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PRE-CLEARANCE

Off-shore container
management reduces risk

Aquatic animal diseases
and risk analysis

Plant Health and
Environment
Laboratory





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Biosecurity magazine

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PACIFIC OFF-SHORE CONTAINER MANAGEMENT PROGRAMME

REDUCES BIOSECURITY RISKS AND INDUSTRY COMPLIANCE COSTS



Figure 1. Invasive ