Nursery and Garden Industry Queensland (NGIQ)

CASE STUDY

Panama disease tropical race 4

The Panama TR4 Program is a great example of empowering growers and the general public to act.

Overview of threat

Panama disease tropical race 4, also known as fusarium wilt, is a disease that could devastate the Queensland banana industry. It is a fungal spore that infects bananas through their root system and eventually cuts off water and nutrient supply to the plant. Panama disease tropical race 4 is a silent sleeper that can live in soil for decades without a host and is easily spread by contaminated soil, plant material and water.

For the first time ever, Panama disease tropical race 4 has been detected in Queensland.

There is no known cure for the disease and our only defense to date is implementing effective decontamination processes.

What are we doing?

Research is ongoing into the growth of Panama disease tolerant bananas, however this is a temporary solution.

Collaborative governance and leadership (theme 1) of the banana industry, landowners, community members and government at all levels has meant that we have managed to keep the first detection of the disease quarantined for an unprecedented amount of time.

A state-based taskforce, steering and advisory committees and regional working and social groups have all worked together to help prevent further impact to Queensland's banana industry and the communities they support.

Demonstrated outcomes

The Panama TR4 Program is a great example of empowering growers and the general public to act.

Broad communication and community engagement has seen growers empowered to choose how they respond to the threat (theme 3) and has educated the public about the important role they play in preventing the spread of the disease (theme 2).

Training and education campaigns have assisted associated industries and service providers to understand the implications of their work and have created a cultural change around activities on banana farms. For example, we now know not to visit a banana farm without first gaining permission and undergoing effective decontamination.

Peak industry bodies and the government have shown real stewardship in managing the commercial impacts for the property involved and managing risks to the Queensland and Australian banana industries.

Theme 2

Every Queenslander plays their part

While biosecurity is everyone's business, we understand the reality is that not everyone is actually in the business of biosecurity.

Many of us perceive biosecurity activities taking place on farms, in food and transport businesses, veterinary practices or by the natural environment, conservation and land management groups. Our individual participation varies for many reasons and lack of awareness and competing interests leads us to expect, believe or hope that others are taking care of our biosecurity.

Under this theme we will build every Queenslander's awareness of the economic, environmental, community, health and lifestyle benefits that effective biosecurity delivers. We will build a culture of mutual support to understand and willingly perform our respective biosecurity roles and responsibilities, regardless of the level of resources available.

Biosecurity affects us all.

We are united by the potential risk to our businesses, the environment and our health.

Areas of focus

- Clear understanding of the beliefs, attitudes, intentions and behaviours of key players in the biosecurity system.
- Engaging Queenslanders in a way that recognises biosecurity is not a stand-alone concept (i.e. bringing biosecurity into the mainstream and making it relevant to what people do each day).
- Target biosecurity awareness campaigns based on the interests, lifestyle and values of different "communities of interest", such as gardening clubs, conservation groups, hobby farmers and peri-urban communities.
- Using behavioural science approaches to develop and evaluate the success of our engagement approaches and moving away from a sole focus on traditional compliance methods.
- Early education of the next generation of Queenslanders
- Development and promotion of role models, mentors and 'coaches' in the biosecurity system.

Our aspirations

- Broad agreement and understanding of what biosecurity is, why it is important and what each of our roles and responsibilities are.
- The acceptance of biosecurity activities as automatic actions and behaviours, similar to putting on a seatbelt each time we enter a vehicle.
- Clear, inter-connected, integrated and proven communication programs focused on those areas in which we have identified synergies for funding.
- A culture of mutual support and responsibility.

CASE STUDY

Weed Spotters

In Queensland, the community effort to tackle the problem of weeds is significant.

Overview of threat

We know there are around 1400 species of 'weed' in Queensland, with new species being established each year[4]. We also understand that around 70% of weed species may have escaped from private or botanic gardens and nurseries[5]. What we don't yet know is how widespread the problem is, due to many variables, such as the lag time between when a weed first takes hold and when it becomes an environmental weed. If we look to history for an indication, this can be anywhere between 20 and 300 years.

Productivity losses, ongoing management, land and water degradation costs the Australian agriculture industry alone more than $4 billion each year[6]. The wider community suffers further losses of its reliable and affordable food supply and damage to native ecosystems and wildlife.

What are we doing?

Nearly 10% of Queensland's weed species are declared 'pest plants', which means that landowners have a general biosecurity obligation to manage them on their properties. However, given the source of their introduction and their ability to spread, the problem is not just one for landowners. Fighting this threat requires a collaborative approach across a range of government, landowners, environmental groups, utility companies (who regularly enter land) and the community.

In Queensland, the community effort to tackle the problem of weeds is significant. The Weed Spotters Network Queensland (Weed Spotters) are one of the main community-based groups who are involved in this fight. Weed Spotters are often people who already work in weed or botanical networks, who already have some basic identification skills and are familiar with their local environment.

Regional coordinators work with Weed Spotters to filter particular types of weeds to the Queensland Herbarium for identification, registration, mapping and further coordination with state and local agencies (based on specific criteria) to determine if further action is required.

Demonstrated outcomes

The Weed Spotters Network Queensland has over 1000 members and is the biggest citizen science project in the state. Its members have contributed to the notification of more than 100 declared weeds in the past three years and have significantly expanded the Queensland Herbarium's weed collection. Weed Spotters is a great example of theme 2.

4 Bostock, PD & Holland, AE (Eds) 2016, Introduction to the census of the Queensland Flora 2016. Queensland Department of Science, Information Technology and Innovation, Brisbane.

5 Natural Resource Management Ministerial Council 2006, Australian weeds strategy: a national strategy for weed management in Australia, Department of the Environment and Water Resources, Canberra, viewed on 3 November 2016 <http://www.environment.gov.au/biodiversity/invasive/weeds/publications/strategies/pubs/weed-strategy.pdf>.

6 Ibid.

Theme 3

Empowered to act

In Queensland, biosecurity has some of the most dedicated professionals and volunteers in the country. Despite the dedication of these individuals, there is always room to improve the capability, capacity and resilience of Queensland's biosecurity system and the skills of the people within it.

Over the past decade land managers and producers have taken greater responsibility for the management of biosecurity risk. We must work together to empower these groups to continue contributing to biosecurity in Queensland.

The science and practice of biosecurity itself is changing. The biosecurity system in Queensland needs the human, physical and system capacity to effectively and efficiently undertake activities aimed at:

- preparedness and prevention
- surveillance and vigilance
- incident and emergency response
- market access
- endemic threat management.

In order to achieve this, we need to empower the right people across the biosecurity network of industry, governments and the community. This should exist across a range of phases, including prevention, the response phase, ongoing management and into the community recovery phase.

Areas of focus

- Conducting a skills analysis across the Queensland biosecurity system and developing strategies to build capability where a need is identified, particularly in areas where roles might be changing.
- Agreement for greater coordination between government and peak environment and industry bodies, to help with knowledge transfer to community and land managers.
- Supporting behaviour change and empowering people where new roles and responsibilities are expected.
- Identifying opportunities to expand biosecurity networks (such as including veterinarians, agronomists, research and education sectors) and arrangements that enable systems to work together – especially during emergency responses.
- Meeting challenges in the agricultural sector arising from changes to the traditional membership base of peak bodies (e.g. the rise of micro-producers and conversely, the rise of large multi-national food and land corporations).

Our aspirations

- A clear understanding of where key capabilities exist in the biosecurity system.
- An integrated, nimble and resilient biosecurity system.
- Improved service delivery.
- A biosecurity system that embraces continuous improvement.

Ensuring Queenslanders have the right skills, are armed with the right information and tools and have the plans and resources to take action.

Theme 4

Bright ideas and better ways

Ongoing innovation across the system is necessary to cost effectively manage increasing biosecurity risks, community expectations, competition for investment and any loss of expertise. Presently, there is a heavy reliance on government for delivery and management and a tendency to continue resource intensive activities, simply because this has become normal practice.

We now have the opportunity to leverage off the increased focus on innovation to deliver a step-change in biosecurity service across a broad range of areas. These may include:

- the deployment of smart surveillance
- integration of information sources
- using genetic information to improve security outcomes
- encouraging behavioural change (theme 2)
- enhancing capability and capacity in service delivery (theme 3)
- assisting in risk identification and investment allocation (theme 5).

Innovation isn't always about creating something new – it can be as simple as applying other people's tools and ideas to your problem. All forms of innovation will be critical to operating the system of the future.

New processes, services, products and technologies must be adopted for Queensland to remain at the forefront of emerging trends and risks.

Areas of focus

- Encouraging the sharing of practical knowledge and creativity of all partners in the biosecurity system on an ongoing basis – including creating a culture of positivity and permission to pilot in which all partners feel empowered to explore.
- Undertaking a targeted stock take and gap analysis of current technology and systems.
- Ongoing exploration and promotion of:
  - the multitude of new technologies which can be applied, such as smaller and cheaper devices for surveillance or data mining of social media for intelligence
  - information sources which can be analysed, to improve the way we detect, manage and eradicate new biosecurity threats, such as utilising existing data gathered on-farm to benefit biosecurity outcomes
  - new processes and improvements, such as improving times for delivery of diagnostic testing.
- Developing an active process for capturing and piloting new ideas and approaches, including from the broader community (i.e. citizen science approaches).
- Actively exploring opportunities for businesses to help deliver better outcomes.
- Having a centralised and face-to-face approach to communications between all those within the system, so that innovation is encouraged, discussed and promoted.

Our aspirations

- A culture supportive of innovation, where new ideas and knowledge are openly shared and many parties in the system can undertake their own data analysis.
- Adoption and full utilisation of new technologies and information sources across the biosecurity system.
- A more effective allocation of tasks between our people and technological resources.
- Identification of innovative solutions, potentially through avenues such as incentivising businesses to report diseases, for those problems previously deemed too difficult to overcome.

Theme 5

Valuing and building on our investments

Biosecurity investment takes many forms, including new or existing capital expenditure, investment in research and development and the human resources required to operate the system.

It is important to be able to identify where our time and resources are best directed (e.g. prioritising one pest over another) and how best to allocate funding across the biosecurity spectrum (e.g. prevention, preparedness, response and recovery). All of these decisions should be underpinned by our understanding of risk and an understanding of how much of what we do mitigates that risk. It is also important to involve all stakeholders in this process.

This involvement would allow all decision makers and sectors of the community to better understand the value and benefits of avoiding a biosecurity disaster, rather than containing a pest or disease that has become established.

We aim to build on our existing investment processes, so as to make better use of what is presently available, while identifying additional funding opportunities, especially through co-investment with partners who have aligned interests or gaining investment from new sources.

We will grow the level of investment by demonstrating the value of biosecurity. Every dollar invested must demonstrate a return equal to, or greater than, other investment priorities.

Areas of focus

Options for sustainable resourcing might include:

- Documenting our baseline of current investments so we know where and why contributions, including those of a non-financial nature are being made.
- Communication of the economic, environmental and social value of avoided biosecurity risks to the community, business and decision makers (by using the behavioural techniques outlined in theme 2).
- Identifying new funding sources/partners (including maximising the efforts of volunteers or those making in-kind contributions) and exploring what role things like incentives and industry levies might play to support and reward those in the system.
- Developing an investment framework to prioritise our spending and efforts based on the level of risk and the rewards paid back from those activities.
- Increasing efficiency through a reduction in duplication and reducing costs, where possible.
- Providing the opportunity for biosecurity groups to have greater input into biosecurity funding, based on actual evidence of the most effective expenditure allocation.
- Encouraging and supporting joint feasibility studies and the development of plans to transition away from low value activities.
- Developing transitional approaches to manage the impact on those affected by changes in how biosecurity expenditure is allocated.

Our aspirations

- Recognition by all decision makers, business owners and the community, of the value of investment in biosecurity.
- A functional and collaboratively formed investment framework, allowing partners a greater input into how biosecurity funding has been allocated.
- Co-investment/partnerships achieved across the biosecurity spectrum of activity.
- A well-funded biosecurity system which is allocated on a rational basis and where performance is continually monitored.

CASE STUDY

Foot-and-mouth disease

Queensland has never had an FMD incident and the likelihood remains low.

Overview of threat

Foot-and-mouth disease (FMD) is a highly contagious animal disease. It has been described as the single greatest threat of any disease to Australia's livestock industries.

Queensland has never had an FMD incident and the likelihood remains low.

The impact of on a large, multi-state outbreak on Australia's beef industry for direct revenue losses (not even counting business interruption, export and productivity losses) could be up to $52 billion[7] over a 10 year period.

Even a small, localised outbreak in North Queensland could potentially incur a loss of revenue of up to nearly $6 billion[8] over the same period.

What are we doing?

The Queensland Government initiated a $2.5 million Biosecurity Preparedness Program in 2013/14 to reduce the risk of FMD establishing in Queensland and enhance Queensland's preparedness for FMD.

Investing in the program allowed us to tackle difficult or critical issues and plan how we would react without the pressures of an actual response.

Demonstrated outcomes

- Increased awareness of the illegal practice of swill feeding and the entry pathways of the FMD virus into Australia to reduce the risk of an FMD outbreak.
- Increased awareness of the signs of FMD to increase the likelihood of early detection, meaning a shorter and less expensive response, both in terms of response costs and direct revenue losses.
- Enhanced planning and preparedness for managing critical response activities.

A review of the Biosecurity Preparedness Program (FMD) has found that significant progress has been made since it was implemented in 2013/14. The report outlined that Queensland was leading policy considerations in a number of areas, for example vaccination, disposal and destruction activities. Significant preparedness improvements have been made through livestock standstill exercises, with standstill being a key area given that movement of animals in the early days after the first infection is the most significant factor in the spread and impact of FMD.

Areas for future attention are likely to include arrangements with veterinary practices to improve investigation of suspect cases and submission of samples to laboratories. This will enhance our surge capacity for both FMD testing and access to sufficient human resource. We will be looking for bright ideas and better ways to implement best practice systems to deliver more accurate, timely and cost-effective traceability for all FMD susceptible species.

Even if FMD never occurs in Australia, our businesses and communities will continue to benefit from Queensland's leadership, the upfront investment and our broader biosecurity incident preparedness.

The FMD Biosecurity Preparedness Program is just one practical example of theme 5 (valuing and building on our investments) as it demonstrates the value of investing against the impact of potential future risks.

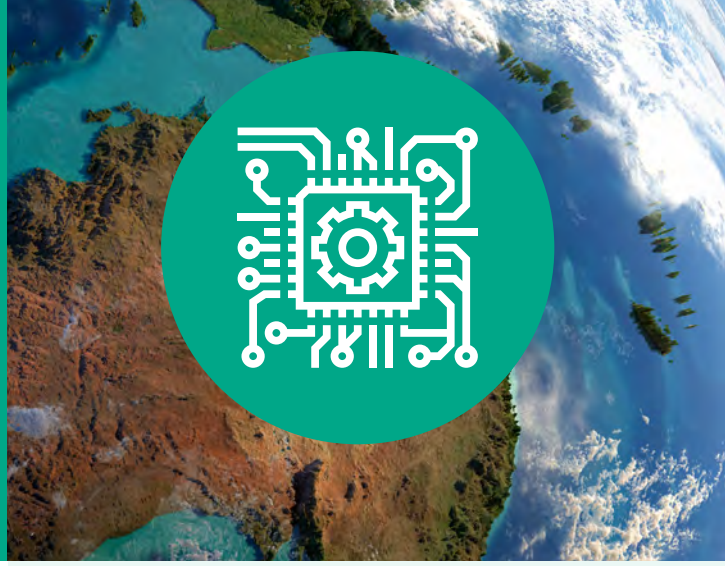
Image credit: AgForce

7 Buetre, B 2013, Potential socio-economic impacts of an outbreak of foot-and-mouth disease in Australia, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES).

8 Ibid.

Theme 6

Better intelligence systems



It is important we understand the extent of our biosecurity challenges and how our decisions impact others. As highlighted by the *Queensland biosecurity capability review* we need to deliver the right information to the right people at the right time in order to keep pace with the challenges we are facing.

