

## Case Study 6

# Management of Risks Associated with Sea Containers



## Contents

	<i>Page</i>
Why Did We Select This Case Study?	115
Key Findings	115
Recommendations	116
Introduction	116
How MAF Manages the Risks	118
Sea Container Review	124
Dealing with Changes in Risk Profiles	126
Instant Fines	127

### Why Did We Select This Case Study?

- 6.1 For some pathways into New Zealand (e.g. passengers and their baggage), MAF is able to manage biosecurity risks by undertaking inspections of 100% of the pathway. This level of inspection is not achievable for sea containers. Size and the number that enter New Zealand each year (approximately 400,000) means that MAF can inspect only about a quarter of all containers.
- 6.2 Biosecurity officials believe that the sea container pathway may have been responsible for the entry of a number of pests. We therefore included this topic to examine how MAF selects the sea containers to be inspected and how they are inspected.
- 6.3 This topic also enabled us to examine the work of the Border Management Group within MAF Biosecurity.

### Key Findings

- 6.4 *It is possible that the sea container pathway has been responsible for a number of pest incursions in recent years – including the southern saltmarsh mosquito and painted apple moth. (See paragraphs 6.15-6.17 on pages 116-117.)*
- 6.5 *The sea container import health standard is available on MAF's web site ([www.maf.govt.nz](http://www.maf.govt.nz)). We obtained a copy of the standard from the web site but found that it was out of date and inconsistent. (See paragraphs 6.22-6.26 on page 118.)*
- 6.6 *It is not practical to undertake full external and internal inspections of all arriving sea containers due to their large number and size. Even if MAF did fully inspect all containers, there is no guarantee that all risk organisms would be detected. (See paragraphs 6.27-6.40 on pages 119-120.)*
- 6.7 *Cleaning certificates that accompany sea containers are a key consideration in risk profiling containers and selecting which to inspect. However, MAF says that 44% of the cleaning certificates are inaccurate for wood packing. (See paragraphs 6.41-6.49 on pages 120-122.)*
- 6.8 *MAF is undertaking a sea container review looking at ways in which the management of risks associated with sea containers can be improved. (See paragraphs 6.56-6.63 on pages 126-127.)*

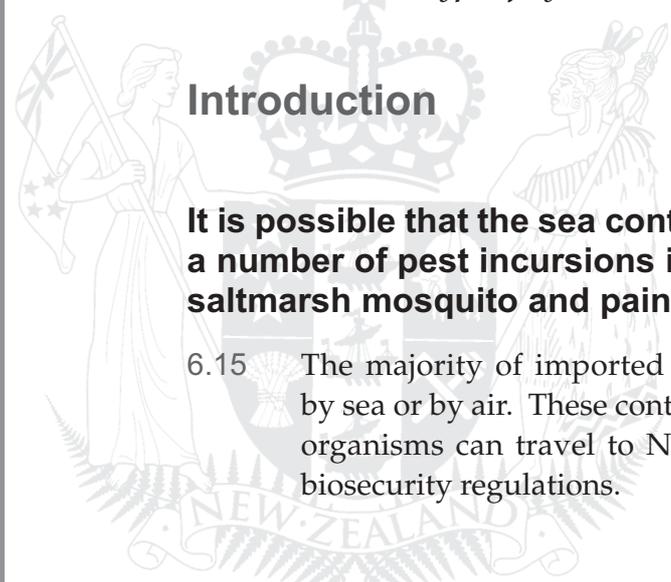


## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.9 *Risk profiling and tracking of containers could be improved if there was an IT system that could link the New Zealand Customs Service, importers, freight forwarders, shipping companies, the public, and MAF. (See paragraphs 6.64-6.74 on pages 128-129.)*

