Chair
Cabinet

Mycoplasma bovis response options

Proposal

1. This paper seeks a Cabinet decision on how Mycoplasma bovis should be managed in the future.

Executive Summary

2. The response to the cattle disease Mycoplasma bovis has been underway since July 2017. In April 2018, Cabinet requested further information and analysis on the response's future [CAB-18-MIN-0130]. I have appended the latest information available to inform decisions, noting that 100% certainty cannot be assured in this situation where numbers and costs are evolving as more information comes to light.

Current Situation

3. The response continues to address an evolving disease situation, moving more rapidly in recent weeks. The number of confirmed infected properties as at 17 May is now 38, with new infected properties confirmed in the North Island. More than 330 properties are under regulatory movement controls.

4. Biosecurity New Zealand has traced the known spread of the disease, and placed significant regulatory controls on affected farms. Without this action, the situation could have been more serious and options diminished.

5. I have also discussed with industry my expectations about further contributions towards the response effort. They have undertaken to provide more support to affected farmers, including sourcing feed, assisting farmers to submit compensation claims, supporting farmer welfare and farm planning.

Future management: Eradication or Long-term Management?

6. A decision is now needed to create a pathway forward, and provide certainty to farmers and the wider sector. Four management options are available to manage Mycoplasma bovis:

1. Rapid eradication;
2. Phased eradication (including trigger points to assess feasibility);
3. Transition to long term management; and
4. Transition to wind down the response.

7. Based on the work undertaken by an independent Technical Advisory Group, the sector and officials, I consider that there are two viable options - phased eradication (Option 2) and transition to long-term management (Option 3).

8. Phased eradication is my preferred option, provided it is technically and practically feasible and fiscally responsible. It would take 8-10 years to fully achieve eradication of the disease, however, at this point I am only seeking funding for the next two years.

9. In addition, the feasibility and costs of eradication would be reassessed in late 2018 following spring testing when the disease is at its most detectable. This will provide me with greater confidence that this option continues to be the right course of action.

10. I believe that rapid eradication (Option 1) is not feasible, as we do not know where every animal is. Officials advise me that stopping current activities and winding down the response (Option 4) is not recommended as it decreases farmers' ability to effectively manage the disease in the short to medium term.

Uncertainty and risks

11. The independent Technical Advisory Group (TAG) is split as to the likelihood of the success of eradication. Four members no longer believe eradication is achievable, and the remaining six differ in their views on when eradication is no longer possible.

12. Investigations are ongoing but there are also uncertainties related to testing, incomplete records and animal tracing, which make it difficult to find all of the infected properties. In addition, it is not known how the disease entered New Zealand, meaning that the risk of re-entry remains.

13. Uncertainty also surrounds costs for each option. The range of total costs over a ten-year period are below.

	Option 1 Rapid Eradication	Option 2 Phased Eradication	Option 3 Long-term management	Option 4 Wind down response
Total Costs at 90th Confidence Percentile	966	886	1,218	1,330
Total Costs at 50th Confidence Percentile	791	781	836	773

14. The costings presented in this paper represent the 90 percent confidence level based on current information. Detailed breakdowns of costings at both the 90th and 50th percentile are presented in Appendix 3.

15. If no further action is taken, estimated production losses are $1,153 million over 10 years. Option 2 Phased Eradication has a total response cost of $870 million over 10 years, which includes operational, compensation and system resilience costs but excludes $16 million of industry impacts. Option 3 Long Term Management has a total response cost of $520 million over 10 years, which includes operational, compensation and system resilience costs but excludes $698 million of industry impacts.

16. Biosecurity New Zealand has rerun the epidemiological modelling that underpins the costings and at this time no changes have been made.

17. Risks around farmer welfare are also of real concern. Farmers affected by movement controls on their properties (330 properties and rising) have increasing welfare needs. In the most acute cases, mental health impacts are concerning and there is an ongoing risk of a farmer self-harming or worse.

Industry views

18. I continue to meet with industry and expect to again before Cabinet meets on 28 May 2018. Industry organisations have stated their preference is phased eradication. Dairy NZ and Beef and Lamb New Zealand have committed to contribute 32 percent of the response costs, with the proviso that any attempt should have “clearly defined and articulated trigger points that, if reached, would change the nature of the response and see it move to long-term management.”

Improving system resilience

19. This response has underlined the imperative for strengthening our farming systems to ensure biosecurity risks can be managed effectively alongside changes to improve environmental and economic sustainability on farm.

20. Accordingly, I have directed the Ministry for Primary Industries (MPI) and Biosecurity New Zealand to begin work on the following priorities:

a. Improve the National Animal Identification and Tracing (NAIT) scheme (including compliance), in conjunction with the NAIT management agency, OSPRI;

b. Review the Biosecurity Act;

c. Review biosecurity response funding, including a possible universal biosecurity levy; and

d. Implement a programme for farmers to transition to farm systems that are more resilient to change.

Future progress

21. 

Background

22. On 3 April 2018, Cabinet considered the options for either eradicating or managing Mycoplasma bovis. Cabinet directed MPI to provide further information and analysis on the future of the response [CAB-18-MIN-0130].

Current Situation and Dynamic Nature of Disease

23. Since the disease was first detected in July 2017, MPI and Biosecurity New Zealand have been tracing stock movements and testing for the disease. Movement controls have been put in place on infected properties and those properties identified as being at risk of infection. This has allowed options to be kept open while MPI evaluated the most appropriate way forward.

24. However, the situation has continued to evolve rapidly in recent weeks, with more detections being confirmed and more properties placed under movement controls.

- The number of properties under movement control has more than doubled from 124 in April to 334 in May.
- Confirmed infected properties are now 38 (up four in the last week).
- Properties either confirmed as infected or assessed as significant risk of disease presence has risen from 55 in April to 67 as at 17 May.
- Biosecurity New Zealand considers it likely more will be added in the coming weeks.

25. Since I last reported to Cabinet, additional confirmed infected properties have been found in Pahiatua and Cambridge. [redacted] Appendix 1 provides a map of properties that are being traced and properties under movement controls across New Zealand.

26. I do not believe we will ever have perfect information to base a decision on. However, we now have sufficient results from testing to identify a likely source property, estimate the disease spread, and broader impacts on New Zealand's beef and dairy sectors. Risks to farmer welfare and fiscal impact are likely to rise, the longer a decision is delayed.

Options to manage Mycoplasma bovis

27. My preferred option has always been eradication, provided it is technically and practically feasible and fiscally responsible. There is no doubt that New Zealand is better off without this disease. If we have an opportunity to eradicate, then we should take it.

28. There are four management options available:

1. Rapid eradication;
2. Phased eradication;
3. Transition to long term management; and
4. Transition to wind down the response.

29. I, along with officials and industry, believe on balance there are realistically only two viable options - Option 2 (phased eradication) and Option 3 (transition to long-term management). A summary of each option is provided in Appendix 2.

30. I believe that rapid eradication (Option 1) is not feasible, as we do not know where every infected animal is. Officials advise me that stopping current activities and winding down the response (Option 4) is not recommended as it decreases farmers' ability to effectively manage the disease in the short to medium term.

Phased eradication vs transition to long term management

31. It is impossible to accurately predict the impacts of a novel disease on New Zealand's primary producers. However, I have instructed officials to estimate a baseline of no further action on production losses for industry. The loss is estimated as being $1,153 million over 10 years (90% confidence) to $606 million (50% confidence), if no further action is taken.

32. The decision between the two options comes down to their likelihood of success, and the attendant risks and costs. The choice is between the risk of eradication failing, compared to the risk of the disease having greater impacts in New Zealand than overseas experience indicates.

33. We will never have perfect information to make this decision but I believe that on balance now is the right time to provide certainty to sectors and farmers on the way this government wishes to proceed. The uncertainties and risks surrounding management decisions are further outlined in the following section.

34. The independent Technical Advisory Group (TAG) reported on 17 May that it is split as to the likelihood of success of eradication. Four members believe that "logistically and economically eradication is no longer achievable or economically rational. Conversely six members believe that eradication is technically achievable. However, significant caveats exist, including the rate of infection and detection.

35. There are also uncertainties related to testing, incomplete records and animal tracing, which make it difficult to find all of the infected properties. In addition, we do not know how the disease entered New Zealand, meaning that the risk of re-entry remains.

36. A comparison of the key attributes of Options 2 and 3 over the next 6 months is represented below. Further details can be found in Appendix 1.

	Properties under Movement Control			Current Low Risk Surveillance Properties or Future Properties
Current numbers	Infected Properties 38	Other Restricted Properties 29	Notice of Direction[1] 334	
Option 2	Cull herd Timing determined with farmer	Cull herd (on basis of risk). Timing agreed with farmer	Test and cull all identified (current and future) positive herds.	Continue testing and tracing, regulatory controls and culling on all future positive herds
Option 3	Cull herd as above OR allow farmer to continue under a "closed system[2]"	Cull herd as above OR allow farmer to continue under a "closed system"	Only test current NODs and for positive herds, treat as for IPs	Stop active testing and tracing and stop directed culling.

Phased eradication – Option 2

37. Eradication would allow farmers to avoid the inevitable production losses caused by the disease and future costs of managing the disease. The most recent analysis shows a response cost of $870 million for phased eradication. While this is my preferred option, it is not without risk. If eradication fails, we would have incurred additional response costs and still face the costs associated with then moving to long term management. Many more farms would have been subjected to regulatory/movement controls and more herds culled with associated impacts on farmers.

38. If the decision is taken to pursue phased eradication, it must be on the basis that the progress and ongoing feasibility of eradication is reviewed in late 2018. This would capture the highest risk period after calving[3] when infected cows are more easily detected and would inform a decision [redacted] on whether to transition to long term management (Option 3).

39. Appendix 5 details draft triggers to review the eradication programme. These triggers are to be further developed with the Technical Advisory Group, independent experts and industry organisations.

1 A notice of direction is a regulatory tool that required a person to refrain or undertake certain activities as directed by MPI

2 Generally New Zealand systems are 'open', in that movements off and on farm are used as management tools to manage feed and environmental impacts. For instance, cattle in Southland can be wintered further north. A closed system would restrict where cattle can move, for instance on farm or between infected farms.

3 This is because when animals are under stress, such as the first months after calving, the animals are more likely to shed the bacteria, causing a rise in detections

Long-term management – Option 3

40. The direct/response cost of transitioning to long term management is $520 million. Although the farm systems can differ significantly, Australian experience indicates that disease impacts in the medium to long term could be managed and are low. If this holds true for New Zealand, farmers, with support from MPI, sector bodies and veterinarians, could learn to manage the disease on-farm.

41. I have directed my officials to investigate an accreditation scheme to support the farming sector's decision making and improve confidence in managing the disease.

42. Under long-term management:

- Any infected or suspect infected properties identified after 1 July 2018 would not be required to depopulate by Biosecurity New Zealand.
- No further movement controls would be put in place.
- If Biosecurity New Zealand does not exercise powers under the Biosecurity Act then no additional compensation liability would be incurred.
- Infected farms after 1 July 2018 are informed and supported to manage the disease.
- Farmers/ veterinarians monitor and manage clinical signs of the disease.

Costs

43. If no further action is taken, estimated production losses are $1,153 million over 10 years. Option 2 Phased Eradication has a total response cost of $870 million over 10 years, which includes operational, compensation and system resilience costs but excludes $16 million of industry impacts. Option 3 Long Term Management has a total response cost of $520 million over 10 years, which includes operational, compensation and system resilience costs but excludes $698 million of industry impacts.

44. Under a phased eradication option, industry would share response costs. Total costs of the response would be met by the Crown in the first instance, and then 32% of the response costs would be recovered from industry.

45. Under both options, farmers who have depopulated their farms under regulatory direction are eligible for compensation and direct support.

46. Implementing these options will also shift aspects of the affected industries to more closed systems. This will broadly impact the sectors and the operation of the farms. This is why I have asked for a comprehensive recovery, resilience and transition package to be developed and implemented.

47. The detailed costs and impacts are summarised in Appendix 3.

Key considerations in choosing a preferred option

48. Key matters to consider in coming to a preferred option are the uncertainties and risks, and farmer welfare.

Uncertainties and Risks

49. In making a decision, the following uncertainties need to be taken into account:

- The nature of the disease is such that in some herds the disease may not have presented.
- Dairy calves born in, or after, 2016 have yet to enter the milking herd so are not captured by the national bulk milk testing to date.
- Discarded milk and calf movements are considered significant vectors for disease spread in New Zealand and on some infected properties there are incomplete records of milk and calf movements off the property.
- We know there are further infected properties that cannot be traced because the animal movements were not recorded. MPI is aware of 200 unrecorded calf movements from just one infected farm in only one year.
- We still do not know how the disease entered New Zealand, meaning that the risk of re-entry remains.

50. As not all stock movements will have been accounted for, there is an increasing likelihood that undetected infections would not be tested in the tracing programme. This would mean that the number of infected farms would be underestimated, and accordingly funding and resources may need to be revised upwards.

51. [redacted]

Farmer Welfare

52. In addition to the technical and cost risks, farmer welfare is of significant concern. Farmers who are affected by regulatory controls on their properties have increased welfare needs. Mental health problems are a real risk in the most acute cases.

53. Affected farmers are living with ongoing uncertainty and loss of income affecting farm management decisions and the impact of biosecurity controls on 'day to day' farm practice. They are also facing the need to rebuild their businesses, in some cases facing losses of generational effort to build herd blood lines. Farmers who are next to an infected farm, or a farm under investigation, are understandably anxious about the risk to their herds. Impacts can also be expected in farm families, communities and farm support businesses, including share milkers.

54. Rural Support Trusts are continuing to provide support, including one-on-one support for those living and working on farms, targeted community events, a welfare presence at rural events, and the 0800 Rural Support number.

55. I assess that there is a need for welfare and recovery support to continue irrespective of the option chosen. Biosecurity New Zealand, MPI and sector groups are up-scaling support for additional properties and geographical locations.

Mycoplasma bovis: international experience

56. Internationally Mycoplasma bovis is present in all cattle farming countries, but information and data are limited on the scale of the problem in other countries as it is often not a disease that is monitored at the national level. Instead information has to be extracted from papers on research studies and accounts of outbreaks on individual farms. In Britain the disease was first recognised in the 1970s and in Ireland in the 1990s. In both countries the disease was first seen on dairy farms with outbreaks of mastitis and severe arthritis in adult cows and calf disease.

57. Over time the disease has become endemic and fewer such outbreaks are seen. However the incidence of Mycoplasma bovis related pneumonia is rising in these countries particularly in housed animals and there are increasing reports of ear infections in calves. UK studies have shown that dairy herds with more than 500 animals are at higher risk of experiencing outbreaks of severe mastitis outbreaks than smaller herds.

58. In Ireland Mycoplasma bovis mastitis causes greater problems in herds that are expanding in size and those buying in large number of animals. This has also been reported from Australia where risk factors for severe disease in dairy herds were large farm size and herds within multiple farm enterprises. The current pattern of actual disease in New Zealand follows this trend too, with the worst disease seen within two herds of over 1000 animals that were part of a multiple farm enterprise. Severe outbreaks in Australian dairy herds can affect up to 20% of adult cows and 30% of calves. Outbreaks of this size are not common now that the Australian veterinarians have been trained to recognise the disease at an early stage, so it can be effectively managed.

59. Pastoral beef animals may show no signs of pneumonia or other clinical disease. This is reported from pasture based beef systems in Victoria, Australia. However, blood tests of those animals have suggested that infection without disease is present at low prevalence of perhaps 8% of the herd, so that animals can likely act as a reservoir of disease for other animals.

