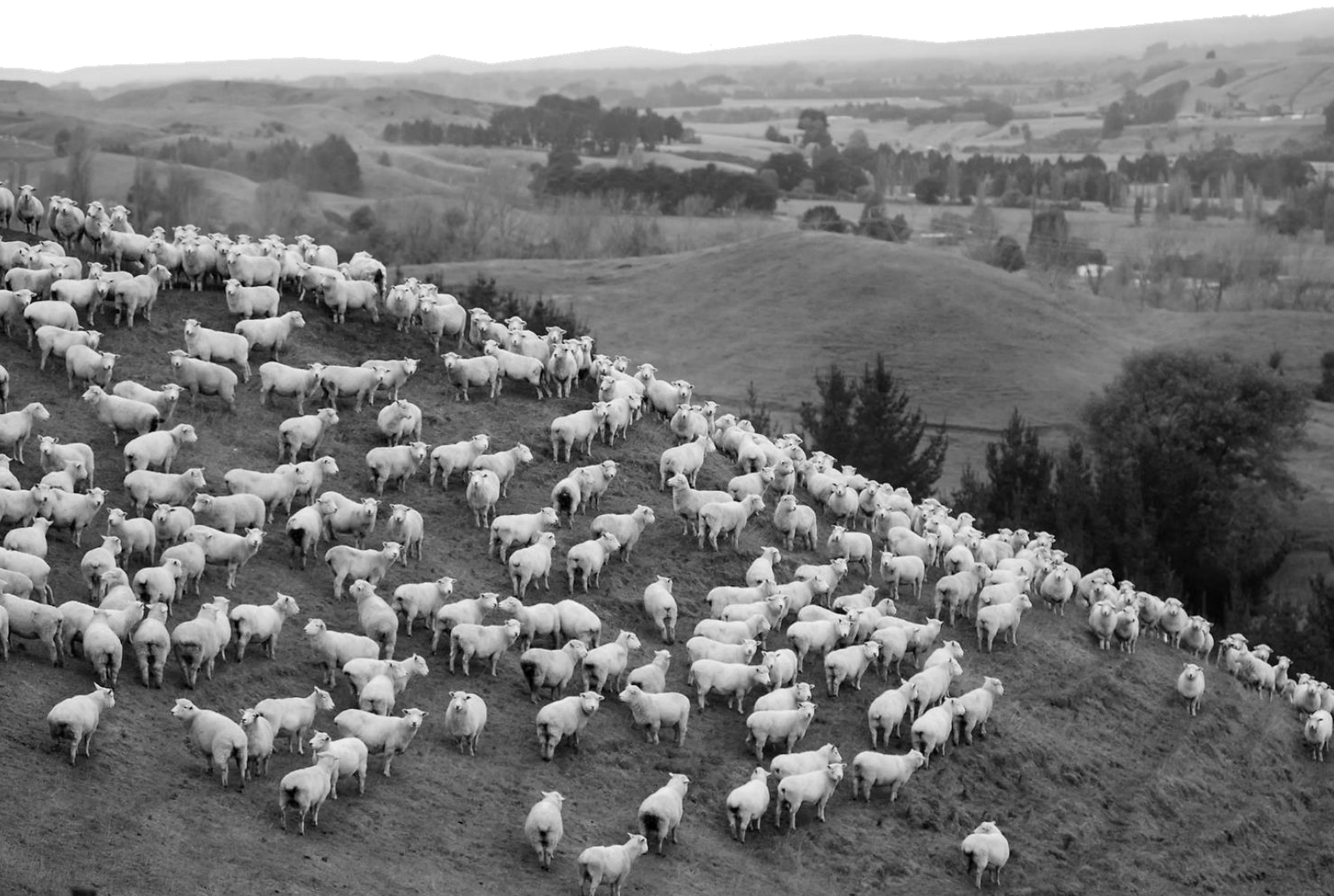
Foot-and-Mouth Disease Preparedness

An independent review 2022



Report for the MPI Director General
An independent review of the measures being taken to strengthen New Zealand's preparedness to deal with an FMD outbreak.

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Independent Review Report

Foot-and-Mouth Disease Preparedness

This report has been prepared by the Foot and Mouth Disease Independent Review Team for the Director-General (DG) of the Ministry for Primary Industries (MPI) and provides the Team's findings and recommendations.

The report has been informed by discussions with a range of key personnel which has shaped an understanding of the country's preparedness plans for responding to a Foot and Mouth Disease (FMD) outbreak.

The Review Team appreciates the many people who took the time to provide their input into the Review and share their knowledge. The Review has endeavoured to be accurate and fair within its observations and reflections.

Unlike other reviews of biosecurity preparedness, this review has taken place while a major rejuvenation of animal disease response capability is underway.

The Review Team undertook interviews in parallel with the FMD Task Force's work programme, so it is likely that some of the Review's conclusions will be overtaken by events. Thus, the report is not intended to be a comprehensive analysis, rather it is shaped to provide an indication about 'what else could be prioritised?' and 'what is missing?'

Contents

Introduction

The Independent Review into FMD Preparedness is a high-level forward-looking review that provides advice on how to further strengthen FMD response plans and decision-making structures.

The Terms of Reference (at Annex A) required an assessment of where MPI's current FMD plans can be strengthened to complement and inform the work being carried out by MPI's FMD Task Force, sector stakeholders and other government agencies.

To form an opinion, the Review Team:

- Canvassed a range of interview subjects including MPI as a whole, other national and regional government, industries and supporting agencies. See list at Annex B.
- Reviewed the documentation listed at Annex C, much of which is the subject of ongoing review or is being rewritten.
- Kept abreast of the rapid progress that the FMD Task Force was making to ensure that the Review's enquiries remained relevant.

Terms of Reference

The Independent Review's Terms of Reference required it to cover the following key areas:

- MPI's response plans and preparedness to identify areas for strengthening
- whether the responsibilities for FMD decision making are appropriate.
- where additional planning and work is required for an FMD incursion
- what improvements to aid decision making are required should an FMD outbreak occur.

The outcome is a report that has been prepared for the DG, MPI and focuses on six general areas and provides recommendations for each:

- System preparedness
- System leadership
- MPI's role
- Building and sustaining information systems
- Planning for post-incursion recovery
- Communications

The spectre of an outbreak of FMD impacting on New Zealand's agriculture-dependent economy has been viewed as a major risk for decades. As a trading nation operating in a globalised world, the free flow of goods and people across our border means the risk from FMD is ever-present.

FMD is endemic in some of New Zealand's major economic partners, and a significant effort made over an extended period has prevented the disease being introduced to New Zealand.

The Review Team found that the level of preparedness for FMD response has varied over the last two decades and has depended on episodic planning activity. This has been well covered in previous reports.

The Review heard that the approach to capability development is ad hoc. The Review was able to observe the building of preparedness and has endeavoured not to comment on specific work that is already being progressed by the Task Force.

Executive Summary

There have been a number of Foot and Mouth Disease (FMD) exercise evaluations over time that point to 'sub-optimal' levels of planning and preparedness.

The 2019 Exercise Whakatau Korero[1] evaluation report identified that there was no evidence that other agencies had readiness plans.

This is reinforced by the findings of the 2021 *Mycoplasma bovis* (*M. bovis*) review[2] which concluded that the level of preparedness to deal with large scale animal disease outbreaks was not at the level generally expected.

The review was disappointed to note there is insufficient evidence that earlier reviews have resulted in systemic strengthening of New Zealand's livestock biosecurity response capability.

System Leadership

An FMD incursion within New Zealand will require a national response and is not the sole responsibility of MPI and more specifically, Biosecurity New Zealand (BNZ).

MPI is the lead agency for the biosecurity function across the public service, and the risk coordinating agency for reduction, readiness, response and recovery in the National Security System.

MPI has the lynch pin role in ensuring that the system is coherent, capable and prepared at an appropriate level. It cannot do this alone and must engage, influence and most importantly involve other national and regional government, industries and supporting agencies.

Leadership needed to create a higher level of preparedness requires formal frameworks, sustained effort, and national commitment over years to build the required capabilities and then hold them at the level of readiness necessary.

[1] *Exercise Whakatau Korero, R Robinson, C&M Associates Ltd, December 2019. An all of government biosecurity exercise within the National Exercise Programme.*

[2] *The Mycoplasma bovis Programme – An Independent Review dated December 2021*

Leadership of this complex and extensive system requires the active engagement of all the branches of MPI. MPI's leadership must extend to national and regional government, industries and supporting agencies and communities.

This system needs to deal with the speed and scale of a FMD response as well as the various interests, accountabilities and responsibilities of the participants.

System Preparedness

Preparedness is the outcome of the generation of the various elements of capability[3] which, when brought together, provide operational effect.

The level of preparedness required of the FMD system is not widely understood and has resulted in a cyclical approach to FMD planning and preparedness which has been a characteristic of the system for the past two decades.

This can be fixed by building a capability system that supports BNZ generate preparedness, strengthens MPI's capacity to lead a response and enables MPI to exercise system leadership to inform and develop others to do the same.

It requires a deliberate and sustained approach which begins with the Government's FMD Plan and matches resources to create capability and then regularly tests it over a prolonged period.

Providing clear expectations around preparedness and performance standards would shape capability generation and readiness and 'bake in' the departmental standards for levels of readiness and response.

Gaps in Preparedness

A recent outbreak of FMD in Indonesia, a popular regional tourist destination, has focussed attention in Australia and New Zealand on FMD preparedness.

Consequently, MPI stood up a FMD Task Force to refresh the Government's plan to deal with a FMD incursion.

It is clear that the planning activity currently being carried out by MPI's FMD Task Force will result in MPI being far better prepared to lead the national response to an FMD incursion.

Those plans need to be given time to:

a) Inform and impact supporting agencies' departmental preparedness; and
b) shape contingency planning by regional government, industries and communities.

The national system of FMD preparedness will be constrained until other national and regional government, industries, supporting agencies and communities have been able to prepare and test the complementary plans to support the national plan. Until addressed this will prolong the gap between government's intent and the ability to meet it.

The Review Team believes that overall system preparedness is only as strong as its weakest link. Shortfalls in the tool set for responding to an FMD incursion are well known.

The Review Team acknowledges that the FMD Disease Management Strategy and the NZ National FMD Strategy will be published in 2023.

Additionally, clarification of accountabilities and responsibilities and where necessary, the alignment of these with decision making rights and fiscal commitments is progressing.

[3] Capability can be seen as the combination of a variety of inputs such as people, research and development, information and data, communications, infrastructure and equipment.

Otherwise, the following require more emphasis:

a) Sustained effort to ensure that the National FMD Strategy is operationalised and tested across MPI as a whole, other national and regional government, industries, supporting agencies and communities.

b) The development of legal frameworks and briefings on emergency powers and responsibilities (learnt from recent court rulings on COVID) and the drafting of ‘shelf ready’ regulations and executive orders that will execute operational plans under emergency.

c) The ability to move, share, record and collate the huge amount of information that is generated in peacetime and will increase exponentially when dealing with a large animal biosecurity incursion such as FMD.

d) This report echoes predecessors by recommending a MPI led project to deal to this problem.

Additional further preparations are required, including:

a) The development of an assurance system that provides independent advice to the Deputy Director-General, Biosecurity New Zealand (BNZ) in the preparedness of the country to deal with an animal disease incursion.

b) Provision of seamless interoperability between databases to allow information to be shared and to improve decision making.

c) The rollout of the unified approach to FMD communications which provides voluntary guidance on an appropriate tone for ‘peacetime’ FMD awareness.

d) A formal assessment of the economic, social and psychosocial impacts on the community during and following an FMD incursion.

e) The ability to rapidly establish and staff a large ‘rurally empathetic’ call centre needs to be considered.

Recommendations

These recommendations to strengthen FMD preparedness reflect the Review Teams' analysis of existing documentation and discussions with Review participants.

The Review is confident that with the improved departmental planning resulting from the FMD Task Force, MPI will be able to lead the system to improve the levels of preparedness required in the National FMD Response and Recovery Plan (2018).

The recommendations are aimed at preparing the nation to deal with future biosecurity incursions. They affect the whole of MPI, other national and regional government agencies, industry organisations, businesses and communities including Māori.

The recommendations are prioritised using the following definitions:

Critical (Do Now) – To increase the likelihood of a successful outcome it is of the greatest importance that MPI should take action immediately.

Essential (Do By) – To increase the likelihood of a successful outcome MPI should take action in the near future.

Consider (Good Practice) – MPI should benefit from the uptake of this recommendation.

The Review recommends the following:

1. Strengthen leadership of the system

As lead agency for biosecurity, MPI needs to demonstrate leadership by:

a) Delivering a level of organisational expertise and capacity and a culture of operational excellence. ***Critical***

b) Developing a set of biosecurity performance standards against which the preparedness of MPI as a whole, other national and regional government, industries, supporting agencies and communities can be measured. ***Critical***

c) Developing the ability to provide interventions to support the resilience of livestock farmers and processors ***Essential***

d) Providing clear guidance and assisting in the development, and testing, of the frameworks that support MPI as a whole, other national and regional government, industries, supporting agencies and communities in their roles in a response. ***Essential***

e) Operationalising the current strategic engagement with key national and regional government, industries, supporting agencies and communities ***Critical***

f) Progressing a review of the Biosecurity Act and other relevant legislation. ***Essential***

2. System Preparedness

MPI adopt a systemic approach to the development and stewardship of the capabilities (people, research and development, information and data, communications, infrastructure and

equipment) necessary to achieve the Government's FMD Plan based on:

a) a clear government mandate and strategy to conduct the response using designated resources; ***Critical***

b) a clear plan to implement the strategy that sets out capabilities, legal frameworks, accountabilities and responsibilities; ***Critical***

c) joint leadership of the system across MPI, national and regional government, industries, supporting agencies and communities; ***Essential***

d) the need to continuously refresh and test MPI operational plans that provide clear direction on how the desired outcome will be achieved, ***Essential***

e) an independent assessment function:

i. of the capability process to generate the level of preparedness, ***Consider***

ii. of the ability of the system to learn lessons from training exercises, ***Consider***

iii. to inform preparedness. ***Consider***

3. MPI's Role

MPI needs to develop and maintain a strong technical and organisational capability that can effectively respond to biosecurity threats by:

a) Conducting regular exercises involving MPI staff and external organisations to build and assess readiness. ***Critical***

b) Maintaining response preparedness documents and review at specified intervals. ***Essential***

c) Strengthening the biosecurity system with an independent governance structure that supports BNZ in its endeavours to lead and influence the livestock sector. ***Consider***

d) Consider structural and organisational factors to ensure effectiveness of BNZ's response capability, including:

iv. the optimum placement of Diagnostic and Surveillance Services (DSS) and Readiness and Response Services (RRS) within BNZ, in order to develop and retain a multi-disciplinary team of experts in exotic animal disease, logistics and response management. ***Critical***

v. the means by which the Chief Biosecurity Officer (CBO) and Chief Veterinary Officer (CVO) can act as overall system leaders. ***Consider***

vi. the merits of a sectoral (animals, plants, marine) rather than functional (surveillance, readiness, response) organisational structure to build teams with critical mass of subject-matter expertise. ***Consider***

4. Building and sustaining an information system

Develop and maintain a fit for purpose information management system for FMD that:

a) Determines the data requirements needed for an FMD response, where existing data is held and the degree of essential interoperability ***Critical***

b) Builds the connections to enable access to up-to-date data on farms and livestock and the, up to, four entities who own and or manage them ***Critical***

c) Delivers an Incursion Response Management System that supports disease management and enables timely response (informed by a national disease database). ***Critical***

d) Accesses a central database of electronic records of movements of all FMD susceptible animals. ***Critical***

e) Replaces paper-based Animal Status Declarations with electronic 'eASDs' ***Essential***

f) Informs an incursion decision aid. ***Essential***

g) Is overseen by a governance framework at the strategic level. ***Consider***

5. Planning for post-incursion recovery

MPI should progress the planning for recovery from an FMD incursion to minimise impacts on the economy and society by:

a) Developing systems and plans to maintain the livestock sector's capacity until market access is regained. Including:

i. Labour force retention ***Critical***
ii. Maintaining business viability ***Critical***
iii. Strategic approach to enterprise changes. ***Critical***

b) Identifying products that meet World Organisation for Animal Health (WOAH) guidelines as being unable to transmit FMD, and seeking equivalence for our own products/ processing methods where appropriate. ***Critical***

c) Engaging with WOAH and trade partners to shape policy and technical standards to enable return to trade. ***Essential***

d) Changing certification policies to remove routine FMD country freedom statements from products that do not present an FMD transmission risk. ***Consider***

e) Investigating markets that accept products from countries where FMD is present, and assessing how to access these markets. ***Consider***

f) Sustaining MPI and MFAT's capabilities in trade negotiation, and their relationships with standard-setting bodies and veterinary competent authorities. ***Consider***

6. Communications

MPI rollout a strategic communications plan which:

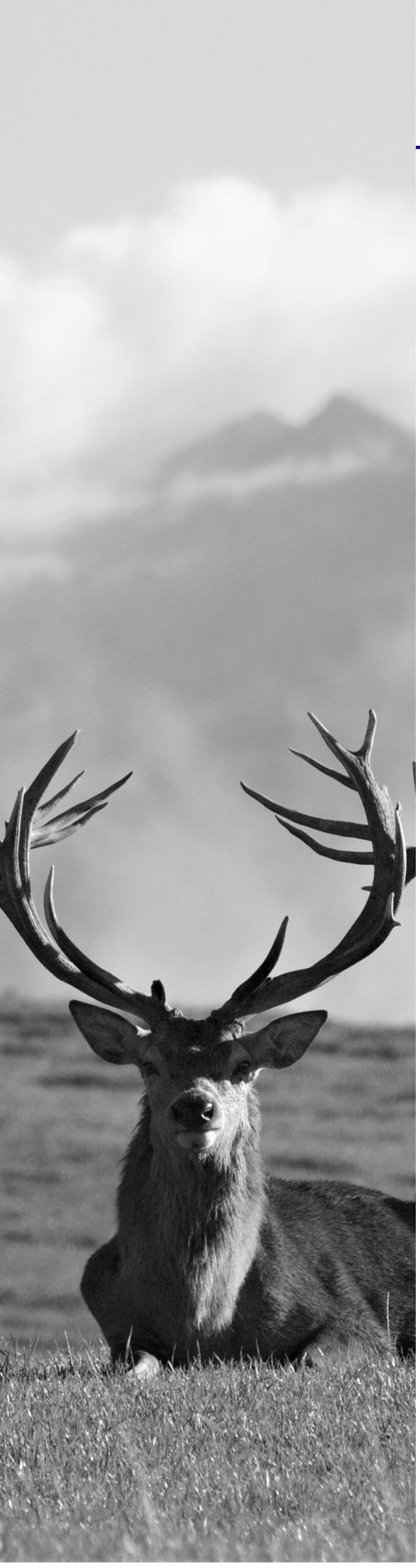
a) Aligns to international standards or broader crisis management framework. ***Critical***

b) Ensures strategic leadership communicates and tests the plan with national and regional government, industries, agencies and communities. ***Critical***

c) Develops and sustains farmer readiness through a standard industry approach. ***Critical***

d) Improves the nation's awareness and understanding of the impacts of FMD. ***Essential***

e) Supports the development of a national warning system to communicate the need for a higher level of vigilance and preparedness. ***Consider***



Discussion

The recent identification of FMD in the region has raised the question of whether New Zealand's level of preparedness is at the required level.

We heard that the level of FMD preparedness in New Zealand has fluctuated over time.

This concerned the Review team given that New Zealand relies heavily on agricultural trade from animals susceptible to FMD for its economic security, and that any incursion is expected to have devastating consequences for the country as a whole.

The recommendations are supported by discussion under the following headings:

- System Leadership
- System preparedness
- MPI's Role
- Building and sustaining information systems
- Planning for post-incursion recovery
- Communications

The discussion will be supported by an appendix which provide more detailed discussion on preparedness in the FMD context.

System leadership

MPI is the system leader for biosecurity across the public service and the risk coordinating agency across reduction, readiness, response and recovery (the 4Rs) of the National Security System.

The Review Team heard that New Zealand has a world class border biosecurity system that has kept the country free of serious animal diseases including FMD.

Protection of New Zealand from FMD does not stop at the Border - it also depends on the ability to provide defence in depth if FMD makes it past the border.

The Review Team observe that post COVID the volumes of people and goods entering New Zealand are increasing and there will be additional biosecurity risks. MPI assesses that this will mean a return to more complex, longer and concurrent responses to manage biosecurity threats.

Understanding these threats and their potential impacts on the country's primary industries illustrates the need to protect the food and fibre sectors. The recent identification of FMD in Indonesia, coupled with tourists and goods entering New Zealand from Indonesia is a case in point.

The Review Team views MPI as the centre of gravity for any FMD response. It is the organisation that others will look to for expertise, guidance and leadership.

Leadership of this complex and extensive system requires the active engagement of all branches of MPI. MPI's leadership must extend to national and regional government, industries and supporting agencies and communities.

To meet the demands of a major biosecurity response, sustain strategic level decision making, support, inform and advise farmers and the public, help other agencies in their work as well as meet international commitments, MPI will have to develop a level of organisational expertise and capacity and a culture of operational excellence.

As the lead agency for biosecurity, MPI needs to evolve to meet the Public Service's developing expectations of system leadership.

The Review Team heard that in recent years, confidence in MPI's ability to lead a FMD Response has diminished. Several industry stakeholders described a tendency for field staff to lack knowledge and confidence in their role.

The Review Team heard that key stakeholders in the FMD preparedness system would like to see a similar level of governance and organisational leadership as evolved during the *M. bovis* response.

The Director-General of MPI's chairmanship of the Livestock Sector Biosecurity Council (LSBC) is a good example of this leadership in action. Here, the Review Team was assured that MPI is jointly leading with industry partners and governance, funding, decision rights, accountabilities and relationships are being exercised and a high degree of trust is evident.

It is hoped that this commitment in time by MPI will be sustained and continue to be mirrored by a similar investment by industry Chief Executives.

The Review Team heard that effective management in an FMD response is dependent on good decision making well before the incursion, that creates the organisation, trains the people and develops the tools to do the job.

System preparedness

It is a national undertaking to develop a system that can generate a level of preparedness to respond to an emergency such as FMD.

Preparedness starts with clear direction and defined outcome from Government. The achievement of the directed outcome requires the right level of capability held at the appropriate level of readiness – this is called preparedness.

Depending on the level of readiness required, maintaining preparedness can be expensive – especially when events happen infrequently and there are other priorities.

Balancing risk with funding allows a level of capability to be generated and a level of preparedness to be set.

The Plan

The strategic direction for dealing with a FMD outbreak appears well defined. Initiation of a response is described in the New Zealand Government Foot and Mouth Disease Response and Recovery Plan 2018[4]. (The Plan).

The Plan sets a high bar, commensurate with the expected level of economic, social, psychosocial and industry impact of FMD. In the event of an outbreak New Zealand will stamp out (eradicate) the disease and reclaim FMD-freedom without vaccination status, in order to rebuild trade.

The Plan is published on the MPI website and defines the outcome of an FMD Response:

In responding to and recovering from an FMD outbreak, the New Zealand Government will seek to protect New Zealand's macro-economic security and manage the socio-economic impacts on New Zealand communities.

The Plan lists a series of principles that dictates the way the Government's response will be delivered. It also lists the actions which require the activation of a set of immediate, short term and medium-term activities.

It requires[5] that the organisation, resources, and subordinate plans are in place to achieve the outcome. The Plan provides high level direction but does not

[4] The New Zealand Government Foot and Mouth Disease Response and Recovery Plan 2018 (mpi.govt.nz)

[5] In its current form the Plan requires or suggests rather than directs.

include the necessary operational instructions to conduct a response – this is the area where work is now ongoing.

The ongoing achievement and maintenance of preparedness is compromised by the lack of performance standards to support the Plan. Thus, attention to capability generation and preparedness work has fluctuated, dependent on the prioritisation of resources and leadership focus.

To meet expectations around preparedness, performance standards must be agreed and adhered to.

The system

The Review Team expected to find a system that translated political direction and government funding into capability. That is, the people, information, equipment, and other material that, when combined, create the capacity of New Zealand to undertake a FMD response to the performance standard required. These different building blocks would be organised, sustained and deployable within time frames commensurate with the level of risk. A discussion of a preparedness system is outlined in Appendix 1.

The Review Team found a lack of supporting frameworks to enable the Plan to deliver the capability required to effectively deal with a large animal disease incursion. Lessons identified in an ongoing animal disease incursion indicates that at inception, the basic building blocks of preparedness were not as strong as necessary.

This has resulted from the periodic generation of FMD preparedness and the propensity of departments to prioritise resources to the urgent at the expense of the important and non-urgent. Specifically, the plans that operationalise animal disease responses were missing, incomplete or outdated.

The *M. bovis* [6] Independent Review identified that any national contingency plan for animal diseases, should be enabled by suitably qualified and experienced people, supported by a full suite of standard operation procedures, manuals and templates for systems, processes, roles and responsibilities and be subjected to regular external audit.

Given the publication of the Plan in 2018, the Review Team expected to find directives that provided clarity of roles and accountabilities in the event of an FMD activation. This clarity would be conveyed:

a) At the government level where the expectations and intent for the response is clearly set out and agency responsibilities are detailed;

b) By government agencies where it is made clear their accountability for the levels of capability, quality and readiness of the capability;

c) In agreements between government agencies and industry; and

d) In the various operational plans and standing operating procedures that enable those responsible to achieve specific tasks, initially without direction, based on the government's intent.

The Country's COVID experience supports the need to develop a nationally focused structure to provide advice to the Government in managing an FMD outbreak, with key participants identified in

[6] The *Mycoplasma bovis* Programme - An independent review 2021, 3 September 2021

advance of an incursion. This would consist of:

a) a core Chief Executives team - candidates might include: DPMC, Treasury, MBIE, MSD, NEMA, MFAT and MPI;

b) an independent advisory group of experts from across government and industry; and,

c) a technical science advisory panel with appropriate skills, experience and contextual understanding.

Good practice would suggest that work to prepare the country for something as severe as FMD would be based on the continuous application of resources to maintain the plans, procedures, processes and tasks. The Review Team looked for evidence of a consistent approach to FMD planning.

It expected to find in the area within Biosecurity New Zealand responsible for ensuring that plans are relevant, the capacity to commitment to FMD preparedness commensurate with the Government's stated outcomes in the Plan.

The Review Team found that the level of preparedness for FMD response has varied over the last two decades and has depended on episodic planning activity. This has been well documented in previous reports[7]. The Review Team found examples which indicate that the approach to capability development is ad hoc.

For example, a modern, large scale diagnostic laboratory has been built however the capability has not been thoroughly tested to see if the national surveillance and diagnostic apparatus is at the requisite level of operational capability to collect, record, dispatch, analyse and report the level of tests (5-7000 per day) expected to be required.

The FMD Task Force

A FMD Task Force has been set up to develop an updated suite of plans that will ensure that the required outcome can be achieved.

Its work will culminate in a Government Strategy that will underscore the national resolve and align Government requirements regarding an FMD response with the levels of capability required and allocated funding.

The current FMD Task Force activity represents another surge in planning activity which will result in improved plans to enable the implementation of a FMD response. The work included an executive level response activation exercise in late November 2022.

The team found that the FMD Task Force had expended considerable effort to resolve problematic policy areas that have dogged the development of operational plans, to enable more effective decision making.

However, the Team is aware that there is a considerable lag between the development of MPI strategic and operational disease control plans, the planning that needs to be undertaken by agencies and industry (downstream of MPI), and any capabilities they may need to develop to support a national response. This lag is likely to be in the months and years and will require specialists from BNZ to lead and inform these key stakeholders.

[7] Biosecurity New Zealand Response System Review, Martin Jenkins, dated 17 August 2020

There is a desire by industry and many government agencies to be able to use an agreed economic impact assessment and scenarios on which to base their planning. This information will be available in late 2022 and will then need to be socialised and deployed. This means decisions around preparedness will be delayed.

Implementation of the FMD Task Forces' work will be a challenge. The Team found that the readiness function in BNZ is limited in its capacity and expertise to continue the momentum created by the Task Force. There is a risk preparedness will decline once the Task Force's work concludes.

BNZ's work in developing capability would be strengthened by an independent governance framework that supports the Deputy Director General for Biosecurity New Zealand. This entity would advise on preparedness, risk management and programme oversight and could be achieved by an advisory board or independent inspectorate.

Other government departments advised that their planning would be enhanced by the provision of more information from MPI. This is particularly the case where there are expected to be economic, social and psychosocial impacts to large groups in the community following an FMD incursion.

It was suggested there is relevant international literature on the social impacts of incursion responses (e.g. FMD in the UK) that has not been closely considered in NZ response planning. There is an opportunity for MPI to gather this information and make it available to partners.

The Legislative Framework

The Review Team looked at the legislative framework and was pleased to see close collaboration between MPI Legal Services and the Crown Law Office in FMD planning. The involvement of MPI legal and policy staff in the FMD Task Force was also noted.

The Review did not find that the full suite of legal instruments required for an FMD response were in existence, or that they had been drafted and were 'shelf ready' to be deployed when needed.

It was noted that legal instruments and advice depend on having operational policies developed that provide a basis for the legal advice, so legal preparedness will lag operational planning and policy development.

While some legal templates have been developed, others are still being prepared or are awaiting input or approval from Biosecurity NZ.

This work will need to continue through 2023, and may require support to ring-fence resources and funding, to avoid limited MPI resources being diverted to new high priority matters once the FMD Taskforce ends.

The Biosecurity Act 1993 has provided effective legal underpinning for many incursion responses. An FMD response would require the use of emergency provisions of the Act have never been utilised, and therefore have not been subject to scrutiny from the Courts.

Recent court rulings relating to COVID have reinforced the importance of up-to-date legal preparations for the exercise of emergency powers. A full review of the Biosecurity Act is pending but has struggled to be prioritised at a political level.

The Biosecurity Act 1993 provides for compensation that leaves affected parties 'no better or worse off'. This is unusual by international standards, and an outcome

that MPI struggles to implement because it is difficult to assess whether someone is ‘better or worse off’. Any review of the Act will need to include assessment of compensation provisions, including whether they provide the right balance of incentives to both mitigate pest and disease risks while encouraging reporting and compliance.

Other related legislation also needs of updating. The Veterinarians Act 2005 was highlighted as imposing obstacles on the use of para-veterinary staff (vet technicians and nurses) in an FMD response when skilled staff will be a scarce resource. The Veterinary Council of New Zealand is supportive of a review of the Act but is unsure of when this is likely to be conducted.

In summary, the work currently being undertaken by the FMD Task Force will provide guidance and clarity to agencies, industries and supporting organisations to enable them to do their own planning. In the meantime, MPI’s awareness and planning has been significantly upgraded and guidance included in the 2023 FMD Disease Management Strategy and the NZ National FMD Strategy will approach world class. The FMD Task Force’s efforts have ensured that MPI will not be the weakest link.

While MPI will be stronger, it is going to take many months for supporting agencies to develop and implement their own plans and still longer to build specific competencies should they be required. The outcome of this work will not be evident until a series of exercises are conducted that stress and challenge MPI and the wider system, and lessons are learnt and the system modified in response.

The Review Team considers that capability development requires a consistent approach to its creation and the commitment to demonstrate it

MPI's Role

MPI has the role of leading New Zealand's biosecurity system and must develop and maintain sufficient capability to carry out this role.

Standards and expectations

The Review Team heard that Biosecurity New Zealand struggles to meet expectations around preparedness, with the absence of clear performance standards making it challenging for staff and outsiders to assess the state of preparedness and prioritise activities.

This lack of clarity around expected performance makes it hard to drive capability generation and readiness. At worst, it enables a very flexible approach to readiness and response and enables a 'culture of wishful thinking'.

The Independent Review is struck that, prior to the FMD Task Force beginning an intensive six-month work programme, not everyone in BNZ appeared to accept that additional work on FMD preparedness was necessary.

Internal record-keeping

The Review Team considers having at hand the relevant plans and information on which to base a FMD response or an assessment of readiness depends on good information management. In interviews, MPI and Task Force staff described the challenge of finding the documents that set out response policies and procedures.

When documents were located, it was not always easy to determine whether they were drafts or final versions, or whether they had ever been formally approved. It was unclear to the Review Team whether this is typical of MPI record-keeping, or a consequence of episodic FMD preparedness.

Having accessible and clearly identifiable response documentation is a fundamental prerequisite for maintaining preparedness.

Similarly, there have been numerous reviews of biosecurity preparedness over the past two decades. Many of these reports make clear recommendations, but it is often difficult to tell whether MPI formally responded to these recommendations or took any measures in response.

Competencies

In the subject area of animal disease response, the Review heard multiple sources express the view that, until

recently, BNZ's technical capability and therefore the ability to provide system leadership had declined.

This applies not just to delivery of incursion responses, but meeting trade partners' expectations around ongoing surveillance and monitoring. It is not clear that BNZ has the multi-disciplinary team of experts in animal disease, logistics, response management and policy necessary to maintain preparedness and enable large animal disease responses.

Strengthening these competencies would also ensure that MPI could be confident of fully meeting its international obligations as New Zealand's Veterinary Competent Authority with responsibility for exotic and endemic disease surveillance.

Towards the end of the Review, the Review team was privileged to witness a readiness activity which yielded a lesson regarding the need to ensure that staff outside the normal response team have skills that can be used in a major response.

The Review heard that MPI's 'response training' for non-specialised staff has placed a strong emphasis on familiarity with the Coordinated Incident Management System (CIMS), the whole-of-government response framework.

While this provides a theoretical knowledge of how the different components of a CIMS response fitted together, it should be strengthened by also providing information on how to undertake the role they were assigned.

The Review Team understands a Workforce Planning project underway as part of the FMD Task Force is developing role cards and more relevant training material.

Specific role-based training, preferably combined with taking part in simulations and exercises, is necessary to adequately prepare people to carry out response roles.

Exercises and preparedness

MPI needs to set benchmarks for acceptable levels of preparedness and develop and maintain preparedness plans that meet these standards. Maintaining close relationships with overseas counterpart agencies would be a useful way of obtaining external input into these plans and ensuring compatibility and interoperability with international partners.

These plans need to be tested and practiced via regular exercises involving MPI staff, external organisations, international partners and independent assessors. This will not only familiarise MPI staff and outside agencies with their roles in a response but build trust through the development of networks and relationships between organisations.

There is an opportunity to strengthen the current planning and preparedness activities. The inclusion of officials from partner nations in MPI's FMD Task Force or Readiness and Response organisation would provide an opportunity for enhanced interoperability, transparency and confidence building.

Structural and organisational factors

The Review is not in a position to make detailed recommendations on an ideal structure but has observed that there may be structural or organisational barriers to improving FMD preparedness.

The Review Team was struck by the lack of alignment between the Diagnostic and Surveillance Services team and the Readiness and Response function, given they both play integral and complementary roles in biosecurity preparedness and response.

Notably, the separation of Surveillance from Readiness and Response seems based more on history and physical location than function. This lack of interaction results in siloed behaviour and lack of organisational alignment.

While individuals are working hard to enhance the effectiveness of the system, there is a lack of 'joined-up' progress towards shared goals. This disfunction puts at risk the system's overall level of preparedness.

The Review team heard that MPI's relatively small pool of animal disease specialists are spread between multiple directorates, and do not form a critical mass of experts that consistently work in a coordinated manner.

It seems likely that this situation also applied to technical experts in other fields. Consequently, BNZ should consider the merits of a sectoral based teams (animals, plants, marine) to build a critical mass of subject-matter experts.

The creation of the Chief Veterinary Officer (CVO) and Chief Biosecurity Officer (CBO) positions have been seen by industry partners as strong signals of an intent to strengthen biosecurity capability. For example, the intention to roll-out 'VetNet' to engage private practice veterinarians in the biosecurity system has been very favourably received, and practice veterinarians are keen to see the project begin.

The capacity of these technical positions needs to be strengthened to so they can fulfil their role as overall system leaders and ensure they can provide strategic and technical advice to MPI's leadership.

Given the comments above, MPI should consider if structural and organisational changes would strengthen its ability to conduct effective biosecurity responses.

Governance structures

The Review Team found that the organisational focus on biosecurity preparedness within MPI, and by industry partners, fluctuates over time and depends on the perceived level of risk or threat. What is needed is a governance structure that provides consistent oversight and advocacy for sustained biosecurity preparedness during periods of low 'visible' threat.

The Review Team conclude that the Governance of BNZ should be strengthened by a governance advisory group that is able to support the Deputy Director General (DDG) BNZ. It should include experienced independent directors with a clear understanding of the industry and their role in providing high-level governance, rather than industry representatives.

The advisory group would have no operational role, but would act as an objective sounding board for the DDG. It would assist by independently monitoring the delivery of preparedness and advocating for the capabilities that BNZ should develop. It could also be utilised by the DG and Minister to provide advice on the state of preparedness.

Experience from the joint MPI/industry governance of the *M. bovis* Programme supports the benefits of a broader governance group with a robust independent chair.

New Zealand Food Safety has a similar external advisory board, and lessons from the establishment of this group should be carefully considered by MPI if an advisory board is established for BNZ. The Review notes that there will be costs (including costs in time for the DDG and BNZ staff) in establishing and supporting such a group but believes FMD preparedness would justify the effort.

Building and sustaining information Systems

MPI and the livestock sector need to determine what information is required to manage a major animal disease incursion, and how it can be obtained.

The Independent Review heard that there was a need for two major components;

- access to continuously updated, inter-connected databases of farms, farmers and livestock to determine management, ownership and accountability of livestock and land; and
- an incursion response management system (IRMS) to manage the information needs of a disease response.

Much of the information needed for the database is already collected by a range of agencies for different purposes, but there is currently no means of bringing this information together to provide situational awareness.

The ability to gather data, share information, plan and provide insights that inform decisions should be considered a critical capability.

Demographic and livestock database

Accessible management information systems should provide up-to-date essential data including the following:

Who owns the land

LINZ records all owners of land, local government package this into rate paying entities. The accuracy of this is tested each year as 'no-one wants to pay rates for land they do not farm'.

Except for dairy land, if the land is leased the lessee commonly pays the rates so the paying entity will differ from the land-owning entity. This is identified in the rates notice.

Who farms the land

The land could be farmed by the owner or a lessee. In dairying the lessee, called a sharemilker, does not usually pay the rates, so is not known to the local government but is known by the milk processor. This information is also gathered from a sample of farms by Statistics New Zealand's annual agricultural production survey.

Who owns the livestock

The livestock could be owned by the landowner or the lessee/ herd owning

sharemilker. This is known by meat companies and stock agents.

Who farms the livestock

The livestock could be farmed by the landowner, the lessee or by contractors (variable order or contract sharemilkers) or farm managers. The National Animal Identification and Traceability system (NAIT) identifies the PICA (Person In Charge of Animals) of cattle and deer for legal obligations, and records livestock movements.

This person will be known to the vets, stock agents, milk/meat processors and industry organisations and will be the first point of contact in the case of disease recognition and incursion management.

Discussion

Identification of these four entities will ensure that the right person is approached for the right task – making livestock available for testing, making or receiving payments with respect to livestock, providing access to properties and agreeing on use of land for disposal of dead stock.

The five-yearly agricultural census uses LINZ title records, a location register, Statistics NZ's Business Register (agricultural activity registered for GST) and ACC industry classifications to compile a list of farms (58,477 farms in the current census). The census also accesses data from the government's IDI (integrated data infrastructure), a 'data lake' of entity interactions with government departments, and then gathers data from the farm.

They have a bespoke Management Information System (MIS) that gives answers to pre-specified questions. This database, at the very least, could provide a 5-yearly update on farms and the four key entities listed above.

Records of FMD-susceptible livestock

Accurate records of all FMD-susceptible livestock movements are critical during an incursion so that movement of potentially disease-infected animals can be traced. During the *M. bovis* response, stock tracing has been a major challenge for disease management.

Movements of all FMD species are required to be recorded using animal status declaration forms (ASDs), most of which is done on paper and is not connected to a central database. Legislative change may be needed to ensure the movements of all FMD species are electronically recorded, the new electronic ASDs (eASDs), currently being implemented by OSPRI, are voluntary and not currently available for goats.

Electronic IDs and individual level recording (like NAIT) are already mandatory for cattle and deer but not for sheep, goats or pigs[8]. For livestock with shorter life spans (such as lambs and pigs), a mob-based rather than individual animal tracing system should be sufficient, provided it is upgraded from a paper-based system to an electronic system linked to a database.

The pork industry has its own stock movement recording system, but the details of this are not widely known outside that industry. Ideally this information would also be included in a central livestock database, or accessible to an MPI incursion response system.

An electronic system linked to a central database will also enable easier tracking of

[8] Pigs are unusual in having only a small number of commercial producers but a much larger pool of hobbyists, lifestylers and semi-commercial owners.

livestock in transit (being trucked or in saleyards or lairage) during an incursion. This is not possible with the current paper-based recording system, and full conversion to eASDs should be encouraged.

Incursion response management system (IRMS)

Management of an incursion response is heavily dependent on the ability to accurately identify and record multiple streams of information, including suspect disease reports, field team activities and laboratory results.

The challenges experienced by the *M. bovis* Programme in 2018/19 were largely the result of inadequate systems and data management. This meant information could not be provided to managers in a way that allowed them to allocate resources appropriately.

The ability to provide, manage and collate the volume of information that an FMD incursion will create demands system leadership. Only MPI in its role as biosecurity system leader has the overview, mandate and resources to do this in a way that provides such a solution.

The IRMS, including a national disease database, must seamlessly connect to the demographic and livestock databases referred to above, and manage response information from field operations and laboratories[9].

Disease information - surveillance

Currently on-farm clinical and laboratory results from routine veterinary testing, sample results and milk sample results are held in a number of private laboratory systems.

Having a national disease database linked to private laboratory systems would enable a more effective national surveillance system of livestock health and diseases, trigger co-ordinated responses and strengthen the connection between the veterinarians and MPI.

Connecting the land and livestock databases and the IRMS will enable the right prognosis against the right animal from the right farm resulting in the right decision.

Incursion Decision Aid

The Review considers that an incursion decision aid would be critical to be able to provide managers with the situational awareness to make timely decisions in the prosecution of FMD.

The Review is aware of other government departments that have made this requirement a reality. This is not currently the case for FMD. The Review Team heard that spreadsheet-based solutions would be used if FMD arrived tomorrow.

This does not equate to adequate preparedness for FMD and is a critical issue that needs to be addressed with urgency. The Team also heard that this was one of the greatest concerns of those closest to the action, both in the readiness teams and the laboratories.

There is organisational frustration that such a system does not exist, and at the slow pace of progress in developing this capability.

[9] An information system for incursion management of FMD should include a laboratory information management system able to handle test results (up to 7000 per day) that connect seamlessly with the livestock and land baseline information system.

Planning for post incursion recovery

In responding to and recovering from an FMD outbreak, the New Zealand Government will seek to protect New Zealand's macro-economic security and manage the socio-economic impacts on New Zealand communities. [10]

There is almost universal agreement that recovery from an FMD incursion will be a long and challenging process, but there is no shared consensus among government agencies or industry groups about how the recovery process would unfold and what should be done to prepare for it.

Some parts of industry do not appear to have a good understanding of the likely impacts of FMD, and assumptions about how quickly trade could resume may be unrealistic.

Recovery can be addressed under several key headings.

Macroeconomic impacts

The detection of FMD in New Zealand will have significant immediate impacts on the value of the New Zealand dollar and the NZX share market, as well as impacts on rural land values. Minimising the adverse effects is likely to require a full range of economic policy instruments, including changes to interest rate settings and Crown spending levels.

The wider economic impacts of an FMD incursion are outside the scope of this paper, as The Treasury is New Zealand's lead agency in advising the government on economic policy. It is sufficient to note that an FMD response will take place against a background of economic uncertainty and rapid government policy-making.

Recovery of existing markets

The most devastating impact from FMD is economic; caused by the disruption to New Zealand's primary sector exports due to loss of FMD-free status. The agencies responsible for negotiating access to markets are MPI (technical lead, international standards organisations) and MFAT (bilateral negotiations/ influence).

The core trade negotiation staff at these agencies have a realistic grasp of this process and how it would unfold. The likely time frames to regain access to some current markets are not widely appreciated by the affected industries and need to be more widely discussed.

[10] The New Zealand Government Foot and Mouth Disease Response and Recovery Plan 2018 (mpi.govt.nz)

Trade negotiation capability

New Zealand is heavily dependent on a small group of experienced trade negotiators with strong international contacts.

This capability needs to be maintained, allowing new staff opportunities to develop capability and build international relationships.

The observation “You can’t surge trust” was widely used to highlight the need to build and sustain relationships over time that can be utilised in a response.

Trade in non-risk products

A number of animal products are assessed by WOAH as presenting minimal risk of FMD transmission, and therefore there are no strong technical grounds for restricting their trade even from countries where FMD is present.

In theory, it should be possible for New Zealand to re-negotiate market access for these products. However, WOAH standards are extremely prescriptive, and the NZ dairy sector (in particular) utilises some production processes that deviate from WOAH guidelines while still providing an equivalent level of protection against FMD transmission.

Negotiating changes to WOAH requirements is a slow consensus-based process, meaning it is unlikely to be rapidly achieved during a response. New Zealand should consider working to amend WOAH standards to seek equivalence for processing systems currently used in NZ.

An MPI-led project is currently working with industry to identify the range and volume of products that fall into this category.

A further consideration should be whether routine ‘NZ freedom from FMD’ statements should be included on export certification of products whose production process means that they would be very unlikely to harbour viable FMD.

While presumably intended to reinforce the ‘clean’ image of NZ products, these generic statements could handicap the return to trade in some key commodities such as milk powder.

Development of Interim markets

A number of major importing countries buy animal products from countries where FMD is endemic. New Zealand’s understanding of these markets., and their varying approaches to FMD acceptance, is historically limited, as it has been viewed as not relevant to New Zealand.

An MPI-led project is currently surveying these markets to improve our understanding of how they operate. There is a need to continue this work, and ensure the results are widely accessible to primary exporters.

If there are price differentials between these markets and New Zealand’s existing markets, commercial imperatives mean it is unlikely exporters will develop FMD-insensitive markets in advance of an incursion.

While doing so would improve business resilience, pressure from owners and shareholders to maximise income make diversifying into less vulnerable but lower-paying markets unlikely. This should not prevent ‘NZ Inc’ gaining a greater understanding of these markets.

Enabling and Maintaining National Livestock Sector Capacity

Apart from market issues, the second major element of recovery after an FMD response is maintaining the productive capability of the primary sector until such time as FMD-related restrictions on exports have been

removed. In the case of FMD, this will largely affect the livestock sector.

The recent COVID experience has illustrated issues around maintaining the viability of the sector. There needs to be consideration of these issues by the government's economic agencies.

Labour force retention

The primary sector is dependent on a large permanent and seasonal workforce. For example, the meat processing workforce has an annual peak of 25,000 workers, many of whom are in rural communities with limited alternative employment options.

There is a risk that primary sector workers will relocate or disengage from the workforce if there is a prolonged shut-down of the sector.

Business viability

While producers, processors and exporters of animals and animal products will feel the most immediate impact of an FMD incursion, the impacts will also be experienced by the wider economy. This will include a wide range of businesses that provide goods and services to the livestock sector, or rely on income from people involved in that sector.

A recent analogy could be the impact of COVID travel restrictions on the tourism industry. In that case, the government put in place support measures such as wage subsidies to maintain business viability and community wellbeing until the tourism industry could resume operations.

It is likely similar measures could be utilised in the event of an FMD incursion until such time as trade resumes.