### Recommendations

- 6.10 *MAF Biosecurity should ensure that import health standards available on its web site are accurate and up-to-date. (See paragraphs 6.22-6.26 on page 118.)*
- 6.11 *The sea container review should address the inaccuracy of cleaning certificates by identifying a more robust method of risk profiling, and/or ways in which the accuracy of the cleaning certificates can be improved. (See paragraphs 6.56-6.63 on pages 124-125.)*
- 6.12 *The review of sea containers currently being undertaken should be used as the basis for examining the level of risk posed by this pathway relative to others, so that an appropriate level of inspections of the containers can be established. (See paragraph 6.55 on page 123.)*
- 6.13 *MAF should ensure that the procedure for selecting containers for inspection can be adapted to meet changing risk profiles – to support targeting of those containers likely to pose the greatest threat, and thereby increase the likelihood of detecting unwanted organisms. (See paragraphs 6.59-6.72 on pages 125-127.)*
- 6.14 *The Border Management Group within MAF Biosecurity should undertake a cost-benefit analysis to assess whether an integrated IT system should be introduced to improve its risk profiling of sea containers – and, if so, what type of system. (See paragraph 6.74 on page 129.)*



### Introduction

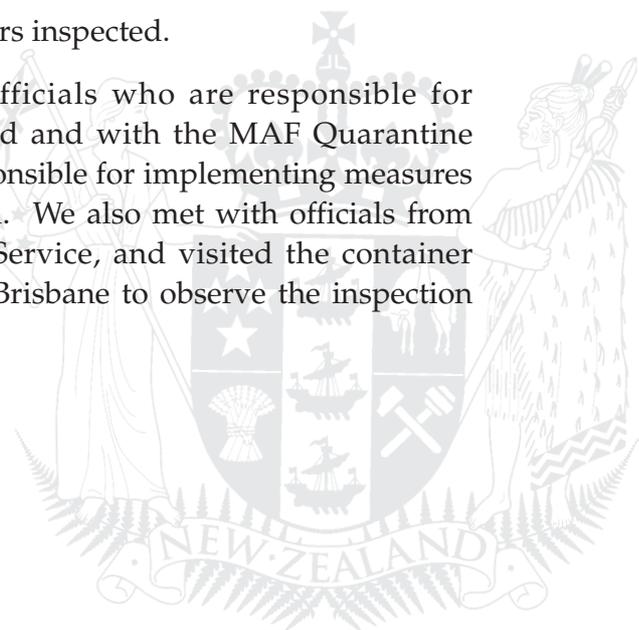
**It is possible that the sea container pathway has been responsible for a number of pest incursions in recent years – including the southern saltmarsh mosquito and painted apple moth.**

- 6.15 The majority of imported goods arrive in containers, transported either by sea or by air. These containers constitute a pathway by which unwanted organisms can travel to New Zealand, and their movement is subject to biosecurity regulations.



## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.16 Unwanted organisms could enter either in or on:
- the goods inside the container;
  - the materials in which the goods are packed; and/or
  - the container itself.
- 6.17 It is possible (and thought likely by some of those involved in the responses) that the southern saltmarsh mosquito, painted apple moth and varroa bee mite entered the country on the sea container pathway. Between March and September 2000, three live snakes likely to have been transported to New Zealand in sea containers were discovered in or near devanning sites. This prompted MAF to increase the number of sea containers randomly selected for inspection from 5% to 10%.
- 6.18 Our examination focused on the sea containers themselves – as opposed to the goods and packing material inside the containers. We comment on the goods and packing material only in the context of their inclusion in MAF's *Import Health Standard for Sea Containers from Any Country* (the Import Health Standard).
- 6.19 In 2001-02, 410,616 sea containers arrived at the border and MAF internally inspected approximately 24% of them. This level of inspection is based on historical activity.
- 6.20 To assess how MAF manages the risks associated with this pathway, we:
- examined the Import Health Standard relating to sea containers;
  - examined the nature and effectiveness of the inspections;
  - examined how MAF selects those containers to be inspected; and
  - considered the percentage of containers inspected.
- 6.21 We met with the MAF Biosecurity officials who are responsible for developing the Import Health Standard and with the MAF Quarantine Service (MAF QS) officials who are responsible for implementing measures to ensure compliance with the standard. We also met with officials from the Australian Quarantine Inspection Service, and visited the container facilities at the ports in Auckland and Brisbane to observe the inspection and cleaning of containers.





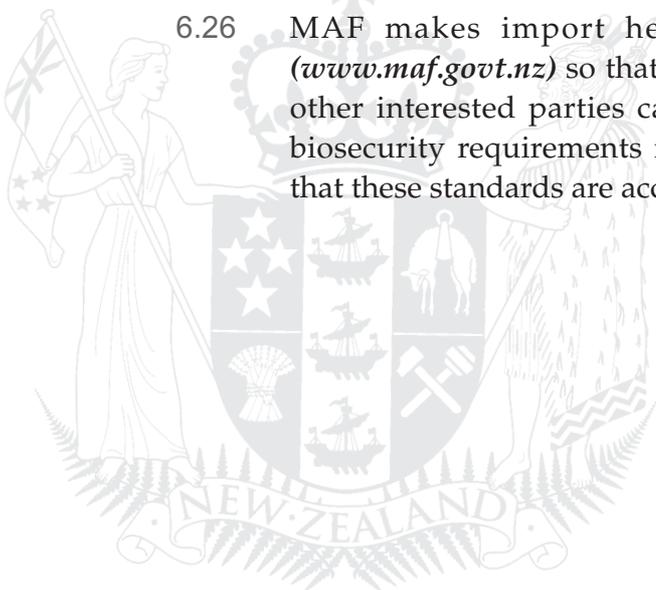
## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

### How MAF Manages the Risks

#### The Import Health Standard

**The Import Health Standard is available on MAF’s web site ([www.maf.govt.nz](http://www.maf.govt.nz)). We obtained a copy of the standard from the web site but found that it was out of date and inconsistent.**

- 6.22 The Import Health Standard sets out the requirements that must be met before sea containers are given biosecurity clearance upon arrival in New Zealand. The standard includes the criteria used to select containers for inspection and states the type of inspection to be undertaken.
- 6.23 Section 2.1 of the standard states that *every container must be internally and externally free of contamination* by biosecurity risk material. However, it is impracticable for MAF to fully inspect every container internally and externally. It is therefore impossible to ensure that this requirement of the Import Health Standard is being met.
- 6.24 We obtained a copy of the standard from MAF’s web site, but found that it was out of date and did not include the additional conditions (such as the increase from 5% to 10% of containers randomly selected for inspection) that had been introduced since this version, dated 9 September 1998, was issued.
- 6.25 In addition, Appendix 3 of the standard lists prohibited packing materials. However, this list differs from that contained in the MAF QS *Process Procedure for Sea Containers*, where “bark” is listed as being a prohibited packing material. Bark is not included in Appendix 3 of the standard.
- 6.26 MAF makes import health standards available on its web site ([www.maf.govt.nz](http://www.maf.govt.nz)) so that exporters to New Zealand, importers here, and other interested parties can easily access the information and see what biosecurity requirements must be met. MAF Biosecurity should ensure that these standards are accurate and up to date.





## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

### *How Containers Are Inspected*

---

**It is not practical to undertake full external and internal inspections of all arriving sea containers due to their large number and size. Even if MAF did fully inspect all containers, there is no guarantee that all risk organisms would be detected.**

- 6.27 Sea containers are big. The majority of those landed in New Zealand are either 20 feet or 40 feet in length.<sup>1</sup> They arrive in varying states of repair, having spent most of their time travelling on ships where they are exposed to all types of weather conditions.
- 6.28 The containers are lifted on and off ships and trucks by cranes and undergo considerable wear and tear.
- 6.29 Because of the large number and size of containers it is not practical to undertake full external and internal inspections. Nor is it practical to comprehensively inspect all those containers that are selected for inspection. Even if MAF did fully inspect all arriving containers, there is no guarantee that all risk organisms would be detected.
- 6.30 The main two types of inspection are external and internal.
- 6.31 A full external container inspection involves inspecting all six external sides. This requires the container to be lifted onto a stand, so that its underside can be inspected. The inspector must also be able to examine the top of the container.
- 6.32 A much quicker external inspection involves examining the four external sides of a container that are easily accessible without having to lift the container or climb above it.
- 6.33 A full internal inspection requires the container to be unpacked (devanned) so that all six internal sides can be inspected. The packaged goods inside the container would also need to be inspected as they could potentially pose risks.
- 6.34 A quicker internal inspection is a “door inspection” that involves opening the door of the container and examining what can be seen by looking into it. The majority of internal inspections undertaken are door inspections. However, given the size of containers, and the fact that they are usually fully packed with goods, it can be difficult to see much beyond what is immediately behind the door.

