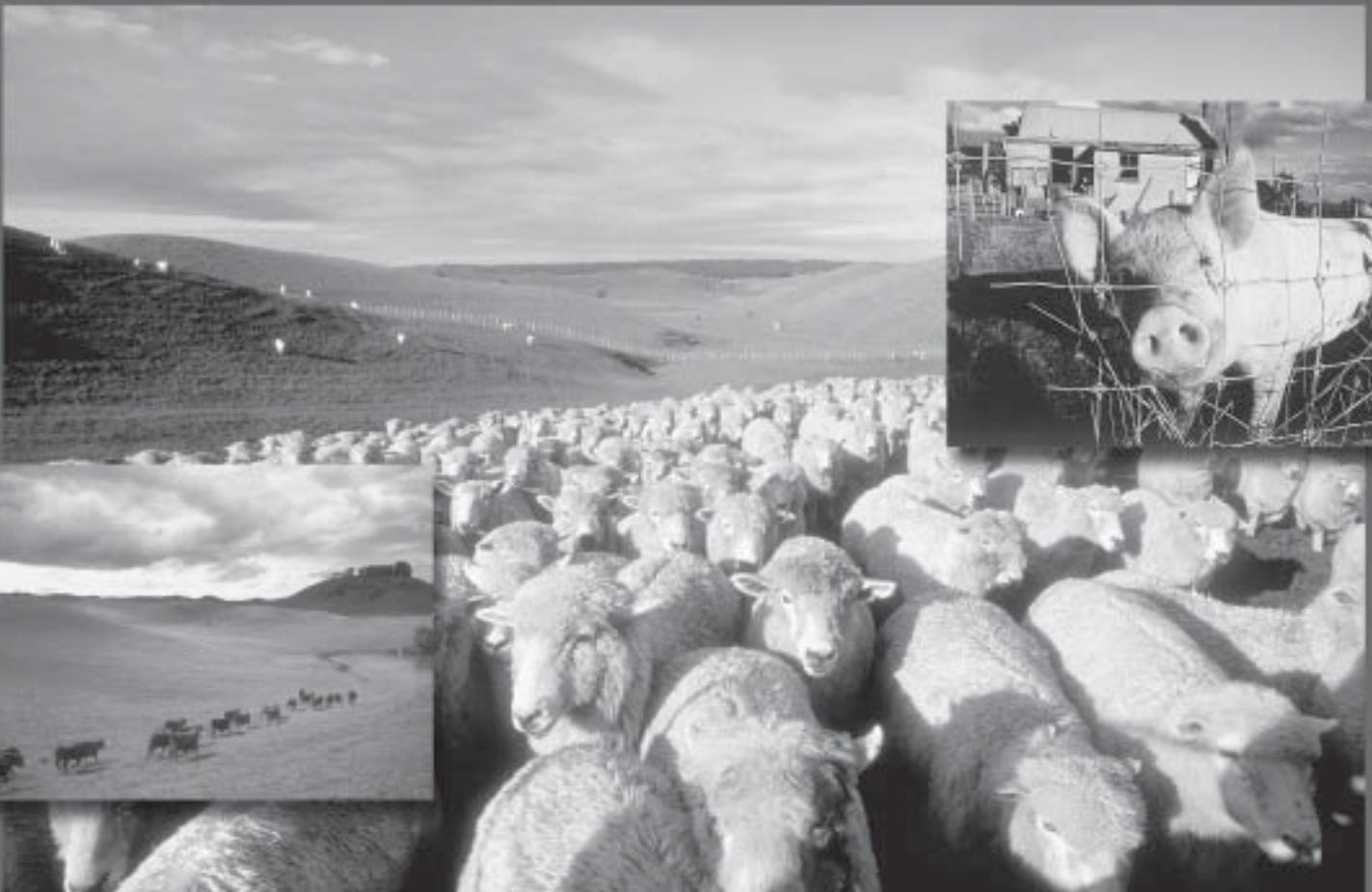


Case Study 7

Preparedness for an Outbreak of Foot and Mouth Disease



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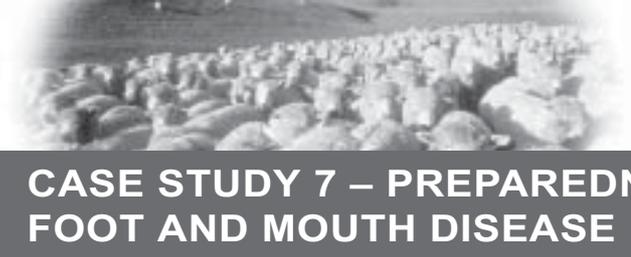
Why Did We Select This Case Study?

- 7.1 Foot and mouth disease (FMD) poses one of the most serious threats to New Zealand’s biosecurity and would have a significant impact on the economy if it were to enter the country.¹
- 7.2 Following the outbreak of FMD in the United Kingdom (UK) last year, MAF employees assisted in the response in the UK, and brought back the knowledge and experience gained from their work.
- 7.3 The topic provided an opportunity for us to:
- look at how MAF used this international collaboration to review its emergency response procedures in the event of an outbreak of the disease in New Zealand; and
 - examine the additional measures introduced by MAF as result of the UK outbreak.
- 7.4 It also enabled us to examine the policies of MAF’s National Centre for Disease Investigation.

Key Findings

- 7.5 *The most likely entry pathway of FMD into New Zealand would be by illegally imported infected meat. The cost to the country of an FMD outbreak would be huge – over \$1,000 million, or much more for a large outbreak. (See paragraphs 7.18-7.24 on pages 133-136.)*
- 7.6 *MAF Biosecurity currently has the resources to cope with an outbreak of FMD involving 25 contaminated sites in the first week and 10 sites a week thereafter. However, it is difficult for MAF Biosecurity to accurately predict what size of outbreak it should prepare for, and the current level of resources is influenced by historical factors and what contractors can be held to. (See paragraphs 7.43-7.54 pages 140-142, and paragraphs 7.70-7.76 on pages 146-147.)*

1 In the 2001 UK FMD outbreak, the direct cost to the public sector is estimated at over £3,000 million, and the cost to the private sector is estimated at over £5,000 million: *The 2001 Outbreak of Foot and Mouth Disease*, Report by the Comptroller and Auditor-General, National Audit Office, United Kingdom, 21 June 2002.