Fit-for-purpose intelligence reduces uncertainty and ambiguity, providing confidence in the accuracy and effectiveness of biosecurity decisions and efficiency of systems.

In Queensland, there are a number of biosecurity information platforms in use, such as Pest Central and the Biosecurity Online Resources and Information System (BORIS). These systems provide a platform for management of biosecurity information and spatial data across state and local government, land management agencies, environment groups and industry. There are a range of national and local bodies that are also a repository of significant biosecurity information, however, there is no national system or platform for the rapid collation of pest and disease data.

Nationally, there is much to be gained by better integration of information systems and adoption of more efficient data management processes. Benefits include improved system-wide strategic planning and trend analysis, better evaluation of risk treatment effectiveness and greater efficiency in surveillance planning and regional operational priorities.

We depend on the availability and quality of our evidence base and engagement with those affected across the biosecurity system.

Areas of focus

- Tapping into existing information sources across the biosecurity network within Queensland and nationally.
- Developing an agreed methodology for assessing requirements and risk.
- Identifying and addressing current data sharing constraints.
- Identifying and assessing investment in intelligence systems, both new systems and making better use of our existing surveillance, diagnostic information and reporting.
- A greater focus on data modelling, predictive technology and pathway analysis.
- Delivering targeted communications to stakeholders.
- Recognising that informal and social networks can provide further knowledge and wisdom beyond what can be obtained through formal channels.

Our aspirations

- Queensland as a leader of system-wide biosecurity risk analysis and management, particularly for regional/post-border matters.
- An intelligence culture where people across the network actively contribute information.
- Better informed forecasts, trend analysis, risk identification and scenario planning.
- The delivery of real value to all stakeholders and the community.
- Empowered citizens, capable of making their own decisions on biosecurity risk management.

Will biosecurity be the same in **2022**?

The role of biotechnology

Biotechnology makes it possible to achieve specific beneficial outcomes across populations of organisms by leveraging their reproductive processes. For example, the Eliminate Dengue project in northern Queensland (which is funded by the Bill and Melinda Gates Foundation, among others) is taking advantage of a symbiotic bacteria (Wolbachia) in order to greatly reduce the transmission of viruses such as Dengue and Zika from mosquitoes to people. Scientists are also researching powerful new techniques called gene drives, in which genetic modifications are spread through populations of organisms via reproduction. All of these activities are undertaken in well-regulated environments.

As the technological barriers are reduced, the main barriers to the application of gene drives are operational, ecological, social and regulatory. As a result, significant research is focusing on designing failsafe mechanisms to control gene drives after release. Current efforts are focused on limiting the number of generations that the gene drive will remain active.

What is the potential use in biosecurity?

All over the world, genetic technologies are being considered for biological control of invasive pests. For example, CSIRO, the University of Queensland, the University of Sydney and the University of NSW are collaborating to look at modifying the genome of cane toads. Other potential uses of genetic technology include reducing an organism's pesticide resistances, engineering increased resilience or recovery in situations where species extinctions or ecosystem collapse are imminent. As participants of the biosecurity system, we will need to engage with the ethical and regulatory approaches to manage the risks and benefits of potential uses of new technologies.

Next steps

A successful biosecurity system requires cooperation, strong role clarity and individuals empowered to take the system forward. To encourage this, we will support our strategy through three important phases which will assist us to clearly articulate and agree on our individual roles and begin working toward the vision we have created together.

Statement of intent

Our statement of intent will be a voluntary statement from partners within the system to commit to our values and to take up the collective leadership and planning required to facilitate real change.