---

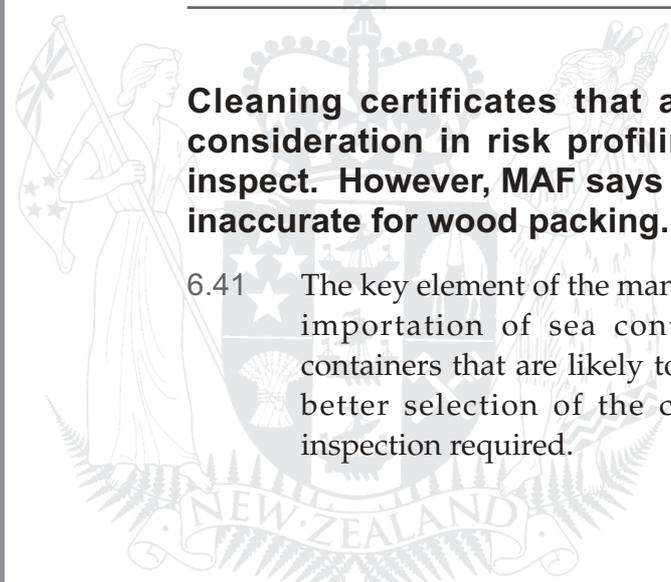
<sup>1</sup> Sea containers are conventionally measured in these terms. The metric equivalents are 6.1m and 12.2m respectively.



## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.35 We observed door inspections at the Port of Auckland. In our view, they are useful only to broadly validate the shipping certificate and manifest that describe the goods and packing carried in the container, and to check the area immediately behind the door for any biosecurity risk material. They do not enable the inspector to be sure that the inside of the container is free from biosecurity risk material.
- 6.36 A full external and internal container inspection is a lengthy process. It requires appropriate equipment (an inspection stand, a crane to lift and, if required, the equipment to clean the container and a trolley to unpack and repack the goods), the manpower to undertake these tasks, and sufficient space in which the inspection can take place.
- 6.37 Given these constraints, it is not possible to have the same high degree of control over this pathway as MAF achieves over the international passenger pathway, which is fully inspected.
- 6.38 MAF is conducting a year-long survey of sea containers in support of a review of the Import Health Standard. One aspect of this survey is to determine the efficacy of door inspection methods for sea containers entering the country.
- 6.39 New techniques for conducting internal inspections – such as using a probe camera to look into the containers – are being tested. New techniques for detecting risk goods such as heat treatments and electronic sniffer technology are also being tested.
- 6.40 The first draft report of this review is due in December 2002 (more details are provided in paragraphs 6.56-6.63 on pages 124-125).

### *How Containers Are Selected for Inspection*



**Cleaning certificates that accompany sea containers are a key consideration in risk profiling containers and selecting which to inspect. However, MAF says that 44% of the cleaning certificates are inaccurate for wood packing.**

- 6.41 The key element of the management of biosecurity risks associated with the importation of sea containers is risk profiling to identify those containers that are likely to pose the greatest risks. Risk profiling enables better selection of the containers to be inspected and the type of inspection required.



## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

6.42 As required by the Import Health Standard, all arriving containers are to be accompanied or preceded by a certificate that *shall*:

- *attest that the container(s) (or listed containers) to be discharged in New Zealand are internally free of contamination as described in Section 4 [of the standard].*
- *identify any wood packaging within the containers and describe any treatment it may have been subjected to.*
- *identify any prohibited packing material within the container...*
- *identify the ship, voyage, containers being discharged, at the port of lading.*
- *be traceable to the person issuing the certificate.*

6.43 The standard states that:

- *Unless otherwise exempted in this standard all containers without the required certification will be inspected internally.*
- *A random 5%<sup>2</sup> of containers covered by quarantine certificates from each port of lading on each manifest at each New Zealand port are to be inspected internally.*

*External inspection shall be limited to those containers:*

- *Already placed for internal inspection. These require inspection of the four (or accessible) sides only.*

*Six-sided inspections shall be limited to those containers:*

- *From a country where a known high hazard exists (e.g. Giant African Snail ports, Gypsy Moth areas).*
- *From the initial inspection an inspector has reason to believe there may be a contamination on top or underneath the container.*

6.44 A quarantine inspector may direct empty containers to a MAF-approved transitional Container Decontamination Facility. These containers are exempt from inspection on the wharf area where they are discharged.

---

2 The number of containers selected for random inspection has been increased to 10%, but this has not been updated in this standard.



## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.45 The Import Health Standard contains special requirements for containers from the Russian Far East due to the increased risk of contamination by Asian gypsy moths of containers from this region. These containers require an additional declaration by the Russian Quarantine Inspection Service or, if they are in these ports outside of the Asian gypsy moth high-risk period, information from the shipping company about the movement of the container over the last two years or since it was last in New Zealand. In the absence of either of these pieces of information, the containers will be given biosecurity clearance only after they have been fumigated with methyl bromide at a rate that will kill Asian gypsy moths before the containers arrive in New Zealand.
- 6.46 A randomly selected 10% of containers from the Russian Far East are also subject to a six-sided external inspection.
- 6.47 A 1999 survey<sup>3</sup> indicated that the *targeted selection of containers to detect pests by experienced Quarantine Officers using an up to date risk profile is more effective biosecurity risk management than random selection of containers.*
- 6.48 Under the Import Health Standard, the cleaning certificates that accompany sea containers are a key consideration in risk profiling and selecting which containers to inspect. However, within MAF there is concern that the certification system is not as effective and efficient as it could be.
- 6.49 The manager of the Border Management Group in MAF Biosecurity is responsible for the Import Health Standard. He informed us that 44% of certificates have inaccurate descriptions for wood packing, although an inaccurate certificate does not automatically mean that a quarantine risk is present in a particular container.

### *Percentage of Containers Inspected*

- 6.50 A survey of risks to forestry conducted in 1997-98 examined the six external sides of 3681 sea containers and found that 23% carried quarantinable contaminants.<sup>4</sup> As noted in paragraph 6.19 on page 117, MAF inspects about a quarter of all sea containers landed, of which 10% are subsequently required to be cleaned and/or fumigated. While these separate statistics are not directly comparable, both results suggest that some contaminated containers enter the country each year.

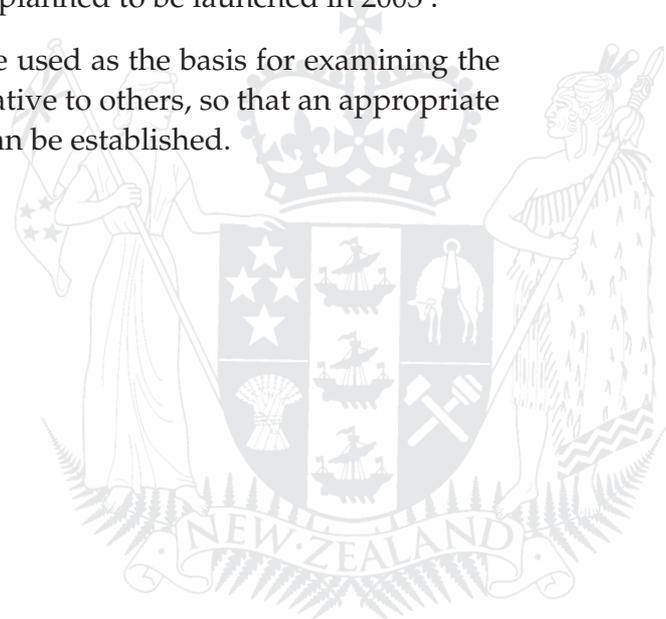
<sup>3</sup> *Wood Content in Imported FCL Containers*: L. S. Bulman, June 1999.

<sup>4</sup> *Significance to Forestry Quarantine of Contaminants on the External Surfaces of Shipping Containers*: Gadgil, Bulman, Crabtree, Watson, O'Neil & Glassey. Revised Version January 1999.



## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.51 The current level of containers that are inspected is based on historical factors. Container shipping first came to New Zealand about 25 years ago. At that time, Quarantine Officers began inspecting containers for external contamination, a process that has been developed over time. Targeted inspections were introduced for the giant African snail in about 1985 and for the Asian gypsy moth in 1996.
- 6.52 To increase the percentage of containers inspected would require substantial extra expenditure. MAF QS would require additional inspectors, port companies would require additional workers, and new equipment such as container stands would be needed at those ports that currently do not have them. Lack of space at ports in which to conduct the inspections would also need to be addressed.
- 6.53 The introduction of comprehensive six-sided external inspections of all arriving sea containers would be expensive to fund (MAF QS currently recovers the cost of its container inspections from those who benefit from the inspections – the importers), and would be likely to delay cargo delivery. MAF would require sound science-based justification to introduce such a measure, and would have to be prepared for other countries to introduce similar levels of inspections for containers from New Zealand.
- 6.54 Any such measure would need to be considered by all of the many stakeholders involved – including MAF, DOC, the Ministry for the Environment, the Ministry of Foreign Affairs and Trade, importers, exporters, freight forwarders, ship owners and port companies. The measure would need to be consistent with the risk and with other risk pathways that carry the same risk as set out in the WTO SPS Agreement. It would also need to be considered in the context of the *appropriate level of protection* framework that is due to be included in the pending Biosecurity Strategy which is planned to be launched in 2003.
- 6.55 The review of sea containers should be used as the basis for examining the level of risk posed by this pathway relative to others, so that an appropriate level of inspections of the containers can be established.





## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

### Sea Container Review

**MAF is undertaking a sea container review looking at ways in which the management of risks associated with sea containers can be improved.**

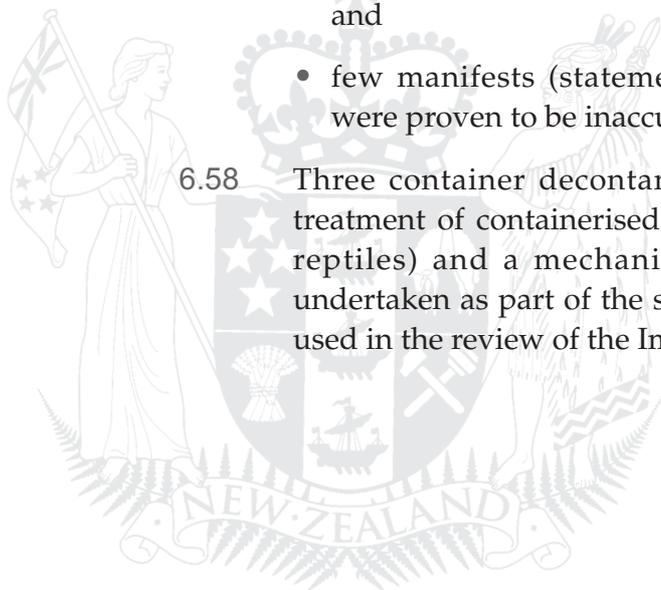
6.56 Concerns about the certification process, coupled with the detection of live snakes entering New Zealand on this pathway, led to MAF deciding to review the Import Health Standard. Before the review, MAF conducted a survey of 13,500 containers in order to:

- ascertain the true internal contamination rate for both certified and uncertified sea containers entering the country;
- determine the nature of contaminants arriving by this pathway;
- test whether probe cameras are an effective and efficient tool for container inspection;
- verify the accuracy of the manifested contents;
- determine the efficacy of the current door inspection methods for sea containers entering the country; and
- ascertain the movements of imported sea containers within the country.

6.57 The survey was completed by 30 June 2002. Early findings from the survey included:

- 553 organisms were collected and identified;
- a probe camera has advantages for particular situations where visibility is restricted, but is not so far justified for use in routine inspections; and
- few manifests (statement of what goods are inside each container) were proven to be inaccurate.

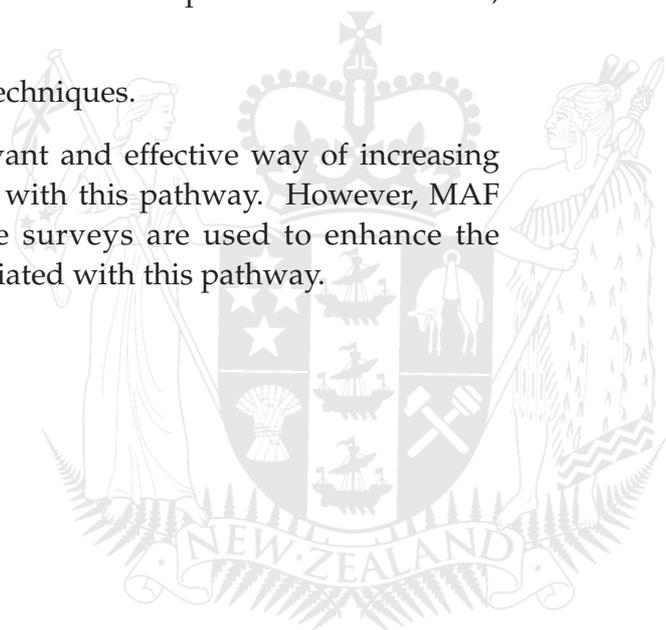
6.58 Three container decontamination research projects covering the heat treatment of containerised goods (a treatment specifically for snakes and reptiles) and a mechanised container washing trial are also being undertaken as part of the survey. The results of these projects will also be used in the review of the Import Health Standard.





## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.59 The cleaning certificate, along with a number of other factors such as the country of origin, is used to profile the risk associated with the container. Given that MAF believes about 44% of cleaning certificates are inaccurate, we expect the review of the Import Health Standard to address this issue by identifying:
- a more robust method of risk profiling; and/or
  - ways in which the accuracy of the cleaning certificates can be improved.
- 6.60 While the current rationale for identifying those containers likely to pose the highest biosecurity risks may be flawed because of the high level of inaccuracy of the cleaning certificates, previous MAF surveys have shown that targeted risk profiling is still more effective than randomly selecting containers for inspection. Random inspections are therefore intended to provide assurance on compliance with the standard rather than increase the detection of risk goods or packaging.
- 6.61 The sea container survey is the latest in a number of research projects and surveys commissioned by MAF Biosecurity to:
- profile the risks posed by the container pathway;
  - increase understanding of the risks; and
  - target inspections accordingly.
- 6.62 Surveys were undertaken in 1998 and 1999 to identify:
- what contaminants enter on this pathway;
  - where on the containers contaminants are found;
  - the accuracy of the documentation that accompanies the containers; and
  - the efficacy of different inspection techniques.
- 6.63 In our view, these surveys are a relevant and effective way of increasing knowledge about the risks associated with this pathway. However, MAF must ensure that the findings of the surveys are used to enhance the management of biosecurity risks associated with this pathway.





## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

### Dealing with Changes in Risk Profiles

**Risk profiling and tracking of containers could be improved if there was an IT system that could link the New Zealand Customs Service, importers, freight forwarders, shipping companies, the public, and MAF.**

- 6.64 There are many complex issues to address in order to determine what level and type of inspection of sea containers would best meet the conflicting and changing requirements of effective biosecurity and the need for trade. Our examination of the response to the incursion of the red imported fire ant showed that MAF needs to be prepared to take precautionary phytosanitary measures to manage increased biosecurity risks (see Case Study 5 on pages 95-111).
- 6.65 MAF took such action when foot and mouth disease (FMD) was detected in the United Kingdom in February 2001 by immediately revoking all import health standards relating to meat and dairy products, by-products, semen, embryos and live cloven-hoofed animals from the UK. When FMD was confirmed in France in March 2001, MAF immediately revoked relevant import health standards for the entire European Union (EU).
- 6.66 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 this stage. However MAF's precautions were shown to be justified when the outbreak later spread to the Netherlands and Ireland.
- 6.67 In response to the UK outbreak of FMD in 2001, the Australian Government gave additional funding to the Australian Quarantine Inspection Service (AQIS) to ensure that all sea containers were inspected upon arrival in the country.
- 6.68 While the aim of inspecting all sea containers is laudable, the practicality is difficult. In Brisbane (and, we understand, at other ports around Australia) the AQIS has Quarantine Officers positioned at the entrance to the wharf. These officers inspect containers that have not already been inspected on the wharf as they leave the port on a truck.
- 6.69 The inspections involve observing the top of the container from a monitor that is linked to a wall-mounted camera that looks down on the area where the trucks are required to stop. The Quarantine Officers then walk alongside the truck looking for signs of contamination on the external sides and along the bottom edge of the container. So as not to hold up the trucks longer than is necessary, this whole process takes about 15-20 seconds.