There is no clarity as to who would co-ordinate such activities, but it could be expected to involve industry-good organisations on behalf of their levy-payers, government economic agencies and MPI.

Communications

Advance planning needed

Recent biosecurity incursions and the COVID response underline the need for clear communications that can satisfy a wide range of needs.

The *M. bovis* independent review found that response was hampered in the early stages by weaknesses in strategic communications and messaging, and this capacity needed to be strengthened as the response progressed.

While the specifics of any incursion response cannot be predicted, enough is known about FMD that considerable preparation work should be undertaken in advance of an incursion. This material will need to be adapted to the specific circumstances of an FMD incursion such as the region, farm type and likely degree of spread at the time of detection.

An incursion will be a national event that requires the joint preparation of key messages, instructions and an operational communications network to support the response. It is recognised that sector bodies were partners in the development of a 2016 FMD communications plan and many hold their own communications plans that support this.

This aspect of preparedness planning is critical and sets the conditions for success by:

- In advance of any incursion, preparing participants who will be directly affected by a FMD response.
- Communicating why the response is so important to New Zealand.
- Building trust by explaining what actions are necessary and why they are being undertaken.
- Maintaining constructive working relationship with affected stakeholders and other government agencies.

MPI's Role

As system leader, MPI has a key role in developing a communications plan within the FMD Disease Management Strategy that sets the conditions for success in the long term. There is no other agency that has the role, resources or mandate to do this.

Alongside work with the industry bodies, MPI has met with other key government agencies regarding an all-of-government response to FMD and the development of a Covid-style framework and the need for a centralised communications function drawing on different agencies and sector groups' expertise.

The Independent Review found that communications material is being prepared and a contractual arrangement is in place with an advertising agency to be used in the event of an FMD outbreak. This work draws on lessons learned during the COVID response. The Review is aware that this material has been developed alongside industry bodies and key government agencies.

It includes the development of advertising material and a 'ready-to-launch' FMD response website that could be quickly activated in the event of an incursion.

Previous incursions have demonstrated the importance of effective communications and engagement, and having these activities integrated into a strategic response plan. A draft FMD communications plan will be shared with groups represented in the LSBC before the end of December 2022.

Given past fluctuations over time in FMD preparedness, the Review has some concern as to the maintenance of pre-prepared material over time to ensure that it remains up-to-date and ready to be utilised. Funding is being sought to contract the advertising agency to maintain the website and collateral material for a yet-to-be-determined period.

Pre-incursion awareness

A consistent sector-wide approach to FMD preparedness messaging should be facilitated by MPI. Surveying a range of industry websites and publications, current messaging on FMD readiness to farmers and the wider public is highly variable in tone and can appear complacent about FMD risk.

A clear and consistent balance should be struck between reassuring people an incursion is a low-probability event, while encouraging them to remain vigilant and prepared.

Partners' involvement

Industry organisations and commercial entities all see a role for themselves in communicating with farmers during a FMD response. This was illustrated in the Indonesian situation, whereby an animal sector comms group was stood up which included the private sector. However, the Independent Review received mixed messages about how much preparedness there was for an integrated messaging programme and what role each organisation will play in it.

The Review was advised that MPI communications specialist have been working closely with industry counterparts as part of the FMD Task Force. Awareness of this activity seems to be limited at senior levels of industry organisations, possibly because the work is still ongoing. There will be a need within industry organisations to ensure their senior management is aware of the role their organisation is expected to play in the event of an FMD response, so that their own contingency plans incorporate these activities.

To date, FMD Task Force communications staff have engaged primarily with the Communications staff of industry organisations such as DairyNZ and Federated Farmers via a Communications working group.

Private sector interviewees pointed out that businesses such as meat processors and dairy companies also have substantial teams involved in direct contact with

farmers, and these people have the background knowledge and experience to contribute to farmer liaison during an FMD response.

There has also been considerable engagement with other government agencies by different Task Force workstreams, including work on communications preparedness.

Sector-wide communication necessary

BNZ's readiness planning appears to heavily focus on finding and managing FMD-infected farms, which is the core focus of an incursion response.

The resources needed to inform the wider rural sector on what farming activities can be continued, what biosecurity precautions are necessary, and to deal with the likely volume of enquiries and public reports may not be fully appreciated in current planning.

There is a risk that enquiries from concerned farmers and members of the public could overwhelm the communications capacity of the response. The ability to rapidly establish and staff a large 'rural-informed' call centre needs to be considered in conjunction with industry partners, and rural business staff experienced in communicating with farmers could play a role here.

International communications

Communication with the governments of partner countries will be essential to maintain confidence that New Zealand is effectively managing an FMD outbreak, with the intent of minimising impacts on trade. These communications will be conducted jointly by MPI and MFAT.

The Independent Review was advised by MFAT that messaging of this nature falls within the scope of their core activities, and that they have a close relationship with MPI around biosecurity events.

There is a need to ensure MPI and MFAT maintain their capability to conduct messaging of this nature, and MFAT is included in response simulations.

Appendix 1 to FMD IR

Preparedness in the FMD context

The Strategic Outcome

1. The creation of capability and the generation of preparedness on a national scale requires government intent or a strategic goal, a clear understanding of the standards of performance required to achieve the goal, the prioritisation of resources and the commitment to see it through.
2. The Governments intent for FMD is published in the NZ Govt Foot and Mouth Disease Response and Recovery Plan[11] (The Plan). The Plan lists a series of principles that advise the way the Government's response will be delivered. It also lists the actions which require the activation of a set of immediate, short-term and medium-term activities which are dependent on having the right level of capability.

Capability

3. For some, capability is the ability to achieve the desired effect in a specific operating environment, for others, including this Review, it is the ability to achieve the governments intended outcome against a FMD incursion. This means the people, research and development, information and data, communications, infrastructure and equipment that combine to provide the ability for New Zealand to undertake the response. This capability must be ready, sustainable, organised and deployable when required. The expression of capability generation is called preparedness.
4. The creation of capability is a deliberate development process and is normally determined by three factors: readiness, sustainability and organisational structure. A fourth factor is added for the benefit of this Review – the modernisation of capability – that ensures that it remains relevant in the face of developing trends, threat vectors and risk.

The maintenance of preparedness

5. The level of preparedness that must be maintained is governed by affordability and a reasonable assessment of risk. FMD is yet to find its way to New Zealand and this influences the amount of effort invested in maintaining preparedness.
6. The Review Team is aware of the episodic nature of FMD preparedness over recent decades. It is quite evident that without critical management oversight the creation of capability is given a lower priority and preparedness decays.
7. A continual commitment to the achievement of preparedness is necessary.

[11] The New Zealand Government Foot and Mouth Disease Response and Recovery Plan 2018 (mpi.govt.nz)

Levels of preparedness

8. Maintain a level of preparedness is expensive, especially when capabilities are held at levels of readiness for the time when an event may, or may not, occur. Balancing risk with resources leads to investment decisions which govern the development of capability and the delivery of preparedness. Meeting the policy outcome with levels of funding allows the generation of capability and a level of preparedness to be delivered.

9. There are a number of ways this can be done. Here is one example which divides the spectrum of preparedness into three generic levels:

a) Directed/ funded level of Capability. The retention of a standing force poised to respond to a possible but perhaps, an unlikely event may be unaffordable. So, taking into account the risk of the day, a pre-agreed and funded level of capability is set between Government and the delivery agency. Rather than a standing force, investment might focus on developing organisational and personnel competencies through training and exercise and the ability to respond is tested. Part of the agreement is that with sufficient warning, additional resources will be made available to provide a national response at the level of preparedness required by the Plan.

b) Operational level of Capability. This is the level required to achieve the national policy outcome in The Plan. This where the organisation, people and their associated equipment are about to, or are actually engaged in an FMD outbreak. The focus is on the delivery of the governments intended outcome against a FMD incursion.

c) Below the level of capability directed. In this case a decision is made, or an event occurs, which results in a lower level of capability being generated and hence reduced preparedness – it carries with it an acceptance that there will be a delay in being able to respond to a specific incident. The short to long term maintenance of a level of capability below that required will mean policy objectives are not achieved.