Action plans

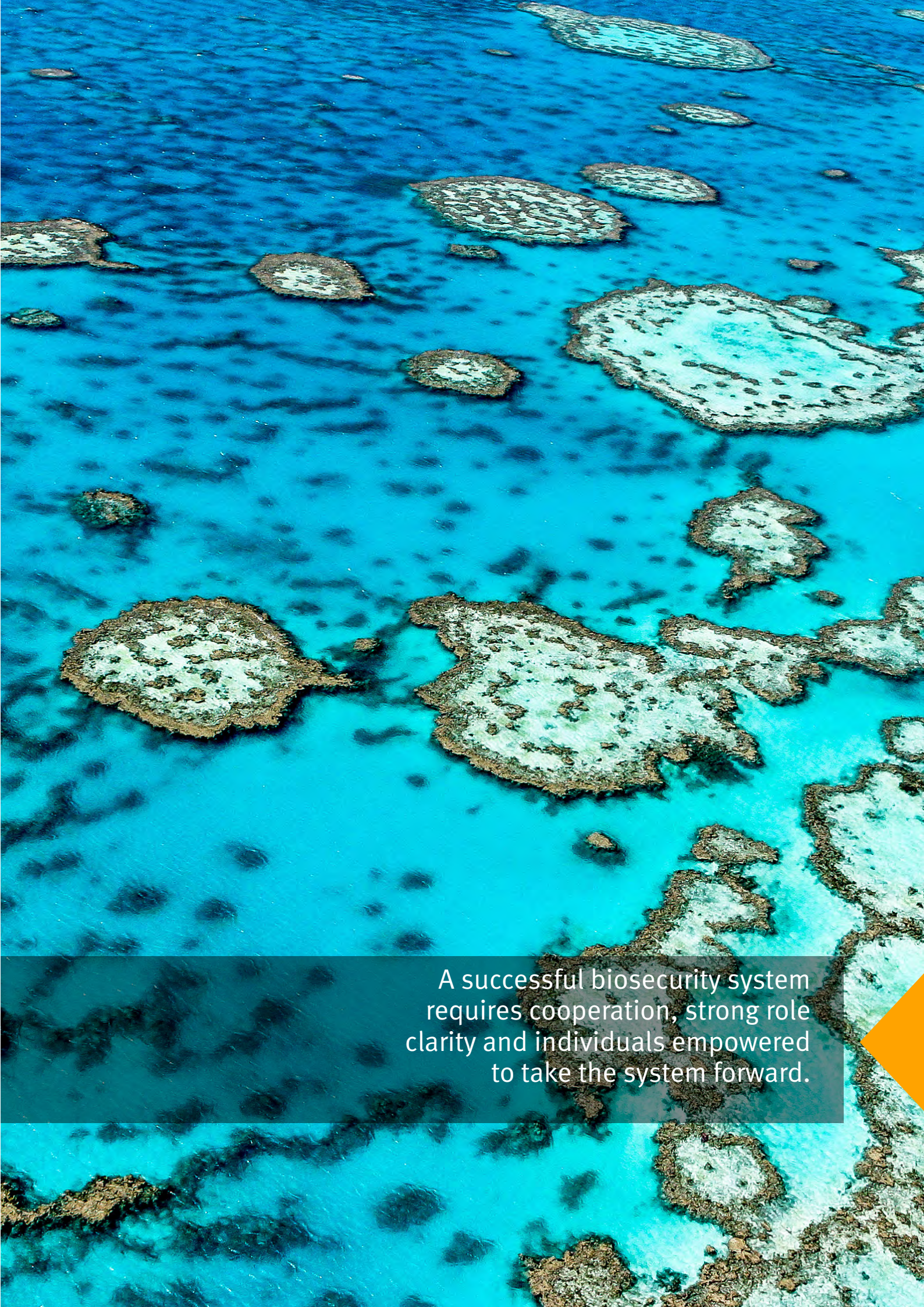
We will co-develop action plans which align to and build on the goals outlined in this strategy. These plans will outline the real actions which will deliver on our goals and identify leaders to take them forward. Our action plans will be living, breathing documents, periodically refreshed with reference to our increasing knowledge and changing environments.

Monitoring and reporting guide

Our monitoring and reporting guide will be a guide to the accountability systems (such as public scorecards or other tools) that will underpin the arrangements and help us to ensure we stay on track to achieve our vision.

We are collectively working toward having our first year action plan developed for 1 July 2017.

Figure 1: The strategy and action planning framework



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BQMAC

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QUEENSLAND FARMERS' FEDERATION

Queensland Government