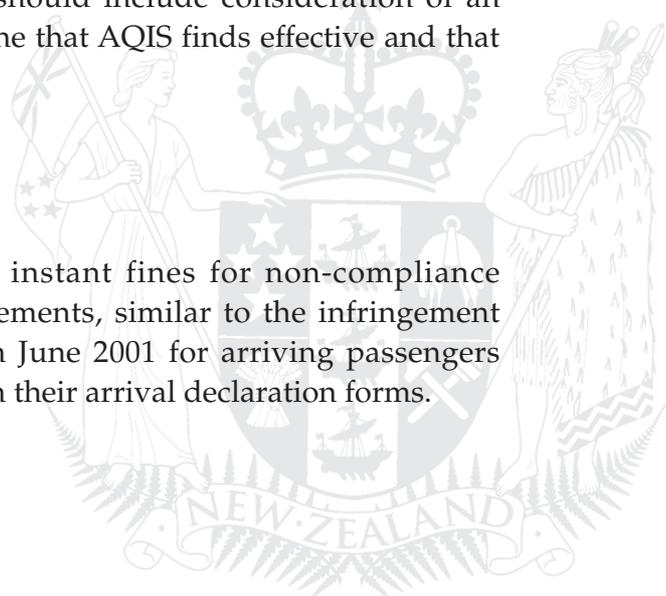


## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.70 Given the speed at which these inspections are undertaken, it is our view that, unless the contamination is significant, and therefore obvious to detect, these inspections are of limited value. Consequently, we do not recommend that MAF introduce this method of inspecting all containers.
- 6.71 Containers are routinely moved off the wharf to “devanning sites” for unloading. There are approximately 1500 devanning sites in New Zealand, operating under standards drawn up by MAF Biosecurity. When considering the risk posed by the sea container pathway, MAF must take into account that potentially contaminated containers may be transported across cities, where spread of pests may occur from a large number of sites.
- 6.72 The *Protect New Zealand* programme currently includes measures targeted at raising awareness among people handling cargo. However, the recent surveillance review indicates that an awareness programme specifically targeted at devanning sites could be valuable.
- 6.73 MAF Biosecurity informed us that the risk profiling process could be improved by the introduction of an integrated IT system. A system that could link the New Zealand Customs Service, importers, freight forwarders, shipping companies, the public and MAF would help to improve the tracking of containers. An integrated IT system could also be used to collect and collate information – about the levels and types of contaminants found and where they came from – more readily than is currently the case. This data could then be used to enhance risk-profiling capability.
- 6.74 The border management group within MAF Biosecurity should undertake a cost-benefit analysis to assess whether an integrated IT system should be introduced to improve its risk profiling of sea containers – and, if so, what type of system. The analysis should include consideration of an IT system used by the AQIS in Brisbane that AQIS finds effective and that could be of benefit to MAF.

### Instant Fines

- 6.75 There have been calls to introduce instant fines for non-compliance with biosecurity cargo import requirements, similar to the infringement notice regime that was introduced in June 2001 for arriving passengers who fail to declare quarantine items on their arrival declaration forms.





## CASE STUDY 6 – MANAGEMENT OF RISKS ASSOCIATED WITH SEA CONTAINERS

- 6.76 However, MAF obtained advice from the Ministry of Justice and subsequently informed us that to introduce such fines would be against natural justice because importers have no control over the state of the containers they import, or over the process by which the containers are packed.
- 6.77 Importers have a different financial incentive to do whatever they can – such as by liaising with their agents overseas – to ensure that the containers they import are free from biosecurity risk material. This incentive is the requirement for importers to pay for the inspection, and any subsequent cleaning of containers found to be unacceptable. As well as this immediate financial cost, there is the additional cost caused by the delay in getting goods to where they are needed.