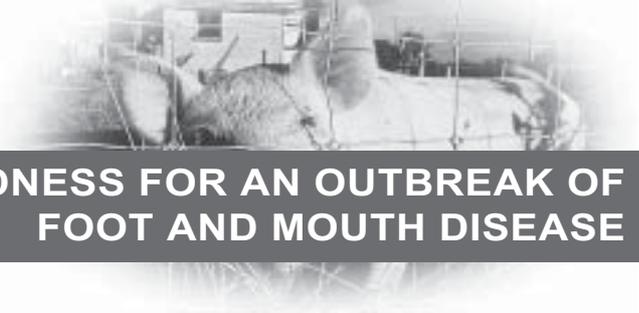


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- 7.7 *Following the UK outbreak, MAF suspended trade in risk goods from the UK and, later, the European Union (EU). Funding of \$4.6 million was provided for measures including additional border security and an awareness campaign. Although the awareness campaign has been extensive, there is no targeted awareness-raising or surveillance programme for high-risk sites – such as backyard and small-scale piggeries in areas with high numbers of tourists. (See paragraphs 7.25-7.34 and 7.61-7.69 on pages 136-138 and 144-146 respectively.)*
- 7.8 *MAF runs an annual exotic disease simulation exercise that involves a wide range of people and provides an effective method to test systems for responding to incursions of diseases such as FMD. However, the exercises do not routinely involve private veterinary practitioners, even though they would play an important part in any large-scale response. (See paragraphs 7.57-7.60 on pages 143-144.)*
- 7.9 *An internal review of the New Zealand Animal Health Reference Laboratory showed shortfalls in the laboratory's readiness to cope with an outbreak of FMD. (See paragraphs 7.70-7.76 on pages 146-147.)*
- 7.10 *A number of projects are under way to ensure that New Zealand is prepared to deal with an FMD outbreak. The projects have no set completion dates and are subject to interruption by the need to attend to higher-priority work, such as responding to pest and disease incursions. Until the FMD preparedness projects are completed, MAF will not be as well prepared to respond to an FMD outbreak as it could be. (See paragraphs 7.88-7.91 on pages 149-150.)*

Recommendations

- 7.11 *MAF should routinely include private veterinary practitioners in the incursion response simulation exercises to increase the capacity for these people to be involved promptly in an emergency. (See paragraphs 7.57-7.60 on pages 143-144.)*
- 7.12 *MAF should develop an ongoing FMD awareness campaign that targets high-risk sites – such as small-scale and backyard piggeries which may not have access to information about FMD through other channels. This programme should highlight the risk of feeding uncooked food waste to pigs. (See paragraphs 7.61-7.69 on pages 144-146.)*
- 7.13 *MAF should set dates for completion of key FMD preparedness projects, and work urgently to resolve the issues that prevent the optimal use of EpiMAN software, particularly those concerning the transfer of data*



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from the field across the MAF firewall to the headquarters of the National Centre for Disease Investigation. (See paragraphs 7.79-7.87 on pages 148-149.)

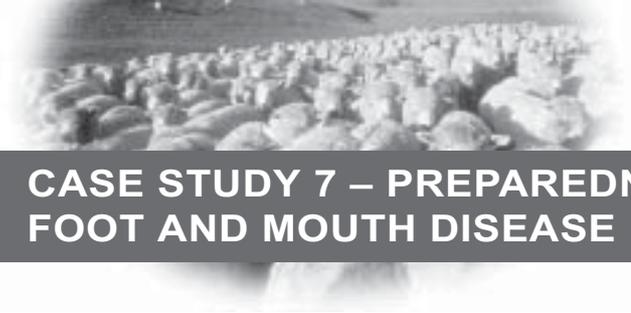
Introduction

- 7.14 FMD is a highly infectious viral disease that affects cloven-hoofed animals – such as pigs, sheep, deer, goats and cattle. It is transmitted by animal-to-animal contact, and by animals coming into contact with infected meat, meat products, or people and equipment very recently contaminated with FMD. The virus can also spread considerable distances through the air.
- 7.15 FMD causes fever and lameness in animals, with blisters in the mouth or on the feet. It is not usually fatal in adult animals and most recover naturally within 2-3 weeks. It causes abortions, deaths among young animals, and (in some animals) permanent adverse effects such as reduced milk yields, sterility, and lameness.
- 7.16 FMD very rarely affects humans, and the meat from infected animals can be eaten safely. However, New Zealand exports \$10,000 million of dairy, wool and meat products annually. If an outbreak of FMD occurred here, our trading partners would suspend trade in these products.
- 7.17 Widespread slaughter of infected animals is seen internationally as the best method to contain the spread of disease. Vaccination of at-risk animals can be used to stop them from being infected or to make the animals less contagious, in an effort to prevent spread of the disease during an eradication attempt. Vaccinated animals must also be slaughtered to conform with international rules for continuation of trade after an FMD epidemic.

How Could Foot and Mouth Disease Enter New Zealand?

The most likely entry pathway of FMD into New Zealand would be by illegally imported infected meat.

- 7.18 Although awareness of FMD in this country was raised by the outbreak in the UK and Europe in 2001, there is a greater risk of being infected from Asia. There were 490 reported outbreaks of FMD in South East Asia alone in 2000. The threat from Asia is ongoing.



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- 7.19 The most likely pathway for entry of FMD into New Zealand is by illegally imported meat. It is possible that such meat could be disposed of in rubbish that could subsequently be fed to pigs. UK officials believe that this was the most likely cause of the 2001 outbreak there.
- 7.20 All rubbish and confiscated items arriving in New Zealand by ship or aircraft are incinerated to prevent disease transmission. MAF considers that the amount of illegally imported meat (estimated at less than 5kg/day before the UK outbreak) arriving in New Zealand will have been considerably reduced following the introduction of additional X-ray machines and detector dog teams in airports in 2001.

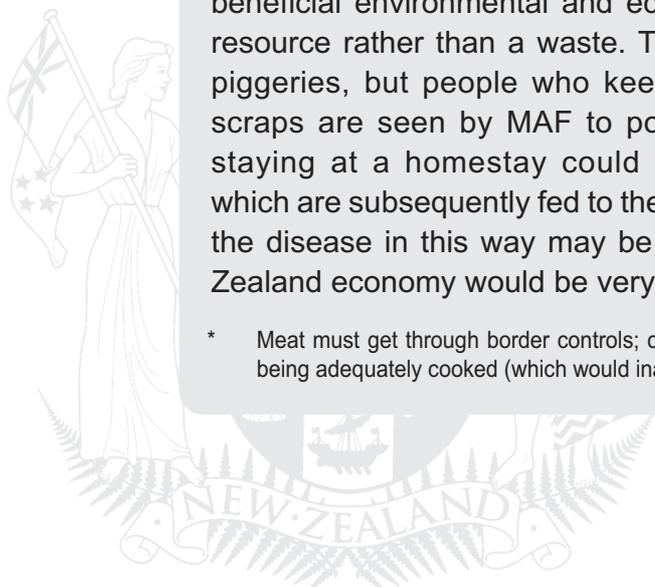
Figure 7.1 Feeding Food Waste to Pigs

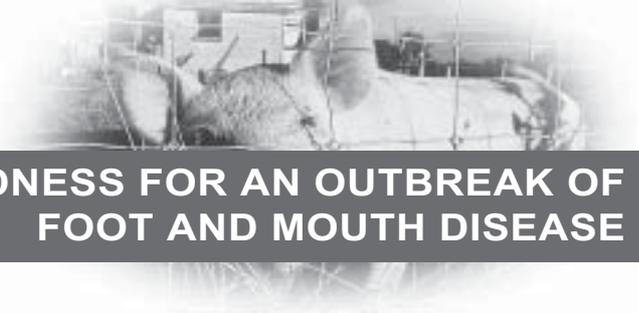
The “garbage feeding” of pigs is not currently regulated in New Zealand. The UK FMD outbreak in 2001 was probably due to pigs being fed infected meat, and highlighted the need to review this practice in New Zealand. MAF produced a discussion paper, seeking industry and public opinion on the need to control garbage feeding to pigs, and perhaps re-introduce more effective and less costly controls than those that were in place until 1998.

Rather than prohibit feeding of food waste to pigs, or continue with no direct controls, the discussion paper suggested that it might be preferable to implement systems to manage the biosecurity risks associated with feeding food waste to pigs. Suggestions include a prohibition on feeding uncooked meat to pigs, with heavy penalties for non-compliance.

Feeding food waste to pigs is commonplace in New Zealand, and has beneficial environmental and economic impacts, as unused food becomes a resource rather than a waste. The practice occurs in some large commercial piggeries, but people who keep a pig in their back yard and feed it table scraps are seen by MAF to pose the greatest risk. For example, a tourist staying at a homestay could throw smuggled meat into kitchen scraps, which are subsequently fed to the owner’s pigs. Although the risk of transmitting the disease in this way may be small*, the consequences for the whole New Zealand economy would be very large.

* Meat must get through border controls; contain sufficient quantity of the virus; and be fed to a pig without being adequately cooked (which would inactivate the virus).





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- 7.21 Other possible pathways include airborne spread (an unlikely route of entry due to our isolation), live animals, meat and meat products, animal embryo or semen, and milk or milk products. A recent article in the *New Zealand Veterinary Journal*² describes the risk from these pathways as negligible, as this country does not import these goods from countries that are not free from FMD without appropriate precautions. Bio-terrorism is another potential means of entry.

How Would Foot and Mouth Disease Affect New Zealand?

The cost to the country of an FMD outbreak would be huge – over \$1,000 million, or much more for a large outbreak.

- 7.22 In response to the UK outbreak, the Government launched an FMD web site that included information outlining the impact FMD would have on New Zealand. Figure 7.2 below shows one message that was posted on the foot and mouth web site, and is still posted on MAF's web site.

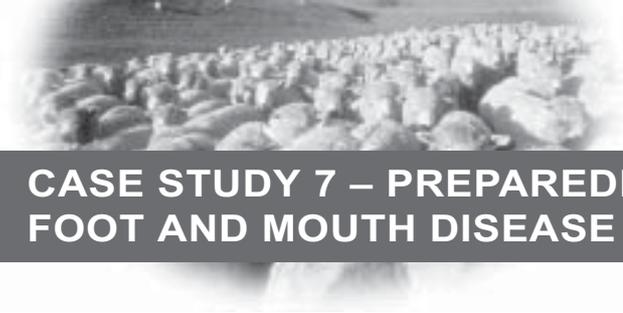
*Figure 7.2
Impact of a Foot and Mouth Disease Outbreak*

If 100 New Zealand farms were affected by Foot and Mouth:

- Meat plants and dairy factories could close. Many businesses that supply them could close. Companies that supply farms – such as fertilizer, fencing and equipment – could lose business.
- As many as 100,000 people could lose their jobs – 30,000 on farms and another 70,000 in industries that depend on farming. That's the same as the entire population of a large New Zealand city.
- To stop the spread of the disease, people would not be able to travel around in the affected parts of the country. Many tourists may decide not to visit New Zealand and that could badly affect businesses and jobs in the tourism industry.
- The outbreak could cost the Government hundreds of millions of dollars in compensation to farmers and in disease control costs.
- The value of the Kiwi dollar would fall. The standard of living for ALL New Zealanders would drop. Imported goods such as petrol would become significantly dearer.

2 Pharo HJ, Foot-and-mouth disease: an assessment of risks facing New Zealand, *New Zealand Veterinary Journal* 50 (2), pages 46-55, 2002.





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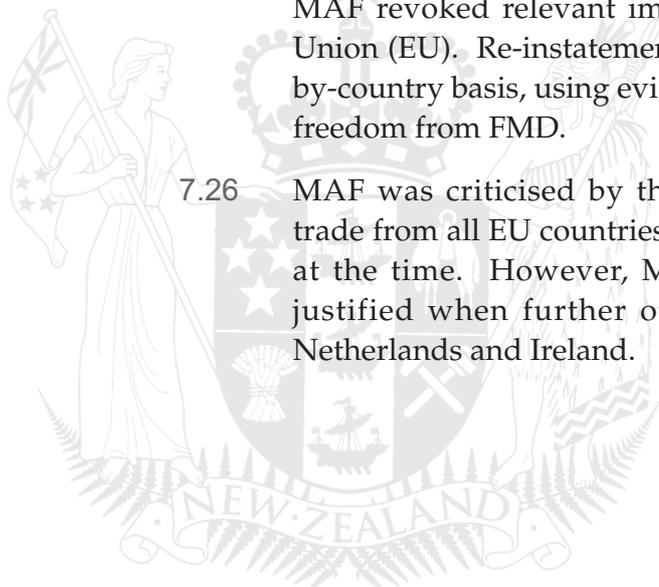
- 7.23 In March 2001, MAF Policy updated its FMD economic impact assessment. Two scenarios were modelled, showing indicative costs of:
- \$1,300 million for an outbreak involving 20 infected places that takes one month to eradicate; and
 - \$2,100 million for an outbreak involving 100 infected places that takes three months to eradicate.
- 7.24 The cost of eradicating an outbreak of FMD in New Zealand has been estimated to range from \$100 million to \$150 million. While this is a large sum, it is only 1% of the value of annual exports lost if we chose not to eradicate the virus.

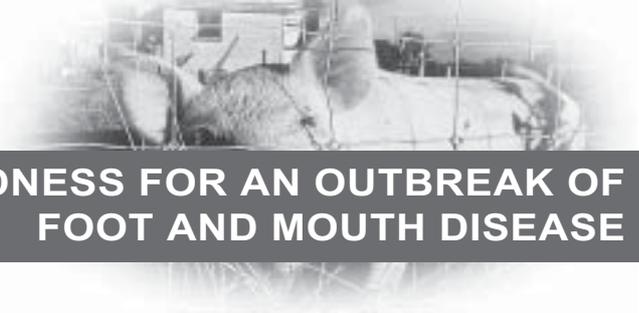
How Did MAF Respond to the UK Outbreak?

Following the UK outbreak, MAF suspended trade in risk goods from the UK and, later, the European Union. Funding of \$4.6 million was provided for measures including additional border security and an awareness campaign.

Suspension of Trade in Risk Goods from the EU

- 7.25 FMD was confirmed in the UK in February 2001. MAF responded by revoking the import health standards for meat and dairy products, by-products, semen, embryos and live cloven-hoofed animals from the UK, and by sending trained veterinarians and epidemiologists to assist the UK authorities. When FMD was confirmed in France in March 2001, MAF revoked relevant import health standards for the entire European Union (EU). Re-instatement of these standards has occurred on a country-by-country basis, using evidence provided from each country to prove their freedom from FMD.
- 7.26 MAF was criticised by the EU for excessive precaution in suspending trade from all EU countries when FMD was not present throughout the EU at the time. However, MAF's precautionary action was shown to be justified when further outbreaks were subsequently detected in the Netherlands and Ireland.