Generation of preparedness

10. Preparedness is generated from the capabilities that are developed to achieve The Plan. Activities that develop preparedness include:

- graduated series of exercises, and simulations,
- Personnel exchanges with other partners
- Stakeholder engagements
- Attendance at international fora
- Independently assessed assurance exercises which test the whole system (at the national Level).

Governance

11. There is a need to govern the capability generation process – this is especially the case in large organisations. The variety of inputs to capability (the people, research and development, information and data, communications, infrastructure and equipment) are often distributed across different business units that are at times subjected to different priorities. Without the delivery of each discrete part, the capability as a whole and the delivery of preparedness will be compromised. At the highest level this can result in government expectations not being realised.

A feedback loop

12. Preparedness is best measured and assessed in its demonstration. The key to understanding the level of preparedness delivered depends on a feedback loop. An important part of this assurance process is independent audit, this is because the stakes are high, it involves the expenditure of government money, organisational reputation and, often, requires value judgements best not made by the capability producer. There are two customers of the assurance process: the delivery unit and, ultimately, governance.

Annexes A - The Terms of Reference

An independent review of the measures being taken to strengthen New Zealand's preparedness to deal with an FMD outbreak.

Introduction

The DG MPI has directed that an independent review be carried out of MPI's preparedness plans for a Foot-and-Mouth Disease (FMD) outbreak and response. The review's focus will be on identifying areas to help strengthen our plans for an FMD response.

Independence

The review will be independent. The secretariat to the review team may include personnel from MPI and industry partners.

Owned by DG MPI

The review will be owned by the DG MPI.

Purpose of the review

The review will assess where MPI's current FMD plans can be strengthened to compliment and inform the preparation work being carried out by MPI's FMD Taskforce and with sector stakeholders and other government agencies.

The review will provide independent advice about where additional planning and work might be required to further strengthen our FMD response plans and decision-making structures.

Objectives

The review has the following key areas:

1. Assess MPI's response plans and preparedness to identify areas for strengthening.
2. Assess whether the responsibilities for FMD decision making are appropriate.
3. Provide advice about where additional planning and work is required for an FMD incursion.
4. Recommend improvements to aid decision making should an FMD outbreak occur.

What's in Scope

- The policy framework guiding preparedness for a FMD response. Including:
  - Legislation
  - System leadership and governance
  - Engagement and communications
  - Scientific leadership
- The FMD Response Plan. In particular:
  - The management and governance framework.
  - Relationship components.
  - Engagement and Communications.

    - Operational agreements, service providers and partnerships
- System preparedness. In particular:
    - The interoperability of relevant data bases and systems to support decision making
    - Strategic and operational trigger points and decision making
    - Access to science and new learning
    - Epidemiology and disease control expertise
    - Compliance and enforcement
    - Tracking and tracing
    - Operations in the field including culling and disposal
    - Sampling and testing
- The policies and plans to ensure resumption of agricultural activity post initial response and recovers trading status.
- Previous reviews and recommendations pertaining to FMD.

What's out of Scope

Biosecurity measures at the border designed to reduce the likelihood of FMD entering New Zealand.

The Review Team

The Review will consist of:

a) Professor Nicola Shadbolt, ONZM (Leader), and
b) John Martin.

They will be supported by:

a) An experienced MPI official to act as Review Manager - Paul Bolger.
b) A secretariat function.

Accountability

The review team will report to the DG MPI. The leader of the review will have direct access to the DG MPI, DDG Biosecurity New Zealand and the CVO

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Annex B - Interview Subjects

The Review has been informed by discussions with a range of key personnel which have shaped the development of an understanding of the country's preparedness plans for responding to a Foot and Mouth Disease (FMD) outbreak. The Independent Review team interviewed the following personnel to assist in the determination of their findings.

MPI	
John Walsh	Director Readiness and Response
Stu Hutchings	Chief Biosecurity officer
Naya Brandenberg/ Emma Sumner	FMD Task Force Specialists
Tim Knox	Assistant DDG Policy and Trade
Andre Van Halderan	Principal Advisor, International Policy
Ray Smith	Director General MPI
Tony Zohrab	Chief market Access officer
Veronica Herrerra/ Joseph O'Keefe/ Paul Bingham	Diagnostic and Surveillance Services (Wallaceville)
Steve Ainsworth	Director Market Access
Andrew Curtis	Director Intel & Biosec Support Services
Wido van Lijf	Manager Econ Data and Economics
John Roche	Chief Science Advisor/ Director On Farm Support
Fiona Duncan/ Paul Mitchell/ Fran Timmins/ Peter McCarthy/ Kate Wevers	Regulatory Policy/ MPI Legal/ Crown Law Office
Cath Duthie	Manager Readiness, BNZ
Lesley Patston	Communications lead, FMD Taskforce
Mary van Andel	Chief Veterinary Officer
Carmen James	Team manager Treaty Engagement and Partnerships.
Industry organisations / companies	
Terry Copeland/ Gavin Forrest	Federated Farmers
Kevin Bryant/ Mark Bryan/ Corey Regnerus	NZ Veterinary Association
Iain McLachlan	Veterinary Council of NZ
Sam McIvor/ Chris Houston	Beef + Lamb New Zealand
Liz Shackleton	DairyNZ
Carol Barnao	DairyNZ

Tim Mackle	DairyNZ (CEO)
Brent Kleiss/ Frances Clement	NZ Pork
Gary Williams	Silver Fern Farms
Grant Bunting/ Gary Lindsay/ Peter Conley	ANZCO
John Fairweather/ Sue Fowler/ Chad Hoggard/ Tony Wright/ Taane Johns	Open Country Dairy/ Fonterra/ Miraka/ Westland/ Westland
Kimberly Crewther	Dairy Companies Association of NZ
Nathan Guy/ Sirma Karapeeva	Meat Industry Association (Chair and CEO)
Richard McColl	Meat Industry Association
Government Agencies	
Chris Seed	MFAT CEO
Wendy Matthews/ Brian Wilson	MFAT Trade Policy and Negotiations
Andy Coster/ Barry Taylor	Police Commissioner/ Superintendent
John Gawn	National Emergency Management Agency
Debbie Power + officials	Ministry for Social Development CEO
Brendan Anstiss	Statistics New Zealand
Caroline Tremaine	Ministry of Business, Innovation and Employment
Davin Hall/ Vidushi Challapalli	Treasury, Natural Resources Team Manager/ Vote analyst
James Beard + officials	Acting Dep Sec Macroeconomics & Growth
Tony Lynch	DPMC, National Security Group
Neil Brown	Mayor, Ashburton District Council
Craig Jones	Office of the Chief Data Steward

Annex C – Documentation Reviewed

Year	Title	Source
2005	Exercise Taurus	Various documents
2005	Waiheke FMD Hoax	Various documents
2006	Dairy Biosecurity Risk Profile	DairyNZ
2006	Exercise Taurus and Operation Waiheke	MAF Report
2013	MPI: Preparing for and responding to biosecurity incursions	Office of the Auditor-General
2014	FMD Economic Impact Assessment	MPI/ NZIER
2015	Terrestrial Health Code – Chapter 8.8	World Organisation for Animal Health
2017	One Health - High Level Introduction)	World Health Organisation
2018	FMD Response and Recovery Plan	MPI
2019	Exercise Whakatau Korero: An all-of-government biosecurity exercise	C&M Associates
2020	Biosecurity NZ Response Review Final Report	Martin Jenkins
2021	Independent Review of the *Mycoplasma bovis* Programme	MPI
2022	Potential Outbreak of FMD in New Zealand: The Trade Response	Joint MPI/MFAT briefing to Minister for Trade/ Agriculture
2022	NZ Pork – Input into independent review of FMD preparedness	NZ Pork
2022	Driving Change for Improved Pandemic Response Capability	MPI SLT paper
2022	Joint Interagency Task Force: Exotic Animal Disease Preparedness	Australian Government - DAFF
2022	Foot and Mouth Disease information for farmers	Beef + Lamb New Zealand webpage
2022	Foot and Mouth Disease	DairyNZ webpage
2022	FMD Task Force	Various working documents
unknown	Foot and Mouth Disease – Technical Disease Card	World Organisation for Animal Health

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