Industry views and funding

60. I have been meeting regularly with industry leaders. They have indicated that they are committed to working with the government to deliver the best outcomes for New Zealand's farming sector, including supporting farmers. I have also discussed with industry my expectations about further contributions towards the response effort. They have undertaken to provide more support to affected farmers, including sourcing feed, assisting farmers to submit compensation claims as well as supporting farmer welfare and farm planning.

61. The Meat Industry Association and Dairy Companies Association of New Zealand have indicated to MPI that they are not impacted by Mycoplasma bovis and therefore will not commit funding. Their preference is that Option 2 – phased eradication - be attempted.

62. Dairy NZ and Beef and Lamb New Zealand have identified that their members are impacted by Mycoplasma bovis. They stated in a letter dated 3 May 2018 that their "agreed preference for the response is to pursue 'Phased Eradication' (Option 2 in the MPI Options Paper). They also state it is important that there are "clearly defined and articulated trigger points that, if reached, would change the nature of the response and see it move to long-term management."

63. Dairy NZ and Beef and Lamb [redacted] under the GIA [Government Industry Agreement]. This would see the Crown meet the agreed 20% 'exacerbator cost[4]', with the remaining split 60:40 as between the Crown and industry. The result would see the Crown pay 68% of the cost and industry 32%"

Improving resilience – biosecurity system and on-farm

64. Mycoplasma bovis has highlighted the need to improve settings in the biosecurity system and strengthen the resilience of farming systems to get better outcomes for New Zealand.

Next steps: Improving settings in the biosecurity system

65. Three planks to improve the biosecurity system - improving animal tracing, reviewing the Biosecurity Act and investigating alternative funding approaches to responses. These are detailed below.

4 The GIA Deed states exacerbators are "those [parties] undertaking risky activities" p11, section 3.3. Section 3.3.1 of the Deed states "MPI has agreed to pay 20 percent of readiness and response activity costs under an operational agreement" to reflect the exacerbator portion of the Crown.

The National Animal Identification and Tracing Scheme (NAIT)

66. A recent NAIT review highlights a lack of farmer compliance - voluntary compliance is not working. I have asked MPI to step in and support NAIT Ltd to develop a new compliance approach, including inspections and audits, data system improvements and farmer education. In the short term, MPI's animal welfare officers are carrying out NAIT enforcement as part of regular farm visits. [redacted]

67. I have requested the NAIT management agency, OSPRI, to implement almost two-thirds of the review recommendations to make NAIT easier for farmers to use and to improve the performance of accredited providers. [redacted] MPI will also work with OSPRI to establish performance measures and evaluate NAIT's effectiveness.

68. MPI's recent intervention, as part of the response, to inspect cattle being transported from the South Island to the North Island found a good level of compliance with NAIT obligations. Non-compliance is being followed up with enforcement, such as infringements.

69. [redacted]

70. [redacted]

Reviewing the Biosecurity Act

71. I have also asked officials to carry out a wide-ranging review of the Biosecurity Act 1993. The Act is 25 years old and, while it has been amended in that time, it has never been the subject of a full review.

72. I want to ensure the Act is fit for purpose and has the appropriate mechanisms in place to allow a strong emphasis on preventing incursions before they occur.

73. The funding of responses and the future of the Government-Industry Agreement for Biosecurity Readiness and Response (GIA) have already been identified as key topics to resolve in the review of the Act. The Act review will also consider whether the settings for compensation, compliance activity and powers/ incentives are appropriate.

Funding biosecurity responses in the future

74. The Mycoplasma bovis response raises two key issues about how biosecurity responses are funded:

a. How to manage the substantial and unpredictable fiscal impacts of large biosecurity responses; and

b. How to ensure that industries that benefit from responses make a fair contribution to the costs of the response.

75. To address these issues, I have asked MPI to consider an alternative approach to response funding, which would involve building up a contingency fund in advance of an event. This would follow the same broad approach as the funding model for natural disasters or insurance schemes.

76. [redacted]

77. [redacted]

78. In the meantime, there are existing mechanisms in the Biosecurity Act that can be used to fund the industry contribution to the response. The Act enables a levy to be put in place to fund the commitments made by an industry organisation that is part of the GIA. I anticipate that levies to collect the contribution from dairy and beef famers will be put in place over the coming months.

Next steps: Transforming New Zealand farming systems

79. Recovery and transitions are important parts of managing pest and disease incursions to get farm businesses back up and running. In large scale events like Mycoplasma bovis, MPI and Biosecurity New Zealand work alongside industry and affected farmers to develop practical solutions. These on farm improvements also enhance farm resilience and the ability to manage more serious outbreaks such as foot and mouth disease.

80. Recovery is also an opportunity to consider whole farm planning, which includes not only best practice for biosecurity, but also animal husbandry, environmental management, and wider business planning. However, the success of this approach depends on enabling behaviour change at the farm system level.

81. Our commitments to improve climate, water, forestry, the regions and economic outcomes have significant implications for farms. To achieve a just transition to a high-value, lower environmental impact economy, we need to work with land-based sectors and Māori. We need to provide information, knowledge, options and highlight opportunities to gain greater value for a lower impact.

82. I propose to develop a two year project for comprehensive farm planning, to be provided to farmers affected by Mycoplasma bovis, from the end of 2018. In partnership with industry groups and rural professionals, access to expert advice on high value, low environment footprint farming systems would be provided.

83. I believe a key part of the project will be MPI providing specialist support to identify opportunities for an accelerated shift to value for the sector and alternative land uses. MPI will use its Economic Intelligence Unit to provide targeted market insight support to the industry. This support will help farmers and processors to identify and meet the needs of high-value markets and consumers. Farmers will be able to grow the value of what they produce by making informed decisions about land use, production systems and product development, and how to reach the right markets and consumers.

84. This suite of interventions will support farmers to make decisions on transition pathways suitable for their farm – both in response to the disease and the wider challenges and opportunities facing land owners.

85. I consider this project a catalyst to improve resilience and farm performance. I propose building on this project to develop and deliver a wider behaviour change programme to improve the resilience, sustainability, and productivity of farming systems and land use. There will be benefits from making this programme available more widely across the sector over time but in the meantime this project will provide a good platform for change.

Consultation

86. The Treasury and the Department of Prime Minister and Cabinet have been consulted on this paper.

87. Beef + Lamb New Zealand, Dairy New Zealand, the Dairy Companies Association of New Zealand, Federated Farmers, the Meat Industry Association, and the New Zealand Veterinary Association have been consulted on the response options.

Financial Implications

88. The most significant uncertainties across the options for cost and industry impact calculations are the number of infected properties (and associated animals required to be culled) and the replacement value of animals.

89. Appendix 3 estimates the likely costs and impacts at a 90% confidence level using current information available. The unknown future spread of the disease gives a wide range of possible future outcomes and it is possible that this 90% confidence level will be eroded as new information becomes available.

90. Both the shortlisted options – phased eradication and transition to long term management – assume that depopulation of infected properties and some restricted properties would continue in 2017/18. Depopulated properties trigger a compensation liability for the Crown.

91. Existing compensation funding is likely to be exhausted prior to 30 June given the current numbers of infected properties. To avoid restrictions on what expenditure and commitments it could enter into until 1 July and the associated risk of unapproved expenditure, the Ministry is requesting additional funding of $28 million to enable the depopulation of a further eight properties in 2017/18.

92. With both the phased eradication and transition to long-term management options, it is expected that industry would share in the costs of each option. For phased eradication this would be 32%, and for the transition to long term management this would be negotiated as part of the transition plan. As industry are likely to take time to collect their contribution from their members, a capital injection is sought in this paper equivalent to industry's share of the costs.

93. Due to the uncertainty of the response operational costs (including compensation) and the investment in improving resilience, this paper only seeks funding for two years. Funding for out years will be sought in Budget 2020.

Human rights

94. The proposals in this paper are consistent with the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993.

Legislative implications

95. This paper has no legislative implications.

Regulatory impact analysis

96. Neither a Regulatory Impact Analysis nor an analysis of the paper's consistency with commitments in the Government Statement on Regulation are required, as the proposals in this paper will not result in a Government Bill or statutory regulations.

Publicity

97. An announcement is planned by the Prime Minister after Cabinet takes its decision on 28 May 2018.

Recommendations

98. The Minister for Biosecurity recommends that the Committee:

1. **Note** that a decision needs to be taken on the next steps for the response to the cattle disease Mycoplasma bovis;

2. **Note** that recent detections of infected properties, and tracing of animal movements, has doubled the scale of response efforts and 334 properties are now under regulatory control, including two additional infected properties in the North Island;

3. **Note** that I have asked MPI to commence work on several priority areas to strengthen the resilience of the farming and biosecurity systems, including reviewing how biosecurity responses are funded;

4. **Note** that four options have been developed spanning eradication through to winding down the response, and that Biosecurity NZ officials and industry agree that the only two realistic options are phased eradication and transition to long term management;

5. **Note** that Dairy New Zealand and Beef+Lamb New Zealand support phased eradication;

6. **Note** that Dairy New Zealand and Beef+Lamb New Zealand will contribute towards the costs of the response;

Financial recommendations

7. **Note** that due to technical details that still need to be worked through with the Treasury and the Office of the Auditor-General, this paper does not seek agreement to the financial recommendations to give effect to the policy decisions sought;

8. [redacted]

9. **Note** that because the 2017/18 Supplementary Estimates Bill has already been presented to the House, any funding required for the 2017/18 financial year will be unappropriated and will need to be included in the Appropriation (2017/18 Confirmation and Validation) Bill;

10. **Note** that because the amount of funding required would exhaust the 2018 Between-Budget Contingency, all required funding will need to be pre-committed against the Budget 2019 operating and capital allowances, which will impact the available funding for Budget 2019;

11. **Note** that response expenditure in 2017/18 is likely to exceed existing appropriations if there is an immediate need for further depopulation of infected and at-risk properties;

12. **Note** due to the uncertainty of the response operational costs (including compensation) and the investment in improving resilience, this paper only seeks funding for two years. Funding for out years will be sought in Budget 2020;

13. **Note** Option 2 Phased Eradication has a total response cost of $870 million over 10 years at a 90% confidence level, which includes operational, compensation and system resilience costs but excludes $16 million of industry impacts;

14. **Note** Option 3 Long Term Management has a total response cost of $520 million over 10 years at a 90% confidence level, which includes operational, compensation and system resilience costs but excludes $698 million of industry impacts;

15. **Note** that Biosecurity New Zealand is working with industry to explore a levy under the Biosecurity Act to collect industry contributions;

Either Option 2 Phased Eradication

16. **Agree to Option 2 – Phased eradication, including** a total response cost of $444 million for 2018/19 - 2019/20 and $28 million for 2017/18. This includes costs at a 90% confidence level, which includes operational, compensation and system resilience costs but excludes industry impacts;

    16.1 **Note** that in Option 2 Dairy New Zealand and Beef+Lamb New Zealand will contribute 32% towards response costs, and the remaining Crown portion will be 68%;

    16.2 **Note** that total costs over 2018/19 to 2019/20 for the Crown are $302 million and industry will contribute $142 million;

    16.3 **Note** that it may take Dairy New Zealand and Beef+Lamb New Zealand a number of months to collect their contribution and the Ministry will require funding to cover the anticipated revenue during this period, which will be sought in the follow-up Cabinet paper;

    16.4 [redacted]

Or Option 3 Long Term Management

17. **Agree to Option 3 – Long-term Management, including** a total response cost of $316 million for 2018/19 - 2019/20 and $28 million for 2017/18. This includes costs at a 90% confidence level, which includes operational, compensation and system resilience costs but excludes industry impacts;

    17.2. **Note** the Crown will fund all costs until an industry levy is in place at which time the Crown will recover industry contributions. Biosecurity New Zealand will work with Treasury through this process;

    17.3. **Note** that in Option 3 Dairy New Zealand and Beef+Lamb New Zealand's contribution towards response costs will be negotiated during implementation;

Next steps

18. **Note** that this outbreak has underlined the imperative for strengthening the biosecurity and sustainability of our farming systems and that I have directed MPI to commence work on:

    18.1. Improving the NAIT scheme;

    18.2. Reviewing the Biosecurity Act;

    18.3. Reviewing biosecurity response funding, including a possible universal biosecurity levy; and

    18.4. Supporting transitions to a more sustainable farming systems.

19. [redacted]

Authorised for Lodgement

Hon. Damien O'Connor
Minister for Biosecurity

Appendix 1: Response update

Epidemiological modelling

Biosecurity New Zealand expects that the number of infected properties will considerably exceed the results of the earlier modelling. Over time Biosecurity New Zealand expects that:

- [redacted]
- infection will be confirmed in about 30% of properties under Notices of Direction[6];
- new Restricted Places will continue to be confirmed and traces from these will be placed under Notices of Direction;
- some new Restricted Places will have large numbers of forward traces (20 or more).

Based on these assumptions:

- there are currently 67 Restricted Places;
- [redacted]

[redacted] This is in Year 0 of a proposed 10 year programme. Biosecurity New Zealand expects that this number will increase as further Restricted Places are confirmed and consequent Notices of Direction put in place during the spring testing period. The costs presented in this paper assume that 142 infected properties will be found in the first year, and that an additional 50 infected properties would be found throughout an eradication programme.

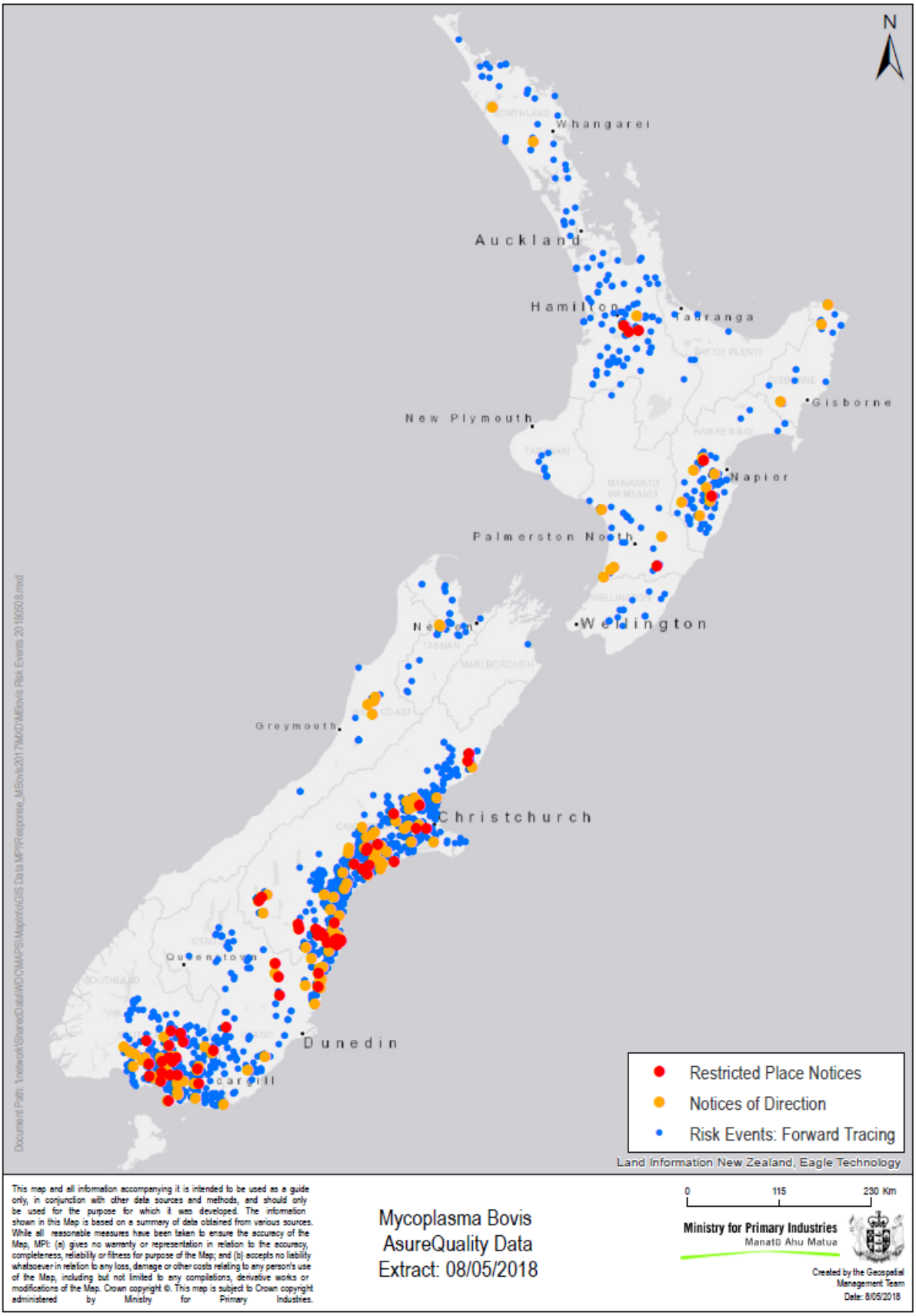
Current status

Property status	April 2018	May 17 2018
Properties under general surveillance	1507	1,668
Properties under active surveillance	672	789
Notices of Direction (movement control)	69	62 (205 yet to be served)
Notices of direction (slaughter sampling)		16
Movement control: Restricted Places	55	67
Infected Places (subset of Restricted Places, some already depopulated)	27	38

[redacted]

6 Notices of Direction are placed on properties identified through tracing or testing as being at risk of infection.

Number of cattle which may be culled based on current information



Appendix 2: Summary of response options

Activity areas	Rapid eradication	Phased eradication	Long Term Management	Response wind down
Objective	Eradicate Mycoplasma bovis (MB) from New Zealand as soon as possible	Eradicate MB from New Zealand	***Reduce the disease to the lowest possible levels and slow the spread of the disease***. (MB not eradicated)	***No further disease management activity is undertaken by the Crown***. (MB not eradicated)
Surveillance	Intensive surveillance to detect infected beef and dairy properties. Continues for 2-5 years after last known infected property culled.	Intensive surveillance to detect infected beef and dairy properties. Continues for 2-5 years after last known infected property culled.	Infected farms detected after 1 July 2018 are informed and supported to manage the disease. Bulk milk screening undertaken. Farmers manage infections in their herd.	No disease surveillance undertaken. Farmers manage infections in their herd.
Tracing & testing	Continued.	Continued.	Samples already taken will be analysed. Otherwise, testing and tracing is stopped.	Tracing and testing stopped.
Depopulation	All current infected properties are depopulated. All restricted places[7] depopulated. All newly detected infected properties are depopulated.	All current infected properties depopulated. All restricted places depopulated using criteria considering herd value and risks. All new infected properties culled over time in consultation with farmer. Tonsular sampling after slaughter is urgently undertaken on sample of animals from all lower risk properties. Infected herds depopulated and lower risk properties lifted from negative herds.	Regulatory controls stay in place until the herd is depopulated or a Farm Management Plan is approved. All infected properties and restricted places as at 1 July 2018 to be depopulated during the next 12 months according to risk and in consultation with the farmer. Tonsular sampling after slaughter is undertaken on sample of animals from all lower risk properties. Infected herds depopulated and lower risk properties lifted from negative herds. Infected or suspect properties	Current infected properties depopulated. No further properties to be directed to depopulate using Biosecurity Act powers.

7 Infected places are properties with confirmed infected animals; Restricted places are considered likely to be infected and are subject to testing and movement controls until status is confirmed; lower risk properties are those with Notices of Direction in place to manage the risk of spread and are under testing to confirm status.

			identified after 1 July 2018 would not be depopulated.	
Pathway management to prevent spread	Animal movement and other biosecurity requirements stay in place until: • animals on infected properties are culled; • the disease status of lower risk properties is confirmed –if infected culled, if negative, Notice of Direction lifted. Properties that have received animals from infected properties are placed under movement controls and tested. MB made notifiable under the Act.	Animal movement and other biosecurity requirements stay in place until: • animals on infected properties are culled; • the disease status of Notices of Direction is confirmed –if infected culled, if negative, Notice of Direction lifted. Properties that have received animals from infected properties are placed under movement controls and tested. MB made notifiable under the Act.	No further movement controls are issued after 1 July 2018. Consideration of education or regulation to influence good farmer behaviour. Options clarified once it is confirmed whether will be delivered by regulatory or non-regulatory tools. Develop and implement a farm biosecurity accreditation programme so farmers can manage their risk of contracting or spreading MB.	Discontinued.
Farmer support	Support provided to get farms operational after culling.	Support provided to get farms operational after culling.	Support provided to get farms operational after culling.	Support provided to get farms operational after culling.
Research	Strategic Science Advisory Group established to explore knowledge gaps, develop research questions and review funding proposals. Improving diagnostic tests to enable anticipated 5 years of surveillance. Analysis of response data to inform eradication programme.	Strategic Science Advisory Group established to explore knowledge gaps, develop research questions and review funding proposals. Improving diagnostic tests to enable anticipated 5 years of surveillance. Analysis of response data to inform eradication programme.	Strategic Science Advisory Group established to explore knowledge gaps, develop research questions and review funding proposals.	Developing a diagnostic test for export purposes if required by overseas markets.
Compensation	Farmers will continue to be eligible for compensation for culled cattle and lost production	Farmers will continue to be eligible for compensation for culled cattle and lost production. Compensation costs lower as farmers are able to mitigate their losses by choosing cull timing.	Farmers will be eligible for compensation for culled cattle and lost production from powers used up to 1 July 2018. Compensation eligibility stops then.	As there would be no further culling or movement controls, eligibility for compensation would cease.