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Additional Funding for a Biosecurity Package

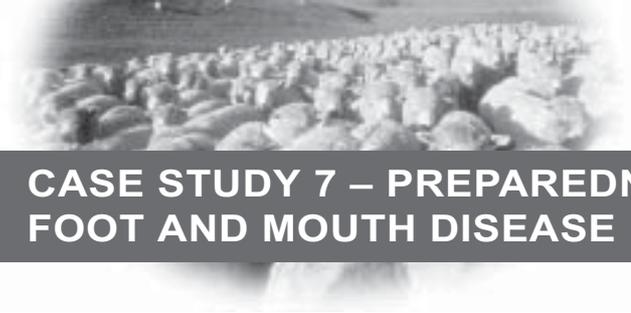
- 7.27 On 12 March 2001, Cabinet approved an additional \$4.6 million for a package of biosecurity measures. This funding was approved only three weeks after the UK outbreak was detected, and was provided for:
- more X-ray machines and detector dogs at ports and airports;
 - a publicity campaign to raise awareness of FMD;
 - receiving and responding to disease reports; and
 - New Zealand experts to provide assistance to the UK.
- 7.28 The UK outbreak highlighted the importance of early detection to prevent the disease spreading. Early reporting of suspected disease is vital to enable a rapid and effective response. In the event of an outbreak, the sooner MAF can respond the more likely the disease can be contained and eradicated. During the UK epidemic, there was a delay of 4-6 weeks between infection and detection, which contributed to one of the worst FMD epidemics in the UK in modern history.

New Zealand Veterinarians Sent to Assist in the UK

- 7.29 The biosecurity package provided for a team of New Zealand veterinarians (vets) to travel to the UK and assist in the FMD response. New Zealand was the first country to offer assistance to the UK. Our vets were well received, and gained valuable first-hand experience in dealing with an FMD outbreak.

FMD Awareness Campaign

- 7.30 Part of the biosecurity package went towards a campaign to raise public awareness, one part of which was a mail-out to farmers outlining the symptoms of FMD and giving instructions on what to do in the event of a suspected case.
- 7.31 Under the Biosecurity Act 1993, if MAF orders animals to be killed or property destroyed, owners will receive compensation for all losses incurred as a result. Those affected should thus be no worse off or better off than those unaffected by the disease – a situation that needs to be made clear to farmers to encourage reporting of suspected outbreaks.

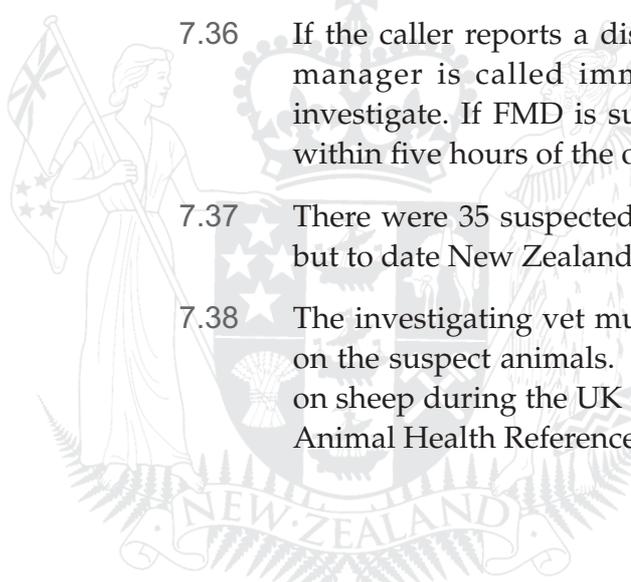


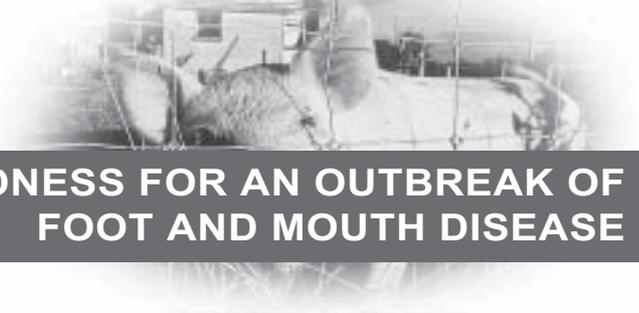
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- 7.32 The mail-out to farmers included the following statement –
- Be assured, the Biosecurity Act provides for compensation for losses due to actions taken against FMD.*
- 7.33 MAF has a policy statement that outlines the process to be followed for paying compensation to farmers for any animals that are destroyed. We believe that MAF should have publicised the existence of this policy statement and how farmers could obtain it, in addition to the statement referred to in the previous paragraph. As a result, farmers would have had clearer assurance that they would not be penalised if they reported suspected cases of the disease.
- 7.34 An additional and ongoing campaign outlines the risks of bringing risk goods into New Zealand and asks people to warn visiting family and friends about bringing in risk goods. The *Protect New Zealand* programme aims to inform people about what biosecurity is and how they can help protect New Zealand from unwanted pests and diseases. A passenger arrival card includes questions asking if the person has recently been on a farm, or in an abattoir, or meat packing house. From June 2001, any passenger who is caught making a false declaration is liable to a \$200 instant fine.

What Action Is Taken If Foot and Mouth Disease Is Suspected?

- 7.35 The most likely way for MAF to be informed of a suspected FMD case is by a farmer or vet calling the MAF Exotic Disease and Pest Emergency Hotline (0800 number) operated through the National Centre for Disease Investigation. Senior call centre employees screen the calls.
- 7.36 If the caller reports a disease in farm animals, an exotic disease response manager is called immediately, and a vet will travel to the site to investigate. If FMD is suspected, the vet must report to MAF Biosecurity within five hours of the original call.
- 7.37 There were 35 suspected FMD cases between July 2000 and January 2002, but to date New Zealand has never had a confirmed case of the disease.
- 7.38 The investigating vet must be trained to recognise FMD lesions or blisters on the suspect animals. The lesions were particularly difficult to diagnose on sheep during the UK epidemic. Specimens are sent to the New Zealand Animal Health Reference Laboratory for diagnosis.





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What Action Would Be Taken If Foot and Mouth Disease Were Diagnosed?

- 7.39 If a “not-negative”³ diagnosis is reached, the Chief Veterinary Officer (Director, Animal Biosecurity) decides whether or not to initiate a response.
- 7.40 Any area in which FMD is suspected or diagnosed would be declared a *restricted place*. A large surrounding area would also be designated a *controlled area*. Movement of people and animals in this area would be controlled to prevent spread of the disease. In addition, diagnosis of FMD would trigger a national stop on all stock movements.
- 7.41 The next step would be to trace the movements of affected stock and vehicles to identify where the disease may have already spread. Stock that had been in contact with affected animals or contaminated vehicles or sites would be examined for signs of disease. Another key aspect of the response would involve identification of disease sources and epidemic patterns.
- 7.42 An FMD response structure would be similar to that set out in Figure 4.3 on page 91. The three-level headquarters model is made up of:

Lead agency –

- National Co-ordination Centre (NCC), MAF Head Office, Wellington:
 - Policy and strategic decision-making, contact with Minister and the Government.
 - Industry liaison, overseas notifications, media communications.

Incident Controller –

- Exotic Disease Response Centre (EDRC) at the National Centre for Disease Investigation, Upper Hutt:
 - Management of field activities and initial investigation.
 - Technical management and advice to NCC.

3 A suspicious case where the possibility of an exotic disease cannot be ruled out.



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Response Team –

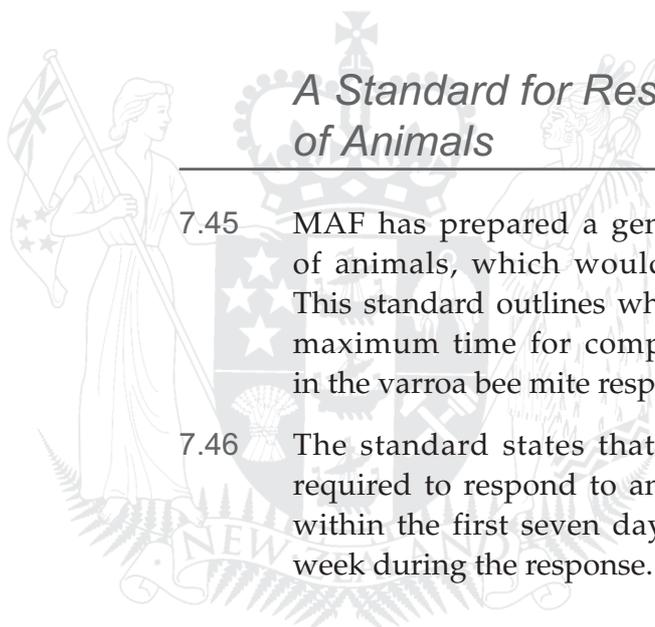
- Field Operations Response Team:
 - Located close to outbreak (staffed by AgriQuality).
 - Field activity – control and containment of the disease, surveillance, slaughter and disposal of infected animals, and cleaning and disinfection activities.

What Is MAF Doing to Prepare for an Outbreak?

MAF Biosecurity is currently resourced for an outbreak of FMD involving 25 contaminated sites in the first week and 10 sites a week thereafter. However, it is difficult for MAF Biosecurity to accurately predict what size of outbreak it should prepare for, and the current level of resources is influenced by historical factors and what contractors can be held to.

7.43 MAF is currently resourced for an outbreak of FMD involving 25 contaminated sites in the first week and 10 sites a week thereafter. At one stage during the 2001 UK outbreak, there were almost 300 outbreaks a week.

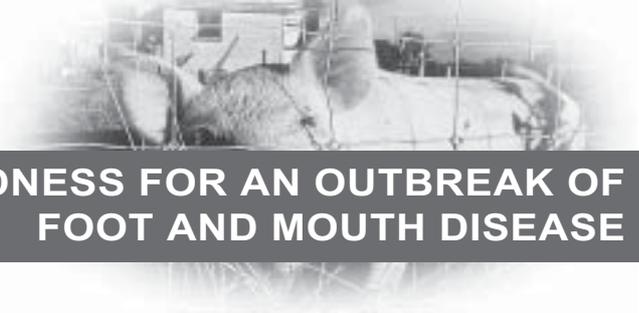
7.44 MAF could not cope with an outbreak of this size, but considers such a scenario unlikely because New Zealand does not have the same extent of stock movement as the UK. However, it is likely that the number of animals on each property in this country would be much higher than in the UK.



A Standard for Responding to Exotic Diseases of Animals

7.45 MAF has prepared a generic standard for response to exotic diseases of animals, which would be used in the event of an FMD outbreak. This standard outlines what needs to be done, who has to do it, and the maximum time for completion of key tasks. The standard was used in the varroa bee mite response (see Case Study 4 on pages 77-94).

7.46 The standard states that the suppliers (see paragraphs 7.47-7.53) are required to respond to an outbreak involving up to 25 restricted places within the first seven days and after that up to 10 restricted places per week during the response.



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Service Contracts with Suppliers for Disease Response

- 7.47 MAF Biosecurity has a service agreement with the National Centre for Disease Investigation (NCDI), and has contracts with the three suppliers set out below.

National Centre for Disease Investigation

- 7.48 As Incident Controller, the NCDI has prepared documents that outline incident controller response procedures, and resource allocation and communication procedures during an exotic disease response. As noted in paragraph 7.35, it operates the emergency 0800 telephone number, and is expected to be the first contact for anyone who suspects FMD.
- 7.49 MAF's Animal Health Reference Laboratory is based at the NCDI, and provides diagnostic services for exotic animal disease.

AgriQuality

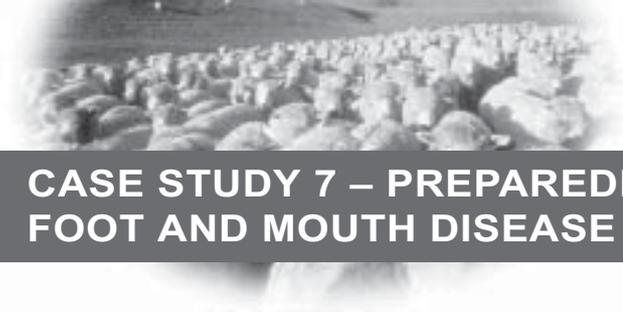
- 7.50 AgriQuality is contracted to establish a highly-skilled Field Operation Response Team that is prepared to respond to an outbreak at all times, and to act to control, contain and eradicate the disease once a response is initiated.

Asure NZ Limited

- 7.51 Asure is contracted to co-ordinate response capability for the meat industry. Its role is to secure, contain and eradicate any exotic pests or diseases in the meat industry. This programme is important in the context of international trade. Asure would also provide designated staff to the response.

Massey University

- 7.52 Massey University Institute of Veterinary Animal and Biomedical Sciences is contracted to provide species expertise to MAF Biosecurity and the NCDI. Five veterinary staff must be available on call at all times. Under contract, Massey University also:
- raises awareness of MAF and the NCDI in relevant undergraduate courses; and

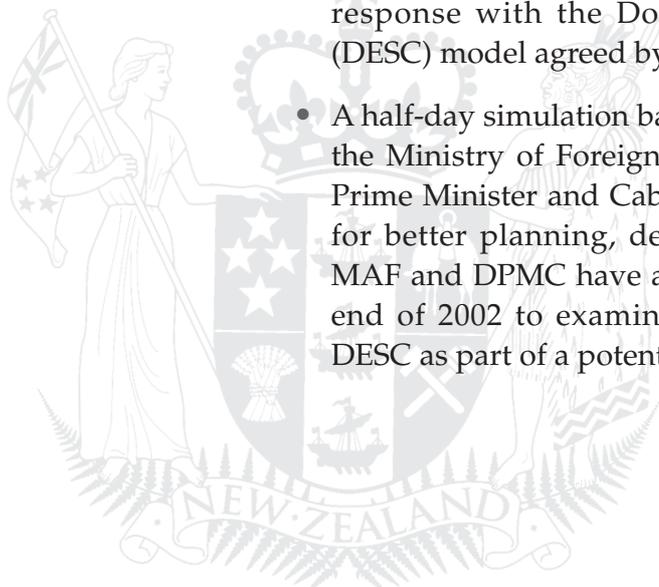


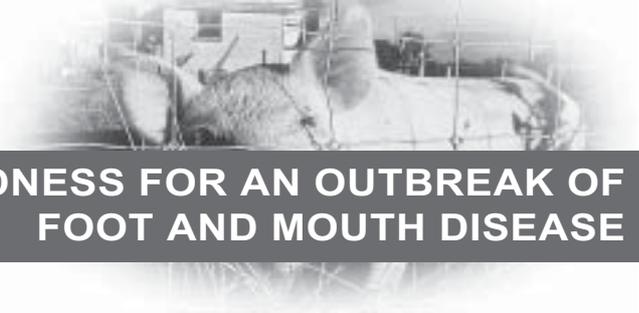
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- would provide veterinary staff and final-year students to assist in the response if required.
- 7.53 Staff at EpiCentre (the veterinary epidemiology business unit within Massey University):
- provide quarterly written reports to MAF on any international disease incidents, standards, and risk analysis practice that may be of strategic importance;
 - support and advise on EpiMAN software (see paragraphs 7.80-7.82 on page 148);
 - provide expert epidemiological support and operate the EpiMAN system during a response;
 - train MAF staff; and
 - participate in exotic disease simulation exercises.
- 7.54 MAF audits the suppliers' facilities, service provision structures, and methods. Any deficiencies notified in the audit must be remedied within a reasonable time. The suppliers must also operate a formal quality assurance system.

