

Biosecurity Surveillance Strategy 2020

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1. Foreword from the Minister for Biosecurity

New Zealand has developed one of the strongest biosecurity systems in the world. This system helps us to protect our unique natural environment, support our primary production industries, which in turn support our prosperity, and protect the health and values of our people.

With ongoing growth in tourism and trade, the pressures on the biosecurity system continue to increase. While interventions at the border can help prevent the introduction of pests and diseases of concern to New Zealand, an innovative and robust biosecurity surveillance system is needed to ensure those risk organisms that evade border controls are detected.

Biosecurity surveillance assists in protecting New Zealand by ensuring that emerging risks are identified, incursions of pests and diseases are detected early, and trade is supported by providing evidence of our pest and disease status. However, to make sure that this work is effective, and that all opportunities for future improvement to the system are fully taken advantage of, participation and support is needed from all those with a role or interest in biosecurity surveillance.

This strategy identifies many areas in the current biosecurity system where there is potential for improvement. For example frameworks are required that enable those who have an interest in surveillance to undertake it, and to ensure that surveillance participants and partners can work together effectively to lead and implement surveillance programmes.

Prioritisation of resource allocation also needs consistent guidelines to ensure that biosecurity surveillance is conducted efficiently, given that demand for it is increasing faster than the resources and capability to conduct it.

The Biosecurity Strategy endorsed by the Government in 2003 identified key expectations for biosecurity surveillance. The strategy called for consistent policy for developing surveillance based on overall goals for biosecurity, surveillance that is co-ordinated in a responsive and flexible manner, and improved co-ordination of information sharing.

This Biosecurity Surveillance Strategy is a major step forward in meeting those expectations. It sets out a draft framework and path forward to improve the biosecurity surveillance system, to ensure that New Zealand's people, environment and economy are protected. Because of this, I urge all those with an interest in biosecurity to consider the contents of this document and provide feedback. Effective implementation of this strategy will require commitment from all stakeholders to ensure that biosecurity surveillance makes the optimum contribution to New Zealand's biosecurity system.

Hon Jim Anderton
Minister for Biosecurity

2. Executive Summary

Biosecurity activities protect the economy, environment and people of New Zealand from the risks and consequences of the introduction and presence of risk organisms. The effectiveness of these activities depends significantly upon high-quality biosecurity surveillance.

A strategy is required to ensure surveillance systems support biosecurity activities in a planned and effective manner. In consultation with participants in the system, MAF Biosecurity New Zealand is developing this Biosecurity Surveillance Strategy to guide biosecurity surveillance until 2020.

This Biosecurity Surveillance Strategy considers the surveillance requirements for New Zealand's total biosecurity system, not just activities conducted directly by MAF Biosecurity New Zealand. It involves all sectors and participants involved in biosecurity surveillance.

It will also enable the expectations identified in *Tiakina Aotearoa – Protect New Zealand: The Biosecurity Strategy for New Zealand*¹ relating to surveillance to be addressed.

This strategy explains the goals, outcomes and actions that are proposed as grouped under four central themes:

- leading biosecurity surveillance;
- working together;
- delivering quality surveillance; and
- sharing information.

Draft outlines for plans for putting the strategy into action follow on from these themes. Input from stakeholders is required to ensure that high-priority actions, the timelines for implementation and an effective framework for monitoring these actions, are identified.

2.1. LEADING BIOSECURITY SURVEILLANCE

The main leadership role is in determining the focus and direction of the whole biosecurity surveillance system, in consultation with participants. The following strategic goals have been developed to ensure that the full range of biosecurity activities are led and delivered effectively and efficiently within New Zealand:

- System leadership is provided, and shared responsibility is promoted, to ensure that stakeholders have confidence that the biosecurity surveillance system supports New Zealand's vision for biosecurity.
- New Zealand obtains significant biosecurity benefits from its involvement in the global biosecurity surveillance community.

¹ Biosecurity Council of New Zealand (2003) *Tiakina Aotearoa – Protect New Zealand: The Biosecurity Strategy for New Zealand*. Biosecurity Council; Wellington.

2.2. WORKING TOGETHER

The following strategic goals have been developed with the intention of establishing an operating environment that ensures biosecurity surveillance works as efficiently as possible.

- The roles and responsibilities held by various partners and stakeholder organisations or individuals in biosecurity surveillance are clear, agreed and fulfilled.
- Significant biosecurity surveillance decisions are transparent and made using consistent criteria.
- Biosecurity surveillance resources are targeted to deliver the greatest benefit to New Zealand.
- Stakeholders with a role, or interest, in delivering biosecurity surveillance work together using formal and informal mechanisms.

2.3. DELIVERING QUALITY SURVEILLANCE

Biosecurity capabilities and resources are not expanding at the same rate as risks are being presented. To ensure that biosecurity surveillance is delivered as efficiently as possible, the design, delivery and review of New Zealand's biosecurity surveillance programmes needs to change. Achievement of the following strategic goals will ensure biosecurity surveillance outputs and delivery continue to improve:

- the most appropriate mix of surveillance activities are chosen to ensure that surveillance programmes meet their specified objectives;
- surveillance delivery is effective, efficient and responsive to changes in the biosecurity environment;
- the outputs of surveillance programmes can be relied upon by decision-makers;
- all surveillance activities are based upon the best available science, research and technology.

2.4. SHARING INFORMATION

Surveillance information plays a vital role in supporting biosecurity functions and decision making. The information needs to be robust, reliable and on time. To achieve this, and ensure that the value of surveillance information is enhanced, this Biosecurity Surveillance Strategy has the following goals:

- Biosecurity surveillance activities are supported by adequate processes and systems for managing and storing data.
- There is increased awareness of, and appropriate access to, surveillance data and other information that supports biosecurity activities.
- Biosecurity data is converted to information of known quality and used to support decision making.
- The communications and information needs of stakeholders in biosecurity surveillance are appropriately met.

2.5. MAKING IT HAPPEN

The Biosecurity Surveillance Strategy is a starting point for change in the way biosecurity surveillance is led, planned, conducted and communicated. To ensure that the outcomes of the strategy are met, a list of actions has been developed.

Input from surveillance system partners and participants is needed to ensure critical actions, their timelines and dependencies, and the appropriate stakeholder to undertake the actions, are identified. Governance of the biosecurity surveillance system and monitoring the implementation of the Biosecurity Surveillance Strategy is necessary to ensure all stakeholders can be confident that the identified outcomes will be achieved.

Comment is sought from stakeholders on preferred options for managing biosecurity surveillance governance and for monitoring the implementation of the Biosecurity Surveillance Strategy.

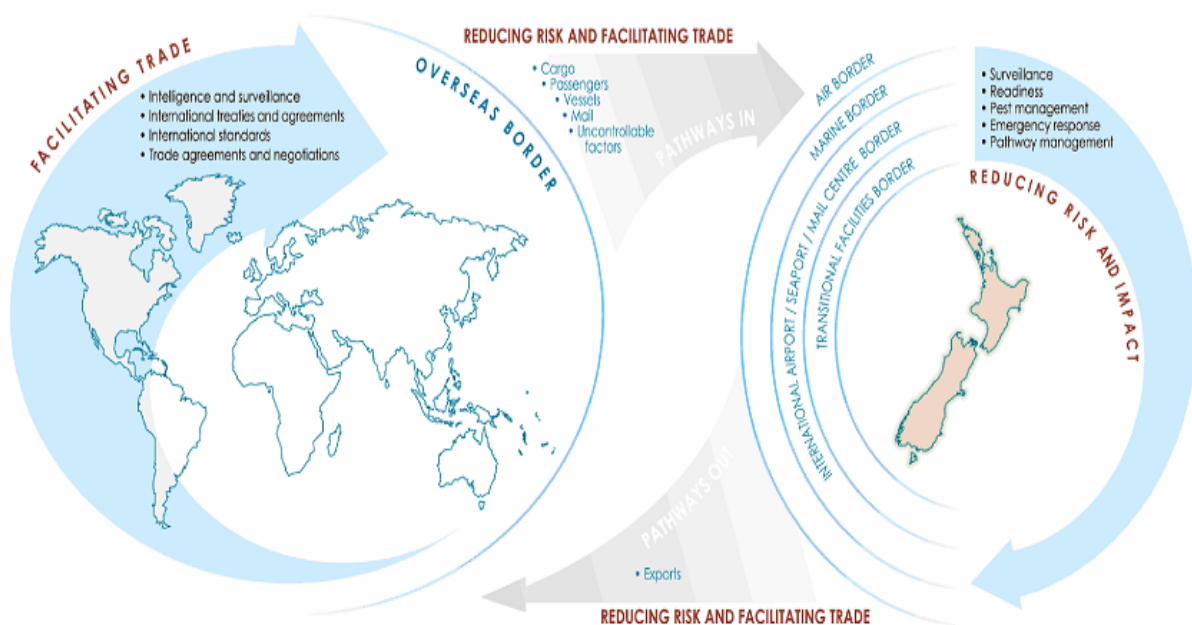
3. Biosecurity Surveillance within the Biosecurity System

Biosecurity activities protect the economy, environment and people of New Zealand from the risks and consequences of the introduction of damaging risk organisms,² and mitigate the effects of risk organisms that are already present. Biosecurity surveillance plays a vital role in supporting a wide range of these activities.

Biosecurity surveillance is the collection, collation, analysis, interpretation and timely dissemination of information on the presence, distribution or prevalence of risk organisms and the plants or animals that they affect.

The effectiveness of New Zealand’s biosecurity system is dependent, to a significant extent, upon the quality of output and delivery of the biosecurity surveillance system. For example, significant cost-benefit decisions are made based upon the information supplied by the surveillance system. These range from industry investment decisions based upon pest free assurances to multi-million dollar response decisions that rely on information produced by surveillance programmes about risk organism distribution.

Figure 1: The biosecurity system



This geographic model illustrates the global context of the biosecurity system. The system covers biosecurity activities offshore (reducing the risks posed by other countries), at our borders (stopping biosecurity risk organisms from entering New Zealand) and within New Zealand (finding and eradicating or managing those risk organisms that have crossed the border and established in New Zealand).

² An organism either already present in, or new to, New Zealand that poses a potential biosecurity risk.

3.1. WHAT DOES BIOSECURITY SURVEILLANCE DO TO HELP PROTECT WHAT NEW ZEALAND VALUES?

The overall purpose of biosecurity surveillance is to support the biosecurity system in its efforts to protect the economy, environment and people of New Zealand. Biosecurity surveillance does this by:

- detecting risk organisms early enough to allow for optimal management to occur and to inform choices about appropriate management strategies;
- providing evidence to support the demonstration of freedom from risk organisms (for example, to facilitate international trade or support pest-free areas within New Zealand);
- assisting with the detection and monitoring of new and emerging risks and threats to New Zealand;
- describing the distribution and prevalence of risk organisms already present within New Zealand, and the animals and plants that they affect, to inform choices about appropriate actions;
- providing evidence to inform decision making across the biosecurity system; and
- measuring the success of the biosecurity system.

New risk organisms are able to enter New Zealand despite the quantity of pre-border and border controls that are in place. For example, there are uncontrollable pathways (for instance, moths blown from overseas), some risk organisms are almost undetectable and control of borders involved with high volumes of traded goods and tourist traffic is never absolute. Generally, the cost of protection increases as pests spread and become established; hence there needs to be a significant focus on prevention and early detection of new and emerging risks and threats.

New Zealand's geographic isolation and absence of land borders have led to the evolution of a unique range of flora and fauna, and a lifestyle and environment that is worthy of protection. The introduction of new organisms, and changes in distribution of risk organisms already present that affect our environment and cultural and social values would have the opportunity to go undetected for long periods without surveillance within New Zealand.

New Zealand needs credible surveillance systems in order to provide evidence that supports trade. Trading partners expect credible surveillance programmes to back up New Zealand's claims as being a country free from particular risk organisms and to confirm the distribution of any risk organisms. Good surveillance supports the assurances that we give to our trading partners. As a consequence we can either gain access to markets that would not otherwise be allowed, we can reopen closed markets, or be allowed entry to markets with subsequent lower levels of intervention and compliance costs to exporters than would otherwise be the case.

Biosecurity surveillance helps organisations whose activities rely on a healthy and sustainable environment to manage the potential harm from risk organisms, and to understand the exposure to risk that they face.

3.2. WHY IS BIOSECURITY SURVEILLANCE BECOMING INCREASINGLY IMPORTANT TO NEW ZEALAND?

Volumes of trade goods and numbers of passengers are rising rapidly (for example, visitor numbers have increased, on average, by 6 percent per year between 2002 and 2007) and their points of origin are becoming more diverse as New Zealand’s economy grows and our interactions with the global community change. Because of this increased pressure on the border New Zealand has to increase its vigilance and improve biosecurity surveillance methods just to maintain the current levels of protection.

It is predicted that ongoing environmental changes, such as climate change, will increase both the number of tropical risk organisms that are able to establish in New Zealand and to increase the possible ecological range of risk organisms that are already here. Without national surveillance we would be unable to determine any changes in distribution early enough to respond effectively.

Continuing improvements in methodology, technique and technology will increase the probability of our detecting risk organisms at an early stage. This earlier detection improves our response options, and means that for some risk organisms the level and sophistication of surveillance may become increasingly important.

Case Study: Surveillance – more or less?

The table below relates the level of surveillance effort to possible costs from finding Lymantrid moths (for example, Asian gypsy moth) at various stages of incursion. That is, the higher the level or intensity of surveillance the greater the likelihood that the organism is found at an early stage and therefore the lower the economic and environmental consequences associated with control or establishment. (These figures are based on previous incursions and assume current levels of intervention in other parts of the biosecurity system.)

Surveillance level	Surveillance costs	Control costs	Potential economic impact	Pesticide use
High intensity	\$400,000 per year	\$5 million	Minimal	Ground spray 1,200 hectares
Low intensity	\$10,000 per year	\$20 million	Minimal	Aerial spray 10,000 hectares
No surveillance	No surveillance costs	No control costs	Up to \$400 million	Aerial spray > 10,000 hectares annually



4. Biosecurity Surveillance Strategy Development

4.1. WHY A STRATEGY?

This Biosecurity Surveillance Strategy is being developed, in consultation with stakeholders, to guide New Zealand's biosecurity surveillance until 2020. It will also enable the expectations relating to surveillance, as identified in *Tiakina Aotearoa – Protect New Zealand: The Biosecurity Strategy for New Zealand* (the Biosecurity Strategy³), to be addressed.

New Zealand needs an agreed biosecurity surveillance strategy to:

- establish common ground with participants in biosecurity surveillance (including a future vision);
- establish underlying principles that provide a consistent basis for making decisions;
- shape long-term direction and approach; and
- form the foundation for action.

The alternative is a continuation of the current state of affairs, where activities are seen by participants to be uncoordinated and there is no clear future direction for biosecurity surveillance.

4.2. SCOPE OF THIS BIOSECURITY SURVEILLANCE STRATEGY

This strategy considers the surveillance requirements for the total biosecurity system relevant to New Zealand, not just activities conducted directly by MAF Biosecurity New Zealand, and thus covers all sectors and participants involved in biosecurity surveillance in New Zealand. While it focuses specifically on activities that occur after the border it acknowledges that activities that occur elsewhere in the biosecurity continuum can affect how biosecurity surveillance is carried out within New Zealand (see Figure 2 for examples of other intervention activities).

This strategy seeks to define the desired future state of biosecurity surveillance within New Zealand in 2020 and sets out goals for the future of biosecurity surveillance, together with several expected outcomes that can be anticipated if these goals are realised. It also sets out actions that may be required to enable the expected outcomes to become reality (see “Making It Happen” section).

This Biosecurity Surveillance Strategy does not choose which specific surveillance programmes to undertake because that process is dependent upon the implementation of the actions agreed in this document. While there are overlaps of scope with other parts of the biosecurity system, these are being managed as part of that system, and the Biosecurity Surveillance Strategy only sets goals for the surveillance portion.

While the Biosecurity Surveillance Strategy seeks to ensure that collaboration occurs across disciplines, its scope does not extend to diseases that affect only humans, because MAF Biosecurity New Zealand's mandate does not cover this area.

³ Biosecurity Council of New Zealand (2003) *Tiakina Aotearoa – Protect New Zealand: The Biosecurity Strategy for New Zealand*. Biosecurity Council; Wellington.

4.3. CURRENT STATE

In August 2002, Prime Consulting International completed a substantial review of New Zealand's biosecurity surveillance system (the Prime review⁴). The review contained important findings and several recommendations for improvements to the surveillance system.

Some recommendations were addressed by specific pieces of work. For example, the forestry surveillance programmes were reviewed, in conjunction with industry, resulting in the report *The Status and Future Needs of Forest Biosecurity Surveillance in New Zealand*⁵ and subsequent changes to the surveillance programmes in this sector. Some recommendations from the Prime review, because of the passage of time, are no longer relevant. Others remain valid and are worthy of attention, but have not been given sufficient priority.

The Biosecurity Strategy, released in August 2003, referred to the Prime review, and established six high-level surveillance expectations that are addressed in this strategy document. These expectations are that:

- there is a consistent policy for developing surveillance programmes across all sectors, based on the overall goals for biosecurity;
- explicit surveillance objectives and performance standards are based on these goals and are resourced to ensure delivery;
- there is strong co-ordination of, and wide access to, the set of databases supporting surveillance activities;
- quality information is available to members of the public to help them identify new or emerging pests;
- the surveillance programme responds to changes in risk profiles as new pests and diseases emerge and others decline; and
- the surveillance programmes are based on the best available technology and sampling methodologies.

The Biosecurity Surveillance Strategy is further supported by the 2008 *Review of the Current State of the Biosecurity Surveillance System* (the Biosecurity Surveillance System review).⁶ This report was completed following consultation with a targeted group of key participants in the surveillance system.

The Biosecurity Surveillance System review identified that, while New Zealand is recognised worldwide for the high performance of its biosecurity system, its system has several gaps and discrepancies with respect to surveillance. Many of these were identified previously in the Prime review of surveillance, and also in the Biosecurity Strategy. The Biosecurity Surveillance System review identified that, so far, limited progress has been made in improving the situation. Implementation of this Biosecurity Surveillance Strategy will address this.

⁴ Pearson, Alan B (August 2002) *Review of New Zealand's Biosecurity Surveillance Systems*, Prime Consulting International Ltd. <http://www.biosecurity.govt.nz/pests-diseases/surveillance-review/index.htm>.

⁵ *The Status and Future Needs of Forest Biosecurity Surveillance in New Zealand: A Discussion Document* (June 2004). Ministry of Agriculture and Forestry, Wellington.

⁶ MAF Biosecurity New Zealand (2008) *Review of the Current State of the Biosecurity Surveillance System*. MAF Biosecurity New Zealand; Wellington. <http://www.biosecurity.govt.nz/strategy-and-consultation/strategy/strategy/pest-management/surveillance>

5. Expectations of Participants in Biosecurity Surveillance

The development and implementation of this Biosecurity Surveillance Strategy will be most successful if the contributions of all participants are guided by a set of common expectations. These are described below and are expected of all participants.

Working in partnership – the improvement of biosecurity surveillance in New Zealand needs to take place in an environment where relationships between participants are based on trust and openness. The section “Working Together” of this Biosecurity Surveillance Strategy sets out how a framework to assist this may be created. This expectation, like the other principles set out below, applies to all areas addressed by this Biosecurity Surveillance Strategy.

Active engagement and consultation – the development and delivery of this strategy will require timely engagement and contribution from all participants in biosecurity surveillance. It is also expected participants will ensure that any people or groups they represent are fully involved and have real opportunities to influence the development of biosecurity surveillance in New Zealand. MAF Biosecurity New Zealand, in particular, will ensure that the interests of Māori are considered when developing and implementing improvements to biosecurity surveillance.

Clear communication and decision making – biosecurity surveillance, or the values biosecurity protects, are of interest to all New Zealanders. Therefore, the future development of biosecurity surveillance, as proposed and guided by this Biosecurity Surveillance Strategy, must be transparent and communicated clearly to all stakeholders. It is particularly important to ensure that transparency in decision making is achieved among all participants.

Informed by evidence – the development of biosecurity surveillance and decision making will use the best available scientific evidence, taking proper account of uncertainties. Only in this way can we ensure that public confidence in the biosecurity system is maintained and that fair decisions are made.

Flexibility and responsiveness – changes in the biosecurity situation in New Zealand or further afield may have impacts that are impossible to predict. Therefore, it is necessary for all participants to recognise that future events may change what is required from the Biosecurity Surveillance Strategy and its implementation, and that participants may have to respond accordingly.

6. Vision

**New Zealand's vision for biosecurity
as stated in the 2003 Biosecurity Strategy**

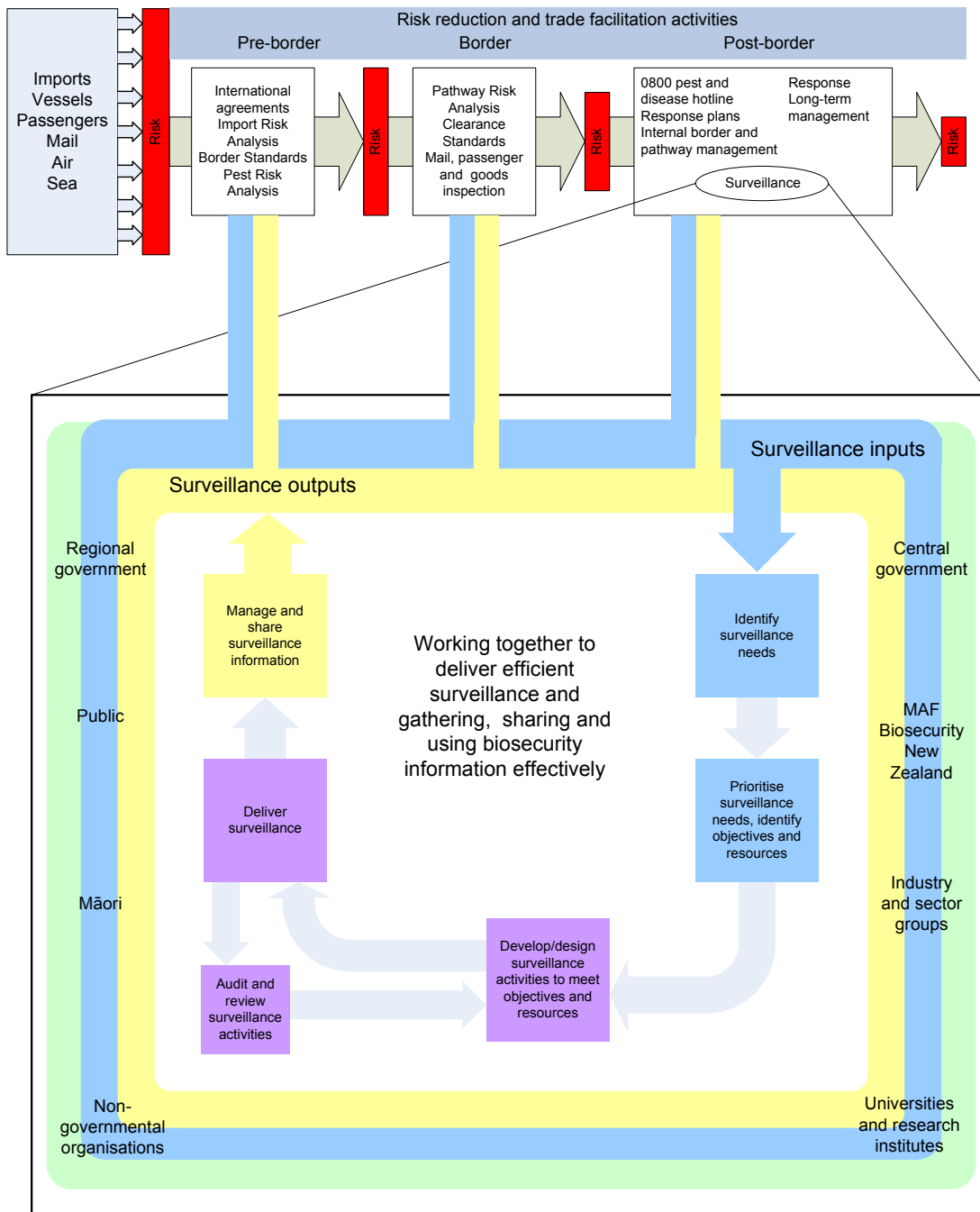
**New Zealanders, our unique natural
resources, our plants and animals are all
kept safe and secure from damaging
pests and diseases**



Biosecurity surveillance vision for 2020

**New Zealand's vision for biosecurity is supported by
working together to deliver
efficient surveillance and gathering, sharing
and using biosecurity information effectively**

Figure 2: Vision of the biosecurity surveillance system supporting biosecurity in 2020



For further information on the parts of this figure refer to the following sections of this document.

- Section 8: Leading biosecurity surveillance
- Section 9: Working together
- Section 10: Delivering quality surveillance
- Section 11: Sharing information

At the top of the page, the figure shows the risk reduction and trade facilitation activities that occur in the biosecurity system. Surveillance is one of several activities that can take place along this biosecurity continuum.

The figure then zooms in on the 2020 vision of the processes and participants in biosecurity surveillance. This shows that while MAF Biosecurity New Zealand has overall accountability for end-to-end management of the biosecurity system, and will undertake a significant leadership role in biosecurity surveillance, in 2020 a range of organisations and groups will be participating in, and in some cases leading, each of the activities identified. This principle of

shared leadership means that the level and extent of participation of these groups and organisation will vary.

In this vision participants are working together to undertake the activities required for a successful surveillance system. The first step involves identifying surveillance needs. Inputs from across the biosecurity continuum that may contribute to this process include:

- international requirements;
- risk analyses;
- regional pest management strategies;
- border surveys;
- environmental scanning;
- responses;
- high priority pests and diseases.

The surveillance needs are then prioritised, resourced and have objectives determined.

Surveillance activities are developed to meet the objectives and available resources, and are then delivered. Surveillance delivery is audited and reviewed to enable continuous improvement in the development and design of surveillance activities.

Information generated by surveillance activities is shared with groups and organisations in the system to inform decisions, and also becomes an input to help identify future needs. The outputs of surveillance also feed into other areas of the biosecurity continuum to enable system-wide improvement. These outputs include:

- detection of incursions;
- confirmation of pest and disease status;
- information about changes in distribution and prevalence of pests and diseases and their hosts and habitats.

7. Leading Biosecurity Surveillance

MAF Biosecurity New Zealand leads and co-ordinates the Government's biosecurity activities. The mandate to undertake these activities was established in 2003 when Cabinet gave the Ministry of Agriculture and Forestry overall accountability and leadership for end-to-end management of the biosecurity system. This mandate is underpinned by the Biosecurity Act 1993. MAF Biosecurity New Zealand has accepted this responsibility and is committed to effectively leading the collective activities of participants in New Zealand's biosecurity surveillance system.

Part 4 of the Biosecurity Act 1993 provides for the continuous monitoring of New Zealand's status in regard to pests and unwanted organisms. The provisions in this legislation are generic rather than sector specific and therefore provide authorisation for biosecurity surveillance across the full range of biosecurity interventions in New Zealand, from border control to pest management.

As described previously, the Biosecurity Strategy (2003) set out expectations for biosecurity, two of which are directly related to leadership. These are that:

- a single agency (MAF) is accountable for ensuring the full range of biosecurity activities are delivered effectively and efficiently to meet the outcome expectations of agencies with a biosecurity interest; and
- central government is committed to maintaining a clear and effective role as overall steward of the biosecurity system.

7.1. NATIONAL BIOSECURITY SURVEILLANCE LEADERSHIP

Goal 1: System leadership is provided, and shared responsibility is promoted, to ensure that stakeholders have confidence that the biosecurity surveillance system supports New Zealand's vision for biosecurity.

In order to fulfil its mandate, MAF Biosecurity New Zealand is committed to providing good leadership within the biosecurity surveillance system. To achieve this, MAF Biosecurity New Zealand will:

- clearly communicate the agreed purpose of biosecurity surveillance;
- facilitate and enable other organisations to carry out surveillance and leadership, where appropriate;
- provide oversight and co-ordination of the biosecurity surveillance system;
- monitor and report on the effectiveness of biosecurity surveillance carried out within New Zealand;
- plan for the future of biosecurity surveillance within New Zealand;
- lead the contribution to establishing frameworks that enable biosecurity surveillance within New Zealand; and
- capably represent the needs of the Government for biosecurity surveillance.

The main leadership role is in determining the focus and direction of the whole biosecurity surveillance system, in consultation with participants.⁷ Once the direction is set, priorities, risks and opportunities can be identified, communicated to participants and managed in the

⁷ Part of this role is to produce the Biosecurity Surveillance Strategy. Once completed this strategy will document the future purpose and direction of the biosecurity surveillance system.

most efficient manner. This will ensure the efficient use of available resources and allow for effective planning for the future.

While MAF Biosecurity New Zealand is required to provide oversight and leadership at the national level, other groups may provide leadership at all levels of the system. For example, regional councils lead the management of regional pests within their areas and the Ministry of Health has responsibility to lead biosecurity surveillance for risk organisms in humans. The different roles, including leadership, that participants play in the biosecurity surveillance system, are covered later in the section “Working Together”.

At a national level one organisation needs to provide oversight and co-ordination of biosecurity surveillance. This oversight will allow communication of lessons to drive improvement, co-ordination of programmes where there is a national interest, and efficiency in capability building and facilitating collaboration. This agency should also lead the development of frameworks that enable other agencies to conduct biosecurity surveillance that meets the needs of the system. Such frameworks are necessary to ensure agencies are able to conduct surveillance efficiently and that collaboration between participants is optimal. In addition, other changes may be required that enable surveillance to be conducted, for example, in areas such as legal frameworks and access to expertise.

A key function of leadership is determining priorities when resources are insufficient. MAF Biosecurity New Zealand, after consultation with stakeholders, will make decisions about biosecurity surveillance priorities in certain situations. For example, prioritisation of government resources for surveillance is discussed in Goal 5 of the “Working Together” section.

As discussed previously, biosecurity developments abroad can have a significant impact upon New Zealand. The increasing pace of global biosecurity changes means that consideration of emerging risks and opportunities needs to be managed more effectively than at present. The capability to do this, using tools such as horizon scanning, is currently under development within MAF Biosecurity New Zealand and is in keeping with the organisation’s role in managing risks to the biosecurity system as a whole. It is intended that the information gathered as part of the horizon scanning process will support prioritisation of work programmes and resources, including those made available for biosecurity surveillance.

7.1.1. Expected outcomes

- Biosecurity surveillance is delivering what the biosecurity system needs.
- All participants understand the future direction for the New Zealand biosecurity surveillance system and what is being done to achieve agreed goals.
- National leadership for biosecurity surveillance is appropriate to the needs of New Zealand’s biosecurity system.
- Frameworks are in place to enable the conduct of surveillance, manage high-level processes and guide the system to achieve agreed goals.
- Barriers to participation in surveillance are removed.
- The contribution of biosecurity surveillance to meeting New Zealand’s biosecurity needs is being measured, allowing for targeted improvements.
- Strategic foresight will be provided through the formal analysis of new and emerging biosecurity risks.
- Stakeholders have confidence in New Zealand’s biosecurity surveillance system.

7.2. INTERNATIONAL LEADERSHIP

Goal 2: New Zealand obtains significant biosecurity benefits from its involvement in the global biosecurity surveillance community.

Biosecurity is particularly important to New Zealand because of its unique natural, social and cultural heritage and its distinctive unique flora and fauna. New Zealand has a comparatively high reliance upon exports of primary products when compared with other developed nations. As a result, the importance of biosecurity surveillance has been acknowledged for many decades. Because of this early commitment to biosecurity surveillance, New Zealand is recognised as a leader, by the international community, in establishing best biosecurity surveillance practice. This standing allows New Zealand significant involvement in forums that would otherwise be difficult to access, to New Zealand's overall benefit.

In addition to this, New Zealand’s history of open and transparent reporting of biosecurity issues has earned it an international reputation for integrity. This standing has provided immediate economic advantage (for example, our assurances have kept markets open or reopened them quicker than might otherwise have been the case – see case study “The value of reputation” below) and has allowed New Zealand to play a significant role in standard-setting forums to positively influence standards.

Case Study: The value of reputation

Following receipt of a letter claiming that Foot and Mouth Disease had been released on Waiheke Island in 2005, over 50 trading partners, including major member countries of the European Union, were informed of the situation. Most expressed appreciation at the early advice, confidence in New Zealand's management of the situation, and a desire to be kept informed.

Because of New Zealand's reputation, and the proactive approach taken, there was no lasting damage, and any short-term effects on the exchange rate were mitigated.

The diagram below shows an example of how New Zealand's reputation mitigated the effects on the exchange rate. In this situation, rumours of a case of variant CJD (the disease that results from human infection with Bovine Spongiform Encephalopathy, commonly called "Mad Cow Disease") in New Zealand had been reported.

Date/Time	Exchange Rate (NZD/USD)	Event
6-Aug 12:00 am	0.5780	Start
6-Aug 10:30 pm	0.5880	Rumours about possible FMD
7-Aug 9:00 pm	0.5750	MAF officials deny rumours; Markets reckon it's only a rumour
8-Aug 7:30 pm	0.5820	One meat exporter takes off currency hedge
9-Aug 6:00 pm	0.5820	News item about possible CJD, and vCJD case
11-Aug 5:15 pm	0.5820	New Zealand dollar depreciation (2.5%)
13-Aug 2:15 pm	0.5880	End

While building on these past and current successes, surveillance system participants need to ensure that their continued involvement in the global biosecurity surveillance community provides New Zealand with significant biosecurity and economic benefits. To make sure this occurs, MAF Biosecurity New Zealand will continue to drive relevant international standards and contribute to providing New Zealand with a leading role in international forums and policy setting, where an advantage accrues to New Zealand from such participation.

MAF Biosecurity New Zealand will work with other countries and standard setting agencies (particularly those in the Asia and the Pacific region) to collectively manage biosecurity risks. Sharing information and technical skills with countries in this way improves biosecurity for all participants. An example of work in this area is the international exchange of Avian Influenza surveillance data on wild and migratory birds.

7.2.1. Expected outcomes

- Benefits to New Zealand are delivered through New Zealand's involvement in relevant international biosecurity surveillance collaborations. These benefits will include:
 - formulation of international standards relating to biosecurity surveillance that are neutral or advantageous to New Zealand's biosecurity position;
 - maintenance and enhancement of favourable market access;
 - maintenance of New Zealand's reputation for integrity; and
 - prevention of risk organisms reaching New Zealand.

Example 1: How do the vision and the reality meet in 2020?

Jenny and Moana are diving, examining a jetty as part of the national targeted marine surveillance programme. This programme is led by MAF Biosecurity New Zealand and co-managed with the Regional Council and Department of Conservation. This is one of several surveys undertaken since 2001 that is helping to build up extensive information on the biodiversity and pest status of the marine coastline.

Any suspicious samples Jenny and Moana encounter will be taken back to the field lab. There, they will accurately identify and analyse them with the new portable molecular bio-detection assay tool to check if they are target organisms or not.

The information collected from these surveys is publicly available in a searchable database on the web. Nationwide these surveys have resulted in the identification of many new species and allowed the effective eradication of the Northern Pacific Seastar, *Asterias amurensis* from Wellington Harbour soon after it arrived in 2015.



8. Working Together

In general, the biosecurity system in New Zealand operates in a more collegial fashion than in many other developed nations. While this applies equally to biosecurity surveillance, it is recognised that further work could be done to facilitate co-operation between participants in this complex environment. For example, one of the requirements set out in the Biosecurity Strategy (2003) was that there needed to be increased “discussion and integration between central and regional government over biosecurity surveillance needs and programmes”. To some extent, this has been achieved, for example, in the pest plant management arena, but more needs to be done. There are other areas where improvements in how biosecurity surveillance partners interact could also produce system-wide benefits.

As described, the Biosecurity Strategy set out several expectations for biosecurity, five of which are directly related to working together. These are that:

- there is an integrated framework for establishing whole-of-system priorities and providing increased transparency and accountability in risk management;
- Māori values are explicitly considered in decision making;
- central government and regional councils are applying a clear and consistent cascading framework for determining who should pay what;
- appropriate links with industry are formed to address priorities and who should pay for what; and
- funding arrangements for all existing activities are progressively reviewed to ensure consistency with the framework.

The following strategic goals have been developed with the intention of establishing a “framework”, or operating environment, where, by 2020, conducting biosecurity surveillance will be easier and more efficient and effective than it is at present.

8.1. ROLES AND RESPONSIBILITIES

Goal 3: The roles and responsibilities held by various partners and stakeholder organisations or individuals in biosecurity surveillance are clear, agreed and fulfilled.

It is vital for the effective operation of the biosecurity system as a whole that the roles played by, and the responsibilities of, participants in biosecurity surveillance are agreed and clearly communicated. The recent Biosecurity Surveillance System review (2008) noted that the boundaries of responsibility for biosecurity surveillance within and between the wide range of contributing organisations are not always clear.

It is equally vital that roles, once clear and agreed, are fulfilled by the people and agencies that agree to hold them. Without commitment and follow through, clearly defined roles mean little.

MAF Biosecurity New Zealand, as lead agency for biosecurity, has a system leadership role as described in the previous section. In addition, MAF Biosecurity New Zealand, like many other partners and stakeholder organisations, also acts to manage biosecurity risks and fulfil a range of reporting obligations. The scope of these activities is determined by the different accountabilities or other desired outcomes held by these organisations.

To allow for the most efficient functioning of the biosecurity system, these accountabilities and areas of responsibility need to be clear, agreed and communicated by all participants – biosecurity surveillance forms a key part of this requirement, and does not exist in isolation from other biosecurity activities (for example, pest control).

There are several government agencies (central and regional) that participate or have a significant interest in biosecurity activities. The current roles and areas of responsibility of these agencies are briefly summarised in Appendix A.

In addition to government agencies, there are many non-governmental participants (for example industry sectors, research organisations, conservation groups and so on) that have a significant role, or interest, in biosecurity surveillance, often as part of wider risk management activities.

It is important to ensure that the roles played by these participants in biosecurity surveillance are made clear, as is recognising that participants may often be the most appropriate, or effective, for conducting these activities. MAF Biosecurity New Zealand sees part of its responsibility as system leader is to ensure roles are fulfilled and seeks to ensure surveillance participants are able to meet their agreed responsibilities.

This strategy acknowledges the Crown's obligations under the Treaty of Waitangi and the roles of Māori as:

- kaitiaki (guardians) within the biosecurity system, who need to know that the risks to flora and fauna are being minimised, established environmental risks are being managed appropriately and the biodiversity of our native systems is being protected;
- having expertise in matauranga Māori me ona tikanga (Māori knowledge and practices); and
- stakeholders who may be directly or indirectly affected by a risk organism or biosecurity surveillance activity.

Members of the public also have a vital role in supporting biosecurity surveillance as they go about their day-to-day activities. Public biosecurity surveillance must be carefully focused because of the pressure that large numbers of reports (and associated samples) can place on our biosecurity services – in particular, our laboratories and 0800 exotic pest and diseases hotline.

With this in mind, public biosecurity surveillance will be primarily focused on groups of people who, because of their particular activity, location or vocation, are most likely to encounter or identify risk organisms and submit accurate reports and samples. MAF Biosecurity New Zealand is committed to ensuring all New Zealanders fulfil their responsibility to report suspect exotic pests and diseases.

8.1.1. Expected outcomes

- Participants and partners can clearly identify their roles and responsibilities and how they may best contribute to biosecurity surveillance.
- The respective roles of participants are understood and communicated.
- Role holders understand, and deliver on, their agreed responsibilities.

8.2. DECISION MAKING

Goal 4: Significant biosecurity surveillance decisions are transparent and made using consistent criteria.

It will be to the benefit of all participants in the biosecurity system if significant decisions about biosecurity surveillance are made according to standardised criteria that are fully transparent. For example, clear, objective decisions about why, when, how and by whom biosecurity surveillance will be undertaken and resourced will allow interested stakeholders the opportunity for appropriate preparation and risk management.

At present, MAF Biosecurity New Zealand uses the “decisions framework” methodology in many of its business areas (see Appendix B for details). The framework is a set of simple steps and principles that help people to make biosecurity decisions. The framework provides guidance on what makes a good decision and how to make a good decision, but does not attempt to remove the need to exercise good judgement. It is intended to help MAF Biosecurity New Zealand make better decisions. This means decisions that stand the test of time, have buy-in from stakeholders and consider the full range of values we are protecting.

It is recognised that biosecurity surveillance participants will have existing decision-making frameworks that reflect their priorities and needs. The decisions framework methodology referred to above will be implemented by MAF Biosecurity New Zealand for biosecurity surveillance decision making and, where required, can be made available for application by other participants.

As described in Goal 3, “Roles and Responsibilities”, biosecurity surveillance expectations and responsibilities lie with many different participants in the biosecurity system. MAF Biosecurity New Zealand is committed to ensuring that, in future, where participants are willing to meet responsibilities and contribute resources, shared decision-making opportunities will be explored.

8.2.1. Expected outcomes

- Significant biosecurity surveillance decisions are transparent and made using consistent criteria.
- Biosecurity surveillance stakeholders will have the opportunity to contribute to significant decisions that affect their responsibilities and interests.
- Significant biosecurity surveillance decisions will be communicated to those who need to know in a timely manner.

8.3. PRIORITISATION

Goal 5: Biosecurity surveillance resources are targeted to deliver the greatest benefit to New Zealand.

Priority setting is required to make the best possible use of the finite resources available for biosecurity activities. The demand for both financial and human resources for surveillance activities continues to increase, and exceeds MAF Biosecurity New Zealand’s ability to completely fulfil it. Although increased resources can be sought, success is not guaranteed. It is unlikely that any increase in resourcing would be sufficient to meet all priorities identified by MAF Biosecurity New Zealand and stakeholders in biosecurity surveillance.

This means that MAF Biosecurity New Zealand must prioritise its resources (both financial and non-financial) to ensure it meets its responsibility to protect New Zealand's people, environment and economy and that the resources are used where they will deliver the greatest public benefit.

In the past, biosecurity surveillance priorities for MAF Biosecurity New Zealand and other government agencies have been determined without the application of rigorous and consistent criteria. Because of the nature of biosecurity surveillance, it is difficult to quantify the value of its outputs and this has added to the complexity of prioritisation. In response to the increasing biosecurity risks faced by New Zealand, there is a growing need for formal processes for prioritisation of the resources allocated to biosecurity issues, including biosecurity surveillance.

MAF Biosecurity New Zealand must consider the likelihood and consequences of risk organisms penetrating the border and affecting New Zealand's people, environment and economy, as well as the public good and cost effectiveness of conducting surveillance, when setting priorities.

Case Study: Prioritisation in biosecurity

In 2006, MAF Biosecurity New Zealand led a project called the "National Interest Pest Programme", with the aim of setting joint priorities, among the government biosecurity partners and regional councils, for the management of animal and plant pest species that are currently in New Zealand.

Each pest was assessed against a series of standardised criteria, including an organism consequence assessment and the availability of management tools. Through using this approach, a small number of top priority pests were targeted for eradication. Clear criteria and processes led to a broad consensus among stakeholders, and resources are now focused on achieving concrete results in defined timeframes.

The lessons learned from this largely successful exercise will be among those used to inform the prioritisation of resources for biosecurity surveillance activities in the future.



The development of a standardised and transparent process for the prioritisation of biosecurity surveillance needs will allow criteria to be applied consistently to ensure resources can be focused on areas where they will deliver the best value for New Zealand. The outputs from this process can then be used to support decision making about resource allocation for biosecurity surveillance activities. Furthermore, the use of such a process will allow policy makers and interested parties to understand why different biosecurity surveillance issues are important, for example, with respect to impacts upon the core values MAF Biosecurity New Zealand is tasked with protecting. Consequently, this may assist with identifying biosecurity surveillance issues where the involvement of particular stakeholders in managing and resourcing surveillance may be more appropriate than central government.

The Core Values

MAF Biosecurity New Zealand's purpose is to protect New Zealand's:

- **People**, including their health, wellbeing, societies, culture and traditions.
- **Environment**, including biodiversity, natural habitats, ecosystems and landscapes, environmental health, amenity, mauri and taonga.
- **Economy**, including protecting marine and terrestrial primary industries, facilitating exports and tourism, where this affects the prosperity of New Zealand and contributes to economic wellbeing for New Zealanders.

These values are integral to MAF Biosecurity New Zealand's decision making and prioritisation.

Case Study: Surveillance – the National Invasive Ant Surveillance programme aims to prevent the effects on important values that establishment of Red Imported Fire Ant (*Solenopsis invicta*) in New Zealand would cause

Effects on people: Red Imported Fire Ant (RIFA) can sting people and may cause an allergic reaction (up to 16 percent of those stung can develop anaphylaxis); RIFA can deter outdoor activities in backyards (for example, barbecues), parks and school grounds; home invasions can threaten small children and the elderly; traffic accidents have been caused by ants stinging the drivers of automobiles.

Effects on the environment: Biodiversity can be reduced by RIFA, causing a two-fold reduction among populations of insect species and small vertebrates (for example, ground-nesting birds and frogs); RIFA can completely eliminate some species from an ecosystem.

Effects on the economy: Agricultural impacts include damage to crops, interference with equipment and the stinging of workers in the field; damage to over 57 species of cultivated plants (for example, corn, sorghum, soybeans, citrus, potato); RIFA have damaged air conditioners, traffic lights, petrol pumps and so on; RIFA have a potential annual cost to New Zealand of over \$300 million per year.



Priority-setting exercises will be conducted regularly to allow for the realignment of the portfolio of biosecurity surveillance activities in response to changes in the national and international biosecurity situation.

MAF Biosecurity New Zealand will prioritise the surveillance activities it undertakes or contributes resources towards, in line with government goals and priorities, and following consultation with surveillance participants and partners. It is also recognised that biosecurity surveillance participants have their own priorities for the biosecurity surveillance activities they undertake, or in which they engage. MAF Biosecurity New Zealand's role in this area will be to co-ordinate getting surveillance participants together to undertake such prioritisation exercises, and to act as a contributor too and participant in the system.

Crown resourcing of biosecurity surveillance activities (existing and proposed) will be prioritised towards those services and activities that deliver the greatest public benefit. MAF Biosecurity New Zealand will continue to apply the resourcing framework identified in the

Biosecurity Funding Review undertaken in 2004⁸, or any subsequently agreed framework that replaces that document, to all biosecurity surveillance work it carries out.

The Biosecurity Funding Review indicates that those required to resource biosecurity surveillance should be able to:

- change their behaviour to reduce the costs of surveillance or to reduce biosecurity risks;
- assess whether the benefits of the surveillance outweigh its costs; and/or
- influence the cost-effectiveness of biosecurity surveillance.

Direct beneficiaries of biosecurity surveillance (including primary industry and the Crown) are often well placed to assess the benefits of surveillance and to influence its provision. Therefore, they should have increased involvement in surveillance resourcing and decision-making for organisms of high priority to them. This means resourcing for surveillance programmes that are not of high priority to the Crown can be provided by other interested stakeholders. In some situations, both the Crown and another stakeholder may have an interest in resourcing a programme. In this situation, both groups should be involved in resourcing and decision making for the work. Exacerbators⁹ will be pursued for resourcing where this is equitable and efficient.

Where stakeholders are willing to contribute resources but are unable to co-ordinate biosecurity surveillance (for example, they lack the necessary powers or governance structures), MAF Biosecurity New Zealand may consider assisting.

Case Study: Resourcing Surveillance programmes¹⁰

	Current Example	Background
Crown resourcing	Baseline surveillance for marine organisms (Crown)	Non-indigenous marine organisms can have widespread impacts on the core values MAF Biosecurity New Zealand seeks to protect. Such organisms detract from environmental integrity, human health, socio-cultural values, marine enterprise profitability and future potential. Beneficiaries of surveillance to develop an understanding of the distribution of marine organisms present in New Zealand are diverse, and a large proportion of the benefit is to the public good. Therefore, the Crown is the best placed to resource and conduct this programme.
Joint resourcing	Surveillance for Chronic Wasting Disease in Deer (Crown, Deer Industry New Zealand)	Chronic Wasting Disease is an infectious disease of deer that is not present in New Zealand. It is considered a risk by deer farmers as it causes significant productivity losses in the countries in which it occurs. MAF Biosecurity New Zealand has an interest in surveillance for Transmissible Spongiform Encephalopathies (TSEs), a group of diseases that includes Chronic Wasting Disease, as some diseases from this group are transmissible to humans. As the industry is a significant beneficiary of the surveillance, they provide part-funding for the programme, which is administered by MAF Biosecurity New Zealand.
Non-crown resourcing	Forest Health Surveillance (New Zealand Forest Owners' Association)	The New Zealand Forest Owners Association manages a forest health surveillance programme for forests that its members own. The work is carried out on their own land for new and current pests/diseases specific to plantation forest species and funded by a per hectare levy. This programme complements a MAF Biosecurity New Zealand funded surveillance programme that covers high risk pathways and seeks to detect risk organisms of concern to native as well as urban and plantation trees.

⁸ MAF (2004) *Future Funding of Biosecurity Services*. MAF Discussion Paper 04/01.

⁹ An exacerbator is an entity whose activities increase the risk of a biosecurity incursion. Examples include importers and tourists.

¹⁰ This is an indicative table of current biosecurity surveillance activities and not an indication of future priorities.

8.3.1. Expected outcomes

- Increased transparency about the rationale and drivers underpinning resource allocation.
- Priorities are regularly assessed using a standardised and transparent process, allowing for appropriate flexibility and realignment, where necessary, in response to changes in the biosecurity situation.
- Crown resourcing of biosecurity surveillance is prioritised to ensure that Crown resources are directed towards biosecurity surveillance activity that delivers the greatest public benefit.
- Biosecurity surveillance is conducted by those whose interests the biosecurity surveillance supports.

8.4. CO-ORDINATION AND PARTNERSHIPS

Goal 6: Stakeholders with a role, or interest, in delivering biosecurity surveillance work together using formal and informal mechanisms.

Close involvement and collaboration between stakeholders in biosecurity surveillance will create an environment where duplication of effort is minimised and synergies available from working together are identified and achieved. To foster such an environment, MAF Biosecurity New Zealand, as lead agency for biosecurity, will seek to co-ordinate and facilitate closer ties between participants when there are benefits for the biosecurity system.

At present, intra-governmental co-ordination of post-border biosecurity issues is provided by the Biosecurity Co-ordination Group (BCG), which comprises representatives from regional councils and the leading central government agencies involved in biosecurity. This group has proved to be of considerable value. This is an example of how wide engagement with stakeholders in this area can be achieved.

MAF Biosecurity New Zealand seeks to ensure that opportunities exist for formal collaboration with and between those with a role in the delivery of biosecurity surveillance, including Māori. In some cases, existing bodies or partnership arrangements will be an appropriate forum for such collaboration. In other areas, new arrangements will need to be developed.

There are many areas where increased collaboration will result in significant improvements in biosecurity surveillance. These include co-ordination of research, biosecurity surveillance delivery and the sharing of expertise and information – all of which are discussed in this Biosecurity Surveillance Strategy. MAF Biosecurity New Zealand will take a lead in co-ordinating and facilitating such opportunities where required.

8.4.1. Expected outcomes

- All participants in biosecurity surveillance combine aligned operational work to meet the biosecurity surveillance needs of participating organisations.
- Where responsibilities and interests sufficiently overlap between government biosecurity partners, a lead agency will be clearly determined and joint surveillance programmes undertaken.
- Working in partnership encourages the sharing of perspectives and biosecurity surveillance expertise, thereby improving the outcomes delivered from collective biosecurity surveillance investments.

Example 2: How do the vision and the reality meet in 2020?

The vet's work sampling the chickens is finished and she turns her attention to completing the health status report for the flock and the laboratory submission forms for the samples. On her mobile phone, the vet is able to record the number of birds examined and that there were no signs of disease, along with the tests that need to be run at the animal health laboratory.

Back at the clinic this information is uploaded to a web-based database and an electronic submission form sent to the animal health laboratory. The samples will form part of a poultry industry food safety assurance programme. In addition to testing for bacteria, the poultry industry has agreed that these samples can be tested as a part of the Avian influenza surveillance programme, using a new rapid diagnostic faecal test developed by New Zealand scientists.

MAF Biosecurity New Zealand is leading this programme, with assistance from the poultry industry, Department of Conservation and the Ministry of Health. The vet's report and results of this testing will be summarised, along with information from many other poultry farms, to form part of the annual report to the World Organisation for Animal Health, demonstrating that New Zealand has a competent system for detecting exotic diseases.

9. Delivering Quality Surveillance

The Prime review and Biosecurity Strategy recognised the importance of surveillance programmes and set expectations specifically pertaining to sampling methodologies and technical performance.

The Biosecurity Strategy set out six expectations for surveillance, three of which are directly related to delivering quality surveillance. These are that:

- there is a consistent policy for developing surveillance programmes across all sectors, based on the overall goals for biosecurity;
- explicit surveillance objectives and performance standards are based on these goals and are resourced to ensure delivery; and
- programmes are based on the best available technology and sampling methodologies.

In addition, the recent Biosecurity Surveillance System review (2008) concluded that there is a diverse range of surveillance methods and quality processes being used within New Zealand but no formal process is in place for the development or review of biosecurity surveillance programmes. Also, biosecurity surveillance programmes here would benefit greatly from shared minimum standards and aligned objectives that are not always evident at present.

Realisation of the following strategic goals will ensure that the outputs from, and delivery of, biosecurity surveillance continue to improve.

9.1. SURVEILLANCE DESIGN

Goal 7: The most appropriate mix of surveillance activities are chosen to ensure that surveillance programmes meet their specified objectives.

The delivery of quality biosecurity surveillance is the outcome of a quality process underpinned by science and capability. The process for guaranteeing that surveillance is delivered involves the following:

- developing a surveillance programme (design);
- ensuring the effective delivery of the surveillance programme (do); and
- ensuring the quality of the programme and its outputs (review).

While many factors can impact upon the choice of activity used to carry out surveillance, the decision about which one to use when designing a surveillance programme is primarily dependent upon the purpose of the surveillance. This purpose must be clarified and objectives agreed before a specific surveillance activity or mix of activities can be selected.

The outputs of the prioritisation process (discussed previously) are a set of objectives that will be the inputs for determining how specific surveillance priorities should be achieved. Alongside these outputs and inputs are several criteria and resources (for example, available funding) that limit the choices that can be made.

Once the objectives for a surveillance need are clarified and the criteria and resources are understood, a surveillance programme can be designed¹¹:

- to take advantage of best value technologies/methods/techniques/tools;
- to meet the agreed objectives;

¹¹ All decision making will be guided by the Biosecurity Decisions Framework (see Appendix B).

- to be affordable to those providing the funding, including balancing costs across high-priority programmes and within budgets;
- by appropriately qualified people; and
- to be reviewed regularly and updated in response to new knowledge and changes in the biosecurity environment.

The design of programmes should also cover other factors beyond how risk organisms are detected. For example, communications, stakeholder engagement, resource commitments and conflicts, cultural and social effects may all need to be considered, depending on the purpose of a specific surveillance programme. Because the support of the public and other stakeholders underpins the efficacy of biosecurity surveillance programmes (for example, public reporting of suspected pests), organisations carrying out surveillance must be resourced to ensure that programme benefits, such as raising awareness of the need for biosecurity surveillance, are achieved.

Clear guidance is required to improve the process for selection of surveillance methods (for example, targeted surveillance) and technique (for example, pheromone trapping for Asian gypsy moth surveillance). A regularly updated process that explains different surveillance methods and sets out guidelines on when they should be used will improve the understanding of all participants in the system and lead to the selection of a series of surveillance-related activities that are best aligned with the objectives of any specific surveillance programme.

As part of this process, the different types of surveillance must be taken in to account. For optimum effectiveness of the whole biosecurity system surveillance activities need to cover a broad range of risks. For example, new and emerging diseases, by their nature, cannot be detected in a targeted surveillance programme. Because of this, a trade off is required between generic programmes (for example, passive surveillance), risk-targeted and organism-specific targeted programmes.

9.1.1. Expected outcomes

- All biosecurity surveillance activities have explicit surveillance objectives.
- A process is in place that ensures the surveillance method chosen is the most appropriate for achieving the primary objective of the surveillance activity.
- All biosecurity surveillance activities meet their specified objectives.

Example 3: How do the vision and the reality meet in 2020?

In the Tararua Ranges members of the Palmerston North Tramping and Mountaineering Club are on a family day walk. While resting near a stream, Sophie asks her dad what the half-submerged plastic box is for. Roger looks at the nearby sign and reads to her that it is part of the surveillance activities to protect the natural environment undertaken by Horizons Regional Council, with assistance from the Department of Conservation and MAF Biosecurity New Zealand.

The box contains a sensor that tests the water and automatically reports on the detection of certain pollutants and several diseases that could affect the waterways, trees and plants.

9.2. EFFICIENT SURVEILLANCE DELIVERY

Goal 8: Surveillance delivery is effective, efficient and responsive to changes in the biosecurity environment.

In order that the best surveillance outcomes are achieved for New Zealand biosecurity, the organisations carrying out biosecurity surveillance need to deliver surveillance activities:

- effectively: that meet the objectives set for the surveillance activity and needs of the biosecurity system;
- efficiently: that make the best use of available resources to deliver high-quality value-added programmes; and
- appropriately: that are compliant with statutory and cultural frameworks.

Participants within the biosecurity surveillance system are committed to ensuring that biosecurity surveillance maximises the efficient use of available resources. To ensure this is achieved, MAF Biosecurity New Zealand will be proactive in producing an appropriate delivery framework. This framework will incorporate high-quality procurement management processes (including performance targets and measures), ensure that the right arrangements are in place to deliver surveillance programmes efficiently, and be available for use by other participants in biosecurity surveillance. Where surveillance programmes are shared, appropriate delivery frameworks will be agreed in consultation with partners.

Capability and infrastructure are critical issues that underpin the ability of participants in the biosecurity system to achieve their goals. As part of its leadership role, MAF Biosecurity New Zealand has a responsibility to ensure that infrastructure (for example, diagnostic laboratories) and capability (for example, qualified people to staff laboratories and carry out field work) of sufficient quality and quantity are available when and where needed. This also includes ensuring appropriate synergies can be obtained by aligning biosecurity programmes between organisations (for example, MAF Biosecurity New Zealand and regional councils working together in surveillance for national plant pests and pest plants).

MAF Biosecurity New Zealand is aware that some organisations may wish to have the results of their surveillance programmes recognised, either nationally or internationally, to enhance trade (for example, for area freedom declarations). Where appropriate, MAF Biosecurity New Zealand will provide guidelines to help public or private surveillance activities to meet international obligations.

9.2.1. Expected outcomes

- Biosecurity surveillance delivers multiple benefits as efficiently as possible.
- Sufficient capability is available to meet the prioritised development and delivery needs of biosecurity surveillance.

9.3. EFFECTIVE REVIEW

Goal 9: The outputs of surveillance programmes can be relied upon by decision-makers.

To ensure that the biosecurity system can depend upon the outputs of biosecurity surveillance, quality needs to be assured, preferably by a predetermined and rigorous process. To achieve this, all biosecurity surveillance programmes must have a process for measuring and reporting their effectiveness.

Effectiveness in this area means the ability of the programme to meet the objectives of the surveillance. To ensure that surveillance programmes maintain their credibility, a formal process should be developed for their review. Regular review needs to occur to ensure that activities remain appropriate to meeting the objectives of the surveillance programme and that the whole programme is still achieving its purpose.

In addition to this efficiency should be monitored by regular review against accepted performance standards. A subset of this is the ability of the programme to meet the standards set for the delivery of the surveillance (for example, auditing where appropriate).

9.3.1. Expected outcomes

- The outputs of surveillance programmes can be relied upon by decision makers.

9.4. SCIENCE

Goal 10: All surveillance activities are based upon the best available science, research and technology.

The New Zealand biosecurity system is dynamic, and new ways of achieving surveillance objectives are required to meet the system's changing needs. In addition to this, the range of surveillance techniques, and their sophistication have grown, with many having features of both active and passive surveillance. This increased complexity requires any organisation designing or implementing surveillance activities to have a good understanding of the most appropriate science for that activity. New technology also offers opportunities that will allow the more efficient delivery of programmes in the future.

This Biosecurity Surveillance Strategy recognises that surveillance research is specifically mentioned in the report *A Biosecurity Science Strategy for New Zealand* (the Biosecurity Science Strategy)¹² and will ensure any surveillance research planned is in accordance with that strategy.

- The Biosecurity Science Strategy also identified the need to include social science in the development of biosecurity programmes. In particular, social science assists us to understand the potential role of human behaviour when improving surveillance programmes (for example, programmes that involve the public in the reporting of suspected pests).

To ensure that relevant research occurs, surveillance system participants need to continue to engage in the science prioritisation processes so that surveillance-specific requirements continue to be recognised and addressed.

Research needs to be facilitated to ensure that the most appropriate technology, based on sound science, is available to meet the requirements of stakeholders in the biosecurity surveillance system. To gain an actual benefit from research, recognition must also be given to the communication and implementation of existing and future technology.

As well as undertaking new research within New Zealand, researchers and system participants need to be aware of what is occurring globally and maintain international connections to ensure that they capture and use information on existing overseas techniques and developments.

¹² MAF Biosecurity New Zealand (2007) *A Biosecurity Science Strategy for New Zealand*. MAF Biosecurity New Zealand; Wellington.

9.4.1. Expected outcomes

- The most appropriate technology is available to ensure surveillance is effective in meeting the overall objectives of New Zealand's biosecurity system.
- A stream of research that targets technological and social science innovation specifically to meet the needs of the biosecurity surveillance system.

Example 4: How do the vision and the reality meet in 2020?

An unidentified disease is found to be attacking a tree during a routine surveillance of high-risk sites around Auckland airport. A sample of the disease is loaded in to a hand-held sampling and data capture device that contains genetic markers for high risk pathogens. The sample is identified as a high-risk plant pest.

The results of the analysis are uploaded by Wi-Fi to a dedicated Geographic Information System to allow the display of the results of the surveillance in a real-time mapping environment. This allows rapid assessment by the investigations team of possible response options.

In this case a council arborist is directed to the site of the suspected incursion via a Global Positioning System navigation system using data provided in the uploaded sample report. The arborist injects the tree with a pest-specific pesticide that destroys the pest within the tree without allowing the control agent into the external environment.

The arborist and the field surveyor carry out a survey to assess potential spread of the pest using a sampling protocol downloaded to their navigation devices from the main database. The navigation system in their hand-held data-collection devices directs them to the nearest susceptible host trees where they can instantly analyse samples for disease.

This rapid response ensures the containment and eradication of the pest without it spreading further than the initial infection site.



10. Sharing Information

To perform to the highest standards, the biosecurity system must be supported by the timely delivery of robust and reliable information. Biosecurity surveillance information plays a vital role in supporting a wide range of biosecurity functions and decision making; hence it is important that this be made available as widely as possible, in a form that is fit for purpose.

Biosecurity surveillance information is highly diverse and gathered and maintained by many stakeholders, for a variety of different purposes. For example, this information can vary from details about specific surveillance programmes hosted on organisational websites to “raw data” obtained from observations made by farmers, fishermen, pest managers, health professionals and members of the public. Consequently, the degree of interest attached to any particular piece of information or data set will vary across the different participants in the biosecurity system.

As described, the Biosecurity Strategy (2003) set out six expectations for surveillance, two of which are directly related to information management and sharing. These are that:

- there is strong co-ordination of, and wide access to, the set of databases supporting surveillance activities; and
- quality information is available to the public to help them identify new or emerging pests.

In addition, the recent Biosecurity Surveillance System review (2008) concluded that there were areas where the management, sharing and communication of surveillance information could be improved across the biosecurity system.

This Biosecurity Surveillance Strategy, including the forthcoming implementation plan, seeks to ensure that, by 2020, New Zealand achieves the maximum benefit from the biosecurity surveillance information available through the realisation of the four strategic goals set out below.

10.1. MANAGEMENT AND INFRASTRUCTURE

Goal 11: Biosecurity surveillance activities are supported by adequate processes and systems for managing and storing data.

The management of surveillance information across the biosecurity surveillance system needs to improve to allow for increased accessibility and data analysis. If the interoperability of data systems across the biosecurity surveillance system is ensured it will help reduce barriers to information flows between surveillance participants. This exchange of information is encouraged and should be considered wherever possible. However, it is recognised that significant system-wide realigning of existing data management infrastructure may not deliver benefits commensurate with the resources required to make it happen.

MAF Biosecurity New Zealand is, itself, a custodian of large amounts of surveillance data, and has a keen interest in improving the way in which it is managed and retrieved. To this end, MAF Biosecurity New Zealand has developed an organisation-wide Information Management (IM) Strategy to ensure that it has the infrastructure, systems and processes in place to support its future information-management needs. As part of the IM Strategy, the need has been identified for an integrated solution to improve the management of biosecurity surveillance information.

10.1.1. Expected outcomes

- There is consistent management of biosecurity surveillance data.
- Harmonised or compatible data formats and systems are widely utilised among organisations collecting or holding surveillance data.
- The collection and collation of surveillance data is supported by appropriate IT infrastructure.

Example 5: How do the vision and the reality meet in 2020?

John is inspecting his maize crop. Yesterday, samples from a nearby farm were detected to be infected with an exotic fungus. John, who is registered in the crop manager's database, received an alert text this morning, followed by an e-mail containing detailed instructions that requested all maize growers in the region to collect samples from their crops. He collects the samples as required and submits them for rapid screening at the MAF Biosecurity New Zealand Plant Health and Environment Laboratory. Mapping the data associated with each grower's fields enables an instant picture of the extent of the disease.

At the laboratory the fungus is genotyped, and the results are submitted to an international database that identifies the likely country of origin and characteristics of the organism. This information, along with samples submitted from throughout the region, enables a fast assessment of the size and significance of this incursion and potential pathways of entry, so that a rapid response can be mounted.

10.2. AWARENESS AND DATA SHARING

Goal 12: There is increased awareness of, and appropriate access to, surveillance data and other information that supports biosecurity activities.

There are many repositories of surveillance information in New Zealand. An important step towards increasing the utility of this information will be to raise the profile and biosecurity system-wide awareness of what information is already available. In addition to raising awareness, it is also necessary to take steps to facilitate the widespread sharing of this data between participants in the biosecurity system.

Legislative considerations and concerns about protection of privacy and commercial interests can act to restrict the sharing of information between organisations, and organisations and the community. One way to address these legitimate issues, and still achieve the best outcomes is to develop multilateral agreements by which signatory organisations can contribute and receive access to data on mutually agreed terms.

An example of this sort of data-sharing protocol is being explored by the National Animal Identification and Traceability (NAIT) project. NAIT has brought together industry bodies and government agencies to develop an integrated system for identifying and tracing the movements of livestock, using new and existing datasets.

10.2.1. Expected outcomes

- Biosecurity surveillance participants are aware of relevant activities undertaken by other parties, including data collection, maintenance, distribution and reporting functions.
- Biosecurity surveillance data and information are widely available, thereby increasing their use.
- Increased data sharing will reduce duplication of effort and foster close working relationships between surveillance participants.

10.3. DATA QUALITY

Goal 13: Biosecurity data is converted to information of known quality and used to support decision making.

A good understanding of the nature of biosecurity surveillance data, together with the context in which it is presented, is required for the correct interpretation of its meaning. Biosecurity surveillance data is used to support decision making across the whole biosecurity system and, as such, it is important that it be accompanied with supporting statements about its quality. This allows users the opportunity to gain a full understanding of the fitness for purpose of the information that they are using.

The quality of data can be described according to several standardised criteria, including coverage, precision, accuracy and timeliness. It is essential to ensure that outputs produced using biosecurity data have accompanying quality statements for making the best-informed decisions. An example of where understanding data can be important is described in the case study below.

Case Study: The importance of understanding data when making decisions

Understanding the nature, or quality, of surveillance and other datasets is essential for ensuring they are fit for purpose.

For example, MAF Biosecurity New Zealand has undertaken a series of comprehensive marine baseline port surveys (baseline surveys) and subsequent resurveys (three years later) to provide a snapshot of the existing pest status and biodiversity within New Zealand's international shipping ports and marinas. These surveys use consistent methodologies that focus effort on detecting non-indigenous species in areas where they are most likely to be introduced.

MAF Biosecurity New Zealand has also undertaken a twice-yearly series of targeted marine surveillance surveys that focus on a specific suite of non-indigenous species and allow for the rapid detection of incursions of target organisms.



The baseline surveys and targeted marine surveillance surveys have been designed to serve different purposes, and an awareness of these is essential when deciding how to use the information. For instance, outputs using data generated from the baseline surveys, while appropriate for underpinning general policy decisions on marine biosecurity, cannot be relied upon to provide early detection because the samples can take considerable time to process, and resurveys occur several years apart. Targeted marine surveillance surveys, however, are designed for early detection and can inform emergency response decisions, but the coverage of these surveys means that these data cannot fully support decisions about organisms not specifically included in the survey.

In the example cited above, the two data sets may be characterised with reference to the data quality, for example, timeliness (the degree to which the data are up to date) and coverage (what the data includes, for example, species, area and so on).

In addition to information about data quality, it is also desirable to maintain data sets with associated metadata, or data about data – for example, who is the legal owner of the data, where it is stored and in what format.

The degree to which data is analysed or used varies substantially and depends, in part, on data sharing (which is discussed in Goal 12). Better use should be made by all surveillance system participants of surveillance information through increased analysis, interpretation and reporting. In this way, data and information can be converted into useful knowledge and communicated to support biosecurity decision making.

10.3.1. Expected outcomes

- The quality of biosecurity surveillance data will be assessed and communicated to users.
- The development of data-quality indicators highlights opportunities for improving existing ways in which data is collected and maintained, thereby increasing its utility.
- Data-quality measures and metadata minimum specifications are used in biosecurity surveillance databases and programmes.
- Robust biosecurity decisions are made because of improved data analysis, combined with timely reporting.

10.4. ENGAGEMENT AND COMMUNICATION

Goal 14: The communications and information needs of stakeholders in biosecurity surveillance are appropriately met.

The integral nature of surveillance within the biosecurity system means that the communications needs of stakeholders across a range of biosecurity areas (for example, border control, incursion responses and pest management) are best served through an integrated approach. In recognition of this, MAF Biosecurity New Zealand has developed an organisation-wide communications strategy to direct how it co-ordinates its communications activities.

All parties involved in biosecurity surveillance have a role in ensuring that the interaction between one another is as productive as possible. In recognition of this, participants are encouraged to maintain an ongoing understanding of communication issues and to constantly seek improved ways of engaging with each other. Specifically, MAF Biosecurity New Zealand will examine the communications requirements of participants in biosecurity surveillance and implement a programme to meet appropriate needs.

It is essential to raise and maintain appropriate levels of understanding of biosecurity surveillance among priority audiences so as to manage the biosecurity risks faced by New Zealand. To address this, the delivery of social marketing programmes that encourage biosecurity surveillance behaviours amongst specific groups of New Zealanders will be delivered in partnership with a range of industry, environmental and government organisations.

10.4.1. Expected outcomes

- Participants in biosecurity surveillance provide complete and accurate data and/or information to each other in a timely manner.
- Participants in biosecurity surveillance receive the available information and/or data that meets their needs.
- Communications channels for surveillance information are appropriate to the requirements of participants.
- Opportunities for working in partnership are fostered and enhanced through active engagement between the parties involved.

- International obligations concerning the reporting of biosecurity surveillance information are met.

Case Study: The benefits of engagement and communication

Fall webworm was found during 2003 in Mount Wellington, Auckland, at a relatively early stage in its incursion because of a high public awareness of this type of pest.

Because it was found so early, eradication was able to be carried out by ground spraying a small area at relatively low cost. This avoided any aerial spraying, and was a considerable saving on the cost of control compared with previous moth incursions. It also averted an economic impact predicted to be over \$55 million and a potentially significant impact on native forests.



11. Making it Happen

Detailed below by section are some of the actions required over the next 10 years to move the biosecurity system towards achieving the goals set by this Biosecurity Surveillance Strategy. These are important actions, and your feedback on the priority and order of implementation is important to ensuring that the strategy meets its objectives.

While there are several actions identified where MAF Biosecurity New Zealand has the direct ability to make improvements, the considerable benefits envisioned by the strategy can only be achieved with the active participation of other system participants.

MAF Biosecurity New Zealand is confident that this opportunity will be welcomed and accepted by all those with an interest in biosecurity surveillance and protecting New Zealand's natural advantage. An outcome of full collaboration and participation in the action-setting process is that this document will be beneficial in informing all biosecurity surveillance activities carried out in New Zealand.

It is envisioned that one outcome of the consultation process will be an agreed priority action list. These high-priority actions and timelines for their implementation will be inserted into the completed surveillance strategy. Once these are identified as part of the consultation process implementation plans and a work programme can be developed.

11.1. ACTIONS

11.1.1. Leading biosecurity surveillance

National biosecurity surveillance leadership

Goal 1: System leadership is provided, and shared responsibility is promoted, to ensure that stakeholders have confidence that the biosecurity surveillance system supports New Zealand's vision for biosecurity.

1. Priorities and direction for New Zealand's biosecurity surveillance system will be determined.
2. A strategy for New Zealand's biosecurity surveillance system will be produced.
3. New Zealand's needs for biosecurity surveillance will be identified.
4. MAF Biosecurity New Zealand will establish performance monitoring and reporting to help communicate success and drive targeted improvements across the system.
5. MAF Biosecurity New Zealand will develop and implement horizon-scanning capability for new and emerging biosecurity risks.

International leadership

Goal 2: New Zealand obtains significant biosecurity benefits from its involvement in the global biosecurity surveillance community.

6. MAF Biosecurity New Zealand will set priorities for its involvement in international biosecurity surveillance opportunities.
7. MAF Biosecurity New Zealand will work collectively with other nations to reduce biosecurity risks.

11.1.2. Working together

Roles and responsibilities

Goal 3: The roles and responsibilities held by various partners and stakeholder organisations or individuals in biosecurity surveillance are clear, agreed and fulfilled.

8. Agencies and participants involved in biosecurity surveillance will clearly define and communicate their roles and responsibilities in biosecurity surveillance.
9. MAF Biosecurity New Zealand will actively encourage biosecurity surveillance participants to deliver on their agreed responsibilities by leading the development of frameworks to remove barriers to participation.
10. A “biosecurity surveillance directory”, providing standardised information about the roles and responsibilities of all participants in biosecurity surveillance activities will be developed.

Decision making

Goal 4: Significant biosecurity surveillance decisions are transparent and made using consistent criteria.

11. Transparent criteria will be determined for application in biosecurity surveillance decision making.
12. MAF Biosecurity New Zealand will apply the decisions framework approach for its own biosecurity surveillance decision making, and will encourage its use amongst other surveillance participants and partners.

Prioritisation

Goal 5: Biosecurity surveillance resources are targeted to deliver the greatest benefit to New Zealand.

13. An agreed formal prioritisation framework to support biosecurity surveillance decision making across the system will be developed or adapted.
14. MAF Biosecurity New Zealand will apply its prioritisation framework when allocating government resources to biosecurity surveillance activities, including reassessment of existing activities.
15. MAF Biosecurity New Zealand will apply the “analytical approach and assessment template” when considering funding arrangements for surveillance activities, including reassessment of existing activities.

Co-ordination and partnerships

Goal 6: Stakeholders with a role, or interest, in delivering biosecurity surveillance work together using formal and informal mechanisms.

16. MAF Biosecurity New Zealand will explore methods (including the use of existing structures) to ensure stakeholder involvement in determining how all participants will contribute to, and benefit from, future biosecurity surveillance activities.

11.1.3. Delivering Quality Surveillance

Surveillance design

Goal 7: The most appropriate mix of surveillance activities are chosen to ensure that surveillance programmes meet their specified objectives.

17. MAF Biosecurity New Zealand will set up a process to provide guidance to stakeholders in choosing the most appropriate biosecurity surveillance methods relevant to the objectives of the surveillance activity.
18. MAF Biosecurity New Zealand will ensure all surveillance activities that it carries out have explicit objectives.

Efficient surveillance delivery

Goal 8: Surveillance delivery is effective, efficient and responsive to changes in the biosecurity environment.

19. A framework will be developed to provide guidance to stakeholders in delivering biosecurity surveillance as efficiently as possible.
20. A capability assessment for New Zealand biosecurity surveillance will be completed and a staged programme will be implemented to ensure capability is available to meet the requirements of biosecurity surveillance.
21. MAF Biosecurity New Zealand will develop processes to assess surveillance undertaken by other organisations, and when it is of appropriate quality, provide official recognition of it.

Effective review

Goal 9: The outputs of surveillance programmes can be relied upon by decision-makers.

22. All biosecurity surveillance programmes will be regularly reviewed against their objectives and appropriate improvements made.
23. MAF Biosecurity New Zealand will define performance targets and measures for all biosecurity surveillance activities that it manages.

Science

Goal 10: All surveillance activities are based upon the best available science, research and technology.

24. Participants in biosecurity surveillance will facilitate effective and timely research to improve the effectiveness and delivery of surveillance programmes.
25. MAF Biosecurity New Zealand will engage in relevant science prioritisation processes to ensure surveillance needs continue to be recognised and addressed.

11.1.4. Sharing Information

Management and infrastructure

Goal 11: Biosecurity surveillance activities are supported by adequate processes and systems for managing and storing data.

26. An integrated solution for the management of biosecurity surveillance data will be investigated and developed.
27. Opportunities for increasing the integration and interoperability of new and existing data management systems for biosecurity surveillance will be investigated between biosecurity surveillance participants.

Awareness and data sharing

Goal 12: There is increased awareness of, and access to, surveillance data and other information that supports biosecurity activities.

28. A “gap analysis” will be conducted among biosecurity participants and stakeholders to identify surveillance data needs that are not currently being met.
29. A repository that provides details of surveillance data sets and information sources of relevance to the biosecurity system will be developed, maintained and made publicly available.
30. Agreements between biosecurity surveillance participants and other organisations governing the appropriate exchange of data of mutual interest will be explored and negotiated.

Data quality

Goal 13: Biosecurity data is converted to information of known quality and used to support decision making.

31. Data quality standards and metadata specifications that are applicable for use with biosecurity surveillance data will be jointly explored and developed.
32. A review of biosecurity surveillance data will be undertaken to identify areas where significant opportunities exist for improving the use of data that has already been collected.
33. Biosecurity participants will collaborate to ensure that appropriate data, resources and capability for data analyses are available, where necessary, to meet biosecurity surveillance objectives.

Engagement and communication

Goal 14: The communications and information needs of stakeholders in biosecurity surveillance are appropriately met.

34. A “needs analysis” for communications activities among participants in biosecurity surveillance will be conducted.
35. A surveillance communications strategy will be developed, informed by the needs analysis and the framework and tools established by the MAF Biosecurity New Zealand Communications Strategy (2007–2012).
36. Social marketing interventions that inform and encourage members of the public to undertake biosecurity surveillance behaviours will be explored and delivered.

11.2. BIOSECURITY SURVEILLANCE STRATEGY GOVERNANCE

Governance is important to ensure that the vision of this Biosecurity Surveillance Strategy is achieved and ongoing biosecurity surveillance system activities occur.

Governance of the biosecurity surveillance system is covered through the use of existing structures in the biosecurity system. This is detailed further in Appendix A.

Implementation of the biosecurity surveillance strategy also needs to be monitored. This can be achieved in a number of ways. Two options are:

- leave the responsibility to MAF Biosecurity New Zealand and utilise the current framework, but include an advisory committee with participants from the surveillance system. This group would represent important surveillance values and allow input from key sectors on implementation; or
- adopt an active approach that utilises a partnership framework as described in this strategy. This would occur through an implementation steering committee comprising representatives of system participants.

As part of the consultation process MAF Biosecurity New Zealand is seeking feedback on what structures are necessary and whether there are preferred alternatives.

Appendix A: Current Government Biosecurity Strategic Framework and Biosecurity Governance Arrangements

This appendix defines the strategic framework within which the biosecurity system operates and includes key committees and decision-making documents. It also defines the roles of key government agencies, both central and regional. The biosecurity surveillance system is an integral part of this framework.

The overall biosecurity vision and goals for New Zealand are outlined in *Tiakina Aotearoa – Protect New Zealand: The Biosecurity Strategy for New Zealand* (the Biosecurity Strategy)¹³. The Biosecurity Strategy is implemented by operational strategies and policies that define outcomes and expectations for components of the biosecurity system, including relationships with agencies and groups involved in biosecurity.

The following strategies, agreements and policies relate to this Biosecurity Surveillance Strategy.

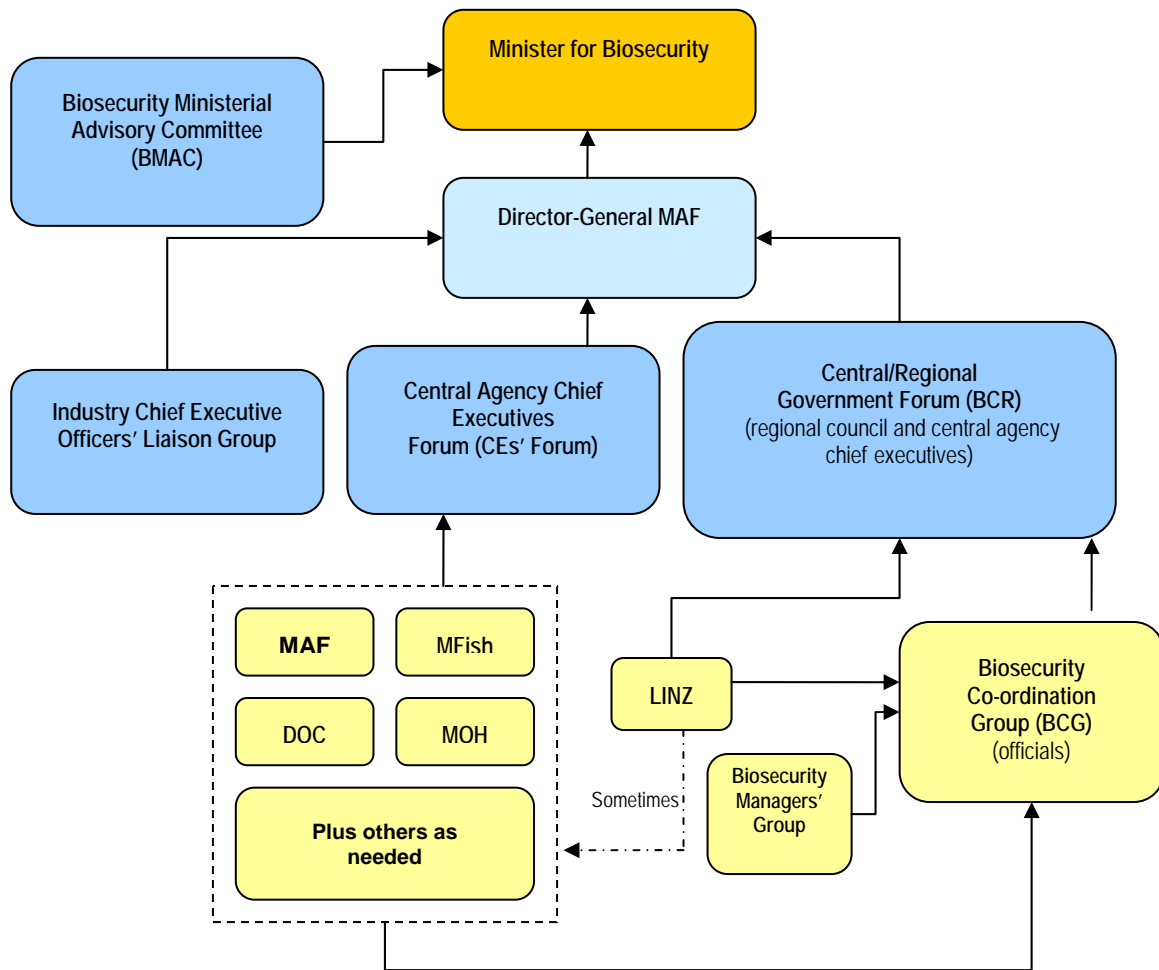
- *A Biosecurity Science Strategy for New Zealand* (2007)
- *MAF Biosecurity New Zealand Strategic Plan 2007–2012*
- *Agreement on the Application of Sanitary and Phytosanitary Measures*, World Trade Organization (1995)
- *MAF Regulatory Authority Policy Statement: Meeting the Transparency Obligations of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures* (1998)
- *Memorandum of Understanding between ERMA New Zealand and the Ministry of Agriculture and Forestry Concerning New Organism Enforcement* (2003)
- *Memorandum of Understanding on Biosecurity Activities between Ministry of Agriculture and Forestry and Department of Conservation, Ministry of Fisheries and Ministry of Health* (2006)
- *Policy for responding to unwanted pests and diseases (risk organisms)* (draft 2007)
- *Tiakina Aotearoa / Protect New Zealand: Biosecurity Strategy for New Zealand, Biosecurity Council* (August 2003)
- *Treaty of Waitangi Issues Analysis Guide*, MAF (2007)

This Biosecurity Surveillance Strategy defines the goals and actions to implement the expectations in the Biosecurity Strategy (2003) for the surveillance component of the biosecurity system.

There are four governance committees that develop and manage consistent, cohesive policies, processes and decision rights for MAF Biosecurity New Zealand as shown in Figure 3.

¹³ Biosecurity Council of New Zealand (2003) *Tiakina Aotearoa – Protect New Zealand: The Biosecurity Strategy for New Zealand*. Biosecurity Council; Wellington.

Figure 3: Biosecurity governance arrangements



Notes:

DOC = Department of Conservation
 LINZ = Land Information New Zealand
 MAF = Ministry of Agriculture and Forestry
 MFish = Ministry of Fisheries
 MOH = Ministry of Health

The paragraphs below explain the purpose and membership of the governance groups identified above.

Central Agency Chief Executives' Forum (CEF): helps form strategic goals, monitor and improve the performance of the biosecurity system as well as ensures clarity of roles, responsibilities and accountabilities within this system. The CEF comprises chief executives from the Ministry of Agriculture and Forestry, Department of Conservation, Ministry of Health, Ministry of Fisheries and Te Puni Kōkiri.

Biosecurity Central/Regional Government Forum (BCR): the purpose of the BCR is to improve co-ordination and collaboration across central and regional government biosecurity agencies. The BCR comprises chief executives from the Ministry of Agriculture and Forestry, Department of Conservation, Ministry of Health, Ministry of Fisheries, Land Information New Zealand, and all regional councils.

Biosecurity Coordinating Group (BCG): the purpose of this group is to provide advice to the BCR and to maintain an overview of, and co-ordinate and align, the biosecurity priorities and activities of central and regional government biosecurity agencies. The BCG comprises managers from the Ministry of Agriculture and Forestry, Department of Conservation, Ministry of Health, Ministry of Fisheries, Land Information New Zealand and all regional councils.

Industry Chief Executive Officers' Liaison Group: advises the Director-General of the Ministry of Agriculture and Forestry and has a strong emphasis on livestock industry responses to future animal disease outbreaks such as foot and mouth disease.

Biosecurity Ministerial Advisory Committee (BMAC): is a stakeholder advisory committee that provides independent advice on the performance of the overall biosecurity system and monitors the implementation of the New Zealand Biosecurity Strategy.

The current roles and areas of responsibility of the leading government agencies involved in biosecurity are summarised briefly below:

MAF Biosecurity New Zealand

MAF Biosecurity New Zealand is the lead agency in New Zealand's biosecurity system. Established in November 2004, it has been tasked with a “whole of system” leadership role, encompassing economic, environmental, social and cultural outcomes. It manages biosecurity risks at the border, undertakes surveillance for pests and diseases, attempts to eradicate or contain certain pests and also has international trade and animal welfare responsibilities. MAF Biosecurity New Zealand is a division of the Ministry of Agriculture and Forestry.

Ministry of Fisheries (MFish)

MFish is no longer accountable for delivering biosecurity services, but does contribute to the formulation of strategic goals for the marine biosecurity system, and provides advice on biosecurity risks relating to its interests. MFish will have an interest in any organism that can harm the sustainable use of fisheries, and in any process, system, policy or strategy that minimises the risks to New Zealand's aquatic environment from biosecurity threats.

Ministry of Health (MOH)

MOH is responsible for providing advice to government on all matters relating to human health and for administering and implementing a variety of health-related legislation. MOH has an interest in organisms that may harm human health because of its responsibility to advise on all matters relating to public health.

New Zealand Food Safety Authority (NZFSA)

NZFSA assesses and manages biosecurity risks associated with food and food-borne pathogens associated with animals. NZFSA also has responsibility for facilitating market access for New Zealand's food and food-related products and has a direct interest in biosecurity issues that may impact on this area.

Department of Conservation (DOC)

DOC has an interest in any pests or diseases that are harmful or potentially harmful to indigenous flora and fauna or natural ecosystems (land, freshwater, marine) because such organisms may impact on the conservation values (lands, species, resources) for which DOC is responsible.

Land Information New Zealand (LINZ)

LINZ manages Crown property and carries out pest control works on Crown land. This work generally involves the control of pest plants and animals on Crown land and in LINZ-administered lakes and rivers.

Te Puni Kōkiri

Te Puni Kōkiri is the Government's principal adviser on Māori issues. The organisation's work aims to improve outcomes for Māori and ensure the quality of government services delivered to Māori.

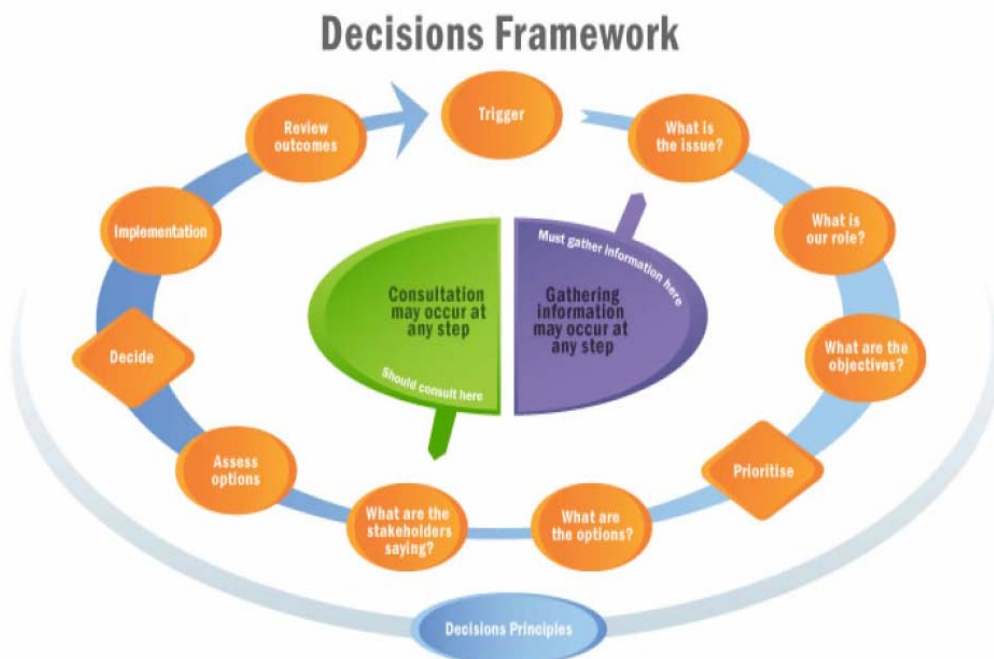
Environmental Risk Management Authority (ERMA)

ERMA New Zealand regulates the importation or manufacture of new hazardous substances, and the introduction of new species of plants and animals, including genetically modified organisms (GMOs). It checks these for possible risks to the environment and public health.

Regional government

Regional government, specifically regional and unitary councils, has biosecurity responsibilities to complement the management of natural resources provided for by the Biosecurity Act 1993. Regulatory powers and the ability to undertake delivery of biosecurity services is enabled through the implementation of regional pest management strategies.

Appendix B: Biosecurity Decisions Framework



Explanation of the biosecurity decisions steps

Gather information

Gather information throughout the whole decisions process, particularly to help define the issue and to identify and assess options.

Consultation

Identify and consult affected parties as early as possible in the process and give sufficient time and information to affected parties. Where there is little information, consultation may need to be ongoing or occur at several points in the decisions process. Consultation may not be necessary in all cases.

Consultation

- Who should be consulted?
- How should they be consulted?
- What is the objective of the consultation?
- What is the key information that needs to be provided?
- What is the scope/timeframe of the consultation?
- Do the expectations of those consulting/those being consulted align with consultation objectives?
- What are the areas of concern identified?

Trigger

A trigger, such as a 0800 call, an incursion, new information, or an Import Health Standard application, should prompt the decisions process.

What is the issue?

Explain the background to the issue, including the nature and extent of the issue and the need for action.

Nature of the issue

- What is it?
- What is the underlying cause of the issue?
- What are the symptoms of the issue?
- What is the likelihood and consequence of the issue?

- What are the risks/opportunities?
- Has this been an issue in the past?
- How successful have we been at addressing it?
- What behaviours need to change?
- Who needs to change behaviour?

Size and scale of the issue

- How significant is the issue?
- What is the scope of the issue?
- Who is it an issue for?
- Does consultation need to occur to help define the issue/objectives?

Need for action

- What is the urgency/need for action?
- How reversible are the impacts of the issue?
- Are there any relevant government objectives/outcomes?

What is our role?

Clarify/agree who has the mandate/duty to act.

- Do we have a legislative requirement or prearranged role?
- Is it a pre-agreed role or responsibility of another agency?
- Who is best placed to solve it?
- Do we need to agree role division between MAF and another agency?
- Who is best placed within MAF to be responsible?

What are the objectives?

Identify what needs to be managed to best achieve the outcomes. Clearly define the objective(s) to address the underlying cause of the issue in a way that does not pre-determine solutions, and is easily measurable. Clearly specify if objectives are subject to constraints like time or resources.

- How will we measure success?
- What feedback is needed?

Prioritise risks and opportunities

Rank the risks and opportunities of the issue against other issues and decide whether to continue analysis.

- Prioritise against strategic fit, net benefit, feasibility, resources, and barriers to success. For good practice prioritise using strategic fit and net benefit *first* to identify where the real risks and opportunities lie and then consider feasibility, resources and barriers.
- What are the likely costs associated with maintaining the status quo?

What are the options?

Develop, analyse and evaluate realistic options for achieving the objectives and that can be implemented.

Develop options

- What is the status quo?
- Is further information needed to inform development of options?
- Can the options be implemented?

Analyse options

- What is the level of analysis required and timeframe?
- What are the costs and benefits of intervening/not intervening?
- Who benefits and who bears the cost of each option?
- How well do the options manage the risks?
- How will behaviours affect the level of compliance?
- Do the options address the underlying cause or the symptoms of the issue?
- What are the indicators for measuring success/performance?

Evaluate options

- Prioritise options against strategic fit, net benefit, feasibility, resources and barriers to success.
- What is the preferred option?

What are the stakeholders saying?

Consult with affected parties even if you have already discussed the issue with them previously. Consultation must be genuine and feedback used to inform your decision. If you decide not to consult on the options, make your reasons for this decision clear.

Decide on an option

Choose an option, decide what we are going to do or not do and clearly communicate the decision to affected parties.

Implement the decision

Develop an implementation plan and take action.

- Is a communication strategy required?
- What risks may affect successful implementation?
- What review mechanisms and performance targets are needed?

Monitor and review outcomes

Monitor and evaluate performance, and review against the objectives. If recommendations from the review identify new information or issues these should feed back into the decisions process.

- How well does the decision meet the success/performance criteria and objectives?
- How well does the decision respond to the risks, costs and benefits and public reaction to your actions?
- What are the intended/unintended effects of the action?
- What is the level of compliance?

Note that the bullet points are intended to guide thinking, whereas the principles are compulsory.

Biosecurity decisions principles

Process Principles

1. Follow the criteria and processes prescribed in relevant legislation and ratified international standards

Where legislation prescribes the process to be followed and/or criteria to be applied for a particular decision, these must be followed and applied. International standards or treaties that have been ratified by the Government must also be followed.

2. Analyse the issue before trying to find solutions

Spend time identifying the “real” issue, before thinking through solutions by:

- understanding and analysing: the issue, the context, the risks and opportunities and the objectives first; *then*
- thinking through solutions to manage the issue and assessing strategic fit, net benefit, feasibility, resources and any other barriers for the solutions.

3. Decisions should be made by those best placed to do so

Unless specified elsewhere (such as in legislation), decisions should be made by the people who have the right information, skills and incentives because they are best placed to make good decisions in that area.

4. Timely and well-informed

There will always be uncertainty and lack of information, but we must make the best decisions we can with the best information available at the time. The level of information sought and analysis should be

proportional to the size of the risk/opportunity identified in the available timeframe and the urgency required.

5. Consistency

Follow a consistent decisions process but only to the point where it is sensible to do so. Apply decisions principles, criteria and tools consistently so that decisions do not differ in assessment approach.

6. Consult affected parties, including Māori

Identify and consult those affected by our decisions, including Māori, as soon as possible in the decisions process. Give sufficient time and information to affected parties so they can provide effective feedback before final decisions are made and so they can manage their own risks and interests at the same time.

7. Transparency

Tell affected parties, in plain language they can understand, what the decision is and the reasoning behind the decision so they understand the decision, the implications and the behaviours being sought.

Content Principles

8. Decisions should aim to improve New Zealand's overall economic, social, health and environmental values

Decisions should be driven by the objective of securing positive consequences and limiting negative consequences for our economic, social, health and environmental values as a country except where there

are specific government objectives, directions or statutory requirements.

All decisions by the Government to intervene should be tested to check that the intervention is justified and delivers more benefits than costs.

9. *Prioritise based on strategic advantage, technical feasibility and net benefit*

Prioritise using the following criteria, or develop and agree an alternative set of criteria before making the decision.

- Strategic fit – how well does it fit with the Government's or MAF's strategies and goals?
- Net benefit – what is the overall net benefit including costs, benefits and their likelihoods?
- Feasibility – is it feasible and what is the probability of success?
- Resources – what resources, skills and capabilities are required?
- Barriers – are there other barriers to success, such as the factors that cause public concern (coercion, unfairness, dread)?

10. *Uncertainty is not an excuse for inaction*

Where there is uncertainty, decisions should focus on what reasonable steps can be taken at the time, while maintaining future options where appropriate and being transparent about the uncertainties and assumptions.

11. *Irreversibility provides a stronger case for intervention*

Where the impacts of not intervening are likely to be irreversible, there is a stronger case for intervention even when benefits only marginally outweigh costs.

12. *Risks/opportunities should be managed by those best placed to do so*

Those with the most appropriate incentives, capability, access to resources and the best information related to any specific opportunity or risk should manage those risks/opportunities.

13. *Favour outcome-based over prescription-based interventions*

Favour performance/outcome-based interventions over prescriptive interventions, wherever practicable and appropriate. Standards should be enforceable, and should draw on existing (industry) standards as much as is practicable to minimise compliance costs and allow innovation.

Appendix C: List of Contributors to the Biosecurity Surveillance Strategy