Appendix 3: Costs and impacts of each option

Costs and impacts at 90 percent confidence level

Option	2018/19	2019/20	2020/21	2021/22	2022/23	Ten year cost
Rapid eradication	383	131	150	114	77	966
Response cost	367	127	146	110	74	936
Industry impact	16	4	4	4	3	30
Phased eradication	335	121	141	101	71	886
Response cost	325	119	139	100	70	870
Industry impact	10	2	2	1	1	16
Long term management	260	100	113	107	100	1,218
Response cost	255	61	55	26	26	520
Industry impact	5	39	58	81	74	698
Wind down response	47	91	118	143	135	1,330
Response cost	42	21	17	14	14	177
Industry impact	5	70	101	129	121	1,153

Breakdown of response costs for Options 2 and 3

Option 2 Phased eradication

	2018/19	2019/20
Operations	$295 million	$90 million
Improving farming and biosecurity system resilience	$30 million	$29 million
Total	**$325 million**	**$119 million**

Option 3 Transition to Long Term Management

	2018/19	2019/20
Operations	$226 million	$35 million
Improving farming and biosecurity system resilience	$29 million	$26 million
Total	**$255 million**	**$61 million**

Costs and impacts at 50 percent confidence level

Option	2018/19	2019/20	2020/21	2021/22	2022/23	Ten year cost
Rapid eradication	282	109	113	87	59	791
Response cost	272	106	110	84	57	771
Industry impact	10	3	3	3	2	20
Phased eradication	257	108	110	81	61	781
Response cost	250	106	109	80	61	768
Industry impact	7	2	1	1	0	13
Long term management	197	74	78	66	62	836
Response cost	193	49	43	24	24	436
Industry impact	4	25	35	42	38	400
Wind down response	40	56	66	79	74	773
Response cost	37	19	16	14	14	166
Industry impact	3	37	50	65	60	606

Breakdown of activities by cost category

Category	Rapid eradication	Phased eradication	Transition to long term management	Wind up the response
Operations	• Implement movement controls, including signage and fencing; • Tracing and assessing animal movements; • obtaining blood samples; • Farm visits; • Lab testing; • Response management; • Cleaning and disinfecting following depopulation; • Feed costs.	• Same as for rapid eradication, except that some costs are spread over further years, due to the longer period of time over which the depopulation will occur – impacts on cleaning and disinfection, and feed costs.	• Same as rapid eradication except only incurring response costs during the transition period from response to long term management when fewer farms are depopulated. • Less feed, cleaning and disinfection, fewer lab tests (refer to surveillance)	• Completing outstanding activities before discontinuing response. • Compensation team continues.
Surveillance	• Two rounds of national bulk milk testing per year (spring and autumn); • Blood samples from farms within 30 Km of an infected property.	• Same as for rapid eradication.	• One round of National bulk milk testing; • No blood samples from around infected properties.	• No surveillance testing.
Improving system resilience	• Improve NAIT compliance; • Improve on-farm biosecurity; • Support recovery of affected farms to more sustainable farming model. (Further details below)	• Same as for rapid eradication.	• Same except for shorter period, and lower intensity, of farmer support (two years).	• Same as for long term management but even lower level of farmer support provided.
Compensation	Highest compensation costs because depopulation approach does not allow farmers to mitigate their production losses.	Same number of properties depopulated under this option, however, compensation costs are lower because farmers are able to continue farming their animals and deriving an income, thereby mitigating their production losses.	Fewer properties depopulated.	No properties depopulated.
Industry	Small loss to dairy	Same as for rapid	Lost dairy	Same as long

impact	processors as a result of lower milk production volume.	eradication, but efforts to mitigate production losses leads to slightly higher production volume.	revenue from infected stock, increased farm management costs for dealing with the disease, including lower cull cow revenue and higher replacement costs.	term management, but the number of infected properties is nearly double.

Treasury's Analysis of Economic Impacts of Mycoplasma bovis

Treasury's forecasting team modelled the impacts of Mycoplasma bovis on gross domestic product (GDP), exports, and employment based on figures provided by MPI. This analysis focuses on the economic impacts of Mycoplasma bovis on milk and meat production and the indirect effects of these changes. The scope of this analysis excludes any potential economic impacts arising from structural changes to the pastoral sector, including changes in stock movements patterns and land ownership or utilization.

The analysis focuses on option 4 (wind down the response), the option with the most significant impacts on the New Zealand economy. Even under this option, the estimated impacts on exports, GDP, and employment are modest. Lower output will lead to lower exports and reduced incomes, which flows through to lower GDP and weaker labour demand.

The cumulative nominal GDP impact is of $0.7b over 10 years, or 0.02% of GDP over that period. Labour demand is estimated to be 200 jobs lower by year 10. The impact under options A, B, and C would be proportionally lower.
However, it should be noted that the differences across these variables are quite small and well within the margin of error of the baseline forecasts.