Integrating an FMD Response into a Whole-of-government Response

- 7.55 MAF has done some work on integrating a biosecurity response into whole-of-government crisis management procedures – including:
- Setting up structures and procedures to integrate MAF's exotic disease response with the Domestic and External Security Co-ordination (DESC) model agreed by Cabinet in December 2001.
 - A half-day simulation based on an FMD scenario involving the Treasury, the Ministry of Foreign Affairs and Trade, and the Department of the Prime Minister and Cabinet (DPMC). The simulation showed the need for better planning, definition of structures and roles, and support. MAF and DPMC have agreed to have a follow-up meeting towards the end of 2002 to examine the functions of the officials committee for DESC as part of a potential response to FMD.





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Organising Assistance from External Sources

7.56 MAF has identified some external agencies that could help during an FMD response – including:

- **Emergency Management Groups (EMGs)**

These are proposed to be established in accordance with the Civil Emergency Management Bill. The groups include territorial local authorities and emergency services. MAF intends to sign a Memorandum of Understanding (MoU) with all EMGs, so that resources can be shared during a response.

- **The Police**

MAF has prepared a specific MoU recognising the important role the Police would play in controlling movement of people and animals in a controlled area.

- **Wrightsons Limited**

Wrightsons Limited has over 1700 staff nationally who could assist in an FMD response. MAF is preparing an MoU with Wrightsons covering supply of goods and services during a response.

- **New Zealand Defence Force (NZDF)**

The UK Defence Force played an important role in the FMD response there. There is no agreement with NZDF specific to biosecurity responses, but MAF would request assistance through the Government DESC crisis management model.

Exotic Disease Simulation Exercises

MAF runs an annual exotic disease simulation exercise that involves a wide range of people and provides an effective method to test systems for responding to incursions of diseases such as FMD. However, the exercises do not routinely involve private veterinary practitioners, even though they would play an important part in any large-scale response.

7.57 MAF carries out an annual exotic disease simulation exercise.⁴ These exercises are used to maintain competency in required skills and knowledge for staff involved in an exotic disease response. The staff involved include MAF managers, administrators, special advisers contracted to MAF, and staff from the NCDI, AgriQuality,ASURE NZ Limited, and Massey University.

⁴ A separate exercise to that described in paragraph 7.55 on the opposite page.



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- 7.58 Until 2000 the simulations were based on an FMD scenario. Since then there have been simulations based on Nipah virus in pigs and Newcastle disease in poultry (in March 2001). A simulation based on an Anthrax scenario was carried out in November 2002.
- 7.59 We think these simulations provide an effective method to test systems and build relationships to enhance preparedness. One of our advisers described them as being *excellent and of a very high quality*. However, private veterinary practitioners are not routinely included in simulations, even though they would play an important role in any large-scale response.
- 7.60 Commercial poultry industry vets were involved in last year's Newcastle disease simulation. Involvement of this group of private vets should make them better prepared to respond to any Newcastle disease outbreak in the future. This initiative could also serve as a model for involvement of vets in private practice in future simulations, thereby increasing the capacity for these vets to respond to exotic disease outbreaks.

Surveillance

Although an extensive national FMD awareness programme was run after the UK FMD outbreak, there is no targeted awareness-raising or surveillance programme for high-risk sites – such as backyard and small-scale piggeries in areas with high numbers of tourists.

- 7.61 As explained above (see paragraph 7.28 on page 137), it is essential to detect the presence of FMD as early as possible to limit the extent of an outbreak. Early detection relies on a farmer or vet recognising the clinical signs of FMD and reporting their concerns to MAF – this is passive surveillance.
- 7.62 MAF currently has no programme where trained officials visit farms or other sites to inspect animals for the clinical signs of FMD. This type of surveillance is impractical on a national basis, but a targeted surveillance programme could be introduced at high-risk sites – involving determining where, and in which animals, an outbreak might be most likely to occur, and regularly examining animals at those sites as part of a structured programme.
- 7.63 High-risk sites might include small-scale piggeries, especially those situated in areas receiving high numbers of visitors from countries with endemic FMD. Other sites could include animals in sale yards around the country.



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- 7.64 Building awareness among members of the farming sector of the clinical signs of FMD, and what to do if it is found, remains a crucial element of FMD surveillance. In addition to the mail-out to farmers referred to in paragraphs 7.30-7.33 on pages 137-138, a biosecurity awareness programme in 2001 included an FMD roadshow by the NCDI. A MAF quarterly magazine *Surveillance* (distributed free to registered veterinarians) has a section on investigations of suspected exotic diseases. This includes descriptions of disease symptoms to educate and raise awareness of exotic disease in animals.
- 7.65 However, some lifestyle and small-scale enterprises that are considered to be higher-risk do not qualify as farms and may not receive publicity material. They are much less likely than commercial farmers to recognise unusual diseases or call veterinarians for assistance.
- 7.66 The Government has given preparedness for FMD a high priority, especially in view of the UK outbreak in 2001. Raising awareness has been identified as a key element in detecting suspected outbreaks of the disease. It would thus be sensible to have an ongoing FMD awareness campaign to match the high level of commitment the Government has shown to eradicating this disease in the event of an outbreak.
- 7.67 MAF and Asure meat inspectors screen each animal that is slaughtered at meat works. This is a form of surveillance for FMD, but is not the best method for early detection, as the animal has already moved off the farm and the disease would have been spread.
- 7.68 Another form of surveillance is that required once an outbreak is detected. “Patrol Vets”⁵ would be used to travel to all at-risk properties to look for signs of disease in animals. These vets need to be able to recognise the clinical lesions of FMD. It is difficult to obtain first-hand knowledge in this country of what FMD looks like. MAF is developing information for these vets to help distinguish FMD from other conditions that may confuse the diagnosis. This difficulty highlights the importance of our vets having been able to gain first-hand experience of FMD during the UK epidemic.
- 7.69 During an outbreak, there would be a very high demand for Patrol Vets, so that MAF would expect to bring additional vets from a number of sources:
- AgriQuality provides Patrol Vet training to a pool of 100 private vets. These vets would be members of the Field Operation Response Team.

5 These are vets given the job of looking out for evidence of FMD.

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- All Massey University veterinary science students participate in a course on exotic disease awareness during the fifth and final year of study. MAF and Massey have agreed to move this training to the fourth year so that, in the event of an outbreak, both fourth-year and fifth-year vet students could be brought in to help. This change has not yet happened, because it takes five years for a curriculum adjustment to work through the course.
- Specialist veterinary staff from Massey University could be used.
- New Zealand participates in an International Veterinary Reserves Agreement that provides access to 100 overseas vets.

Laboratory Diagnostic Services

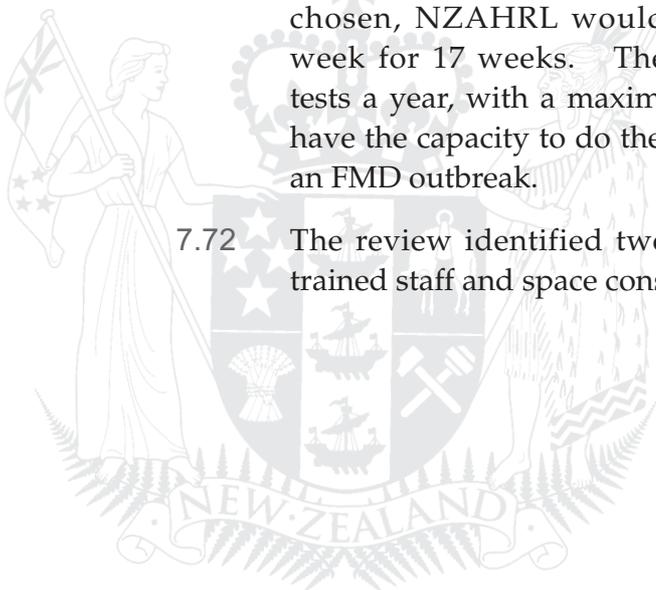
An internal review of the New Zealand Animal Health Reference Laboratory showed shortfalls in the laboratory's readiness to cope with an outbreak of FMD.

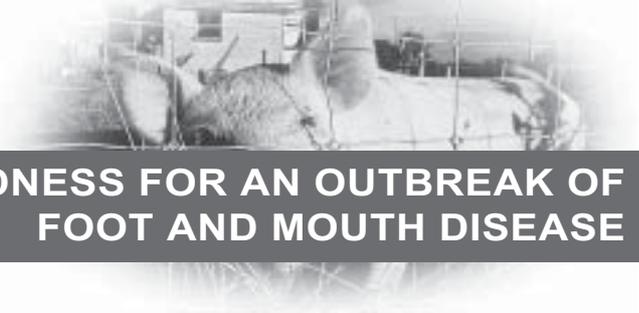
7.70 The New Zealand Animal Health Reference Laboratory (NZAHRL) plays three main roles during an outbreak:

- confirmation of the initial “not-negative” diagnosis of the first case;
- testing samples taken during the delimiting survey of suspect cases; and
- testing samples taken during the surveillance phase to confirm freedom following eradication.

7.71 An internal review of the readiness of NZAHRL to cope with a hypothetical outbreak of FMD was carried out. Based on the scenario chosen, NZAHRL would have to perform more than 17,000 tests a week for 17 weeks. The laboratory currently performs about 30,000 tests a year, with a maximum of 5000 a week. Consequently, it does not have the capacity to do the number of tests that would be required during an FMD outbreak.

7.72 The review identified two main shortfalls in resources – a shortage of trained staff and space constraints.





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Number of Trained Staff

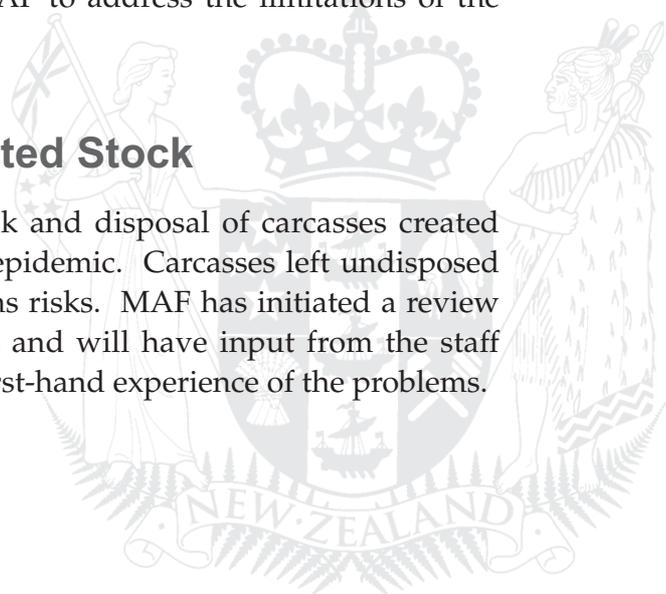
- 7.73 NZAHRL has 26 staff, but would require 43 to cope with the expected workload during an outbreak. In addition, up to 20 logistics and administration staff would be required to support functions of the laboratory and response centre. A project is under way to identify potential sources of appropriately skilled laboratory staff to provide back up – for example, Crown Research Institutes, private diagnostic laboratories, universities, and overseas laboratories.
- 7.74 NZAHRL operates as part of the NCDI. A review in November 2001 showed that the NCDI has many longstanding unfilled vacancies that are difficult to fill, as salaries are low both by international standards and within New Zealand. A lack of career advancement opportunities adds to staff retention problems. At present, there are not enough staff to cover for holidays, sickness, prolonged emergencies or succession planning. Most scientists acting in management positions have had no management training.
- 7.75 In order to address these issues, the review called for additional spending of \$540,000 a year. This funding would also cover the costs of an additional staff member – so that existing staff could travel overseas to obtain specialist training, building on the capability and experience gained from sending staff to the UK during the 2001 epidemic.

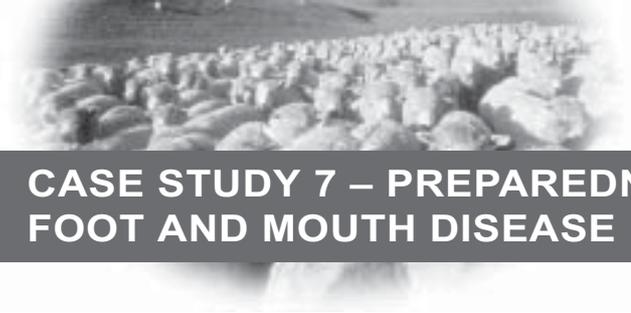
Space Constraints

- 7.76 The current area for receiving and unwrapping specimens is inadequate, and needs to be moved to within the biosecure area of the laboratory. Cabinet has approved funding for MAF to address the limitations of the current facilities.

Slaughter and Disposal of Infected Stock

- 7.77 Slaughter of infected and at-risk stock and disposal of carcasses created enormous difficulties during the UK epidemic. Carcasses left undisposed created biosecurity and public relations risks. MAF has initiated a review of slaughter and disposal procedures and will have input from the staff who travelled to the UK and gained first-hand experience of the problems.



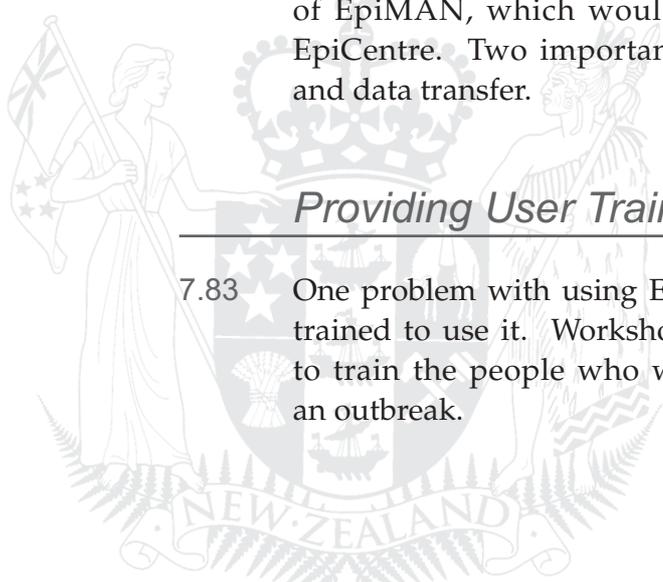


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- 7.78 MAF will be working closely with regional councils to address matters with Resource Management Act implications. The project aims to prepare standardised plans and procedures for the mass disposal of carcasses that could be put into operation in the event of a biosecurity emergency or an environmental emergency (such as a flood or drought).

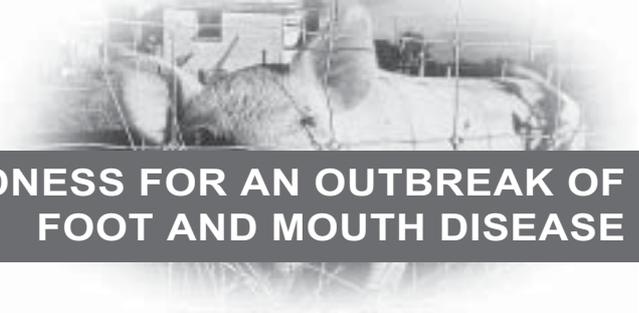
Use of Computer Modelling Techniques to Better Plan the Response

- 7.79 It is difficult for MAF to determine accurately how an outbreak might spread through the country, and many variables must be considered when planning what size of outbreak should be prepared for. Computer simulations can help with this, and MAF has also collaborated with its Australian counterparts to establish a rational basis for FMD resourcing. However, MAF admits that the current level of resourcing is influenced by *historical reasons* and what *contractors can be held to*.
- 7.80 MAF is planning to use a modelling approach with EpiMAN software designed by EpiCentre, Massey University to review resourcing. This could provide a more realistic view of the number of likely infected properties that would need to be controlled in the event of an FMD outbreak.
- 7.81 EpiMAN is a purpose-built response information management system and was used in a limited capacity during the UK outbreak. It is designed for response structure, task allocation, prioritisation, tracing possible disease spread, modelling, and epidemiology functions. The system can provide insights into the behaviour of an epidemic that can influence decision-making.
- 7.82 The NCDI has developed a project plan to optimise the intended use of EpiMAN, which would involve MAF, AgriQuality, the NCDI, and EpiCentre. Two important elements of the plan relate to user training and data transfer.



Providing User Training and Support Documentation

- 7.83 One problem with using EpiMAN in the UK was that staff had not been trained to use it. Workshops and a tutorial package are to be used here to train the people who would need to use the system in the event of an outbreak.



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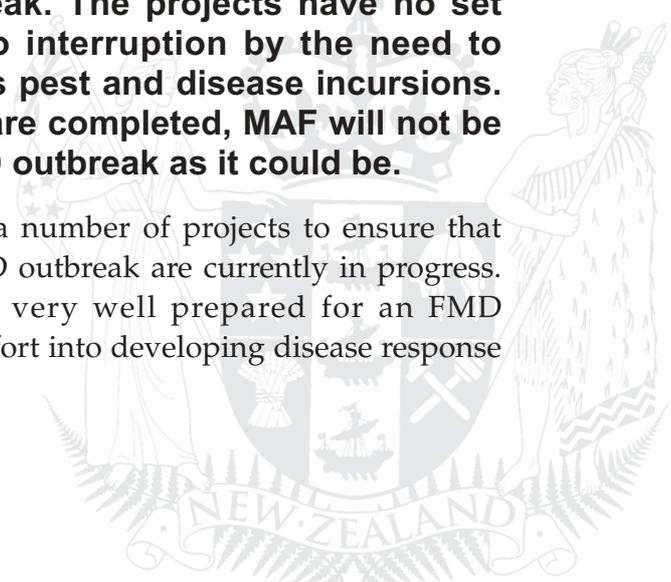
Facilitating Data Transfer from the Field Operation Response Team (FORT) to the NCDI and MAF Headquarters

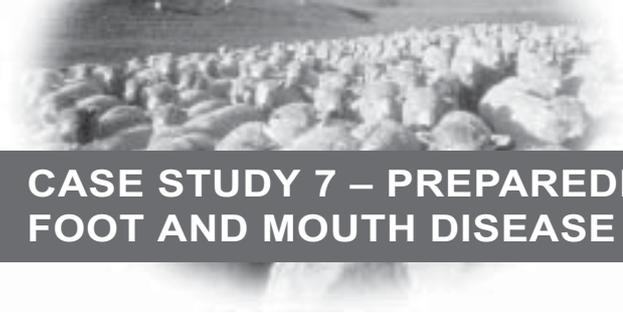
- 7.84 Efficient data transfer from FORT sites to the NCDI is critical to the success of EpiMAN. At present, the transfer of data between the NCDI and the FORT would be by e-mail or fax rather than by users being able to enter data directly into the EpiMAN database.
- 7.85 MAF's computer system is protected by a firewall that prevents unauthorised access to its data. This firewall also prevents FORT members who collect data in the field from being able to enter it directly into EpiMAN at NCDI and MAF headquarters.
- 7.86 MAF has convened an Information Technology project team to resolve the problems. At present, MAF has an agreement designed to allow data transfer to occur in an emergency (i.e. an FMD outbreak), but it has not yet been tested.
- 7.87 Additional problems arise from a lack of available telephone lines and the capability to install additional lines during a response in some rural areas. The project team is looking at issues such as using satellite communication, but at present in some rural areas the response centre might have to be moved to a larger centre where more telephone lines are available.

Oversight of FMD Preparedness Projects

A number of projects are under way to ensure that New Zealand is prepared to deal with an FMD outbreak. The projects have no set completion dates, and are subject to interruption by the need to attend to higher-priority work, such as pest and disease incursions. Until the FMD preparedness projects are completed, MAF will not be as well prepared to respond to an FMD outbreak as it could be.

- 7.88 As described in the sections above, a number of projects to ensure that New Zealand is prepared for an FMD outbreak are currently in progress. MAF believes that this country is very well prepared for an FMD outbreak, and has put considerable effort into developing disease response capability for FMD.





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- 7.89 In the opinion of one of our expert advisers, New Zealand is as well prepared as any other country for an outbreak of FMD. He also indicated that New Zealand's preparedness could be improved, particularly disease surveillance arrangements.
- 7.90 It is important that MAF has clear oversight of the objectives and delivery of these projects and monitors progress against identified timelines. At present, the projects for FMD preparedness are disrupted by higher-priority work, such as responding to the *Brucella suis* outbreak in March and April 2002.
- 7.91 The FMD preparedness projects have no set completion dates and, until they are completed, MAF remains less prepared to respond to an FMD outbreak than it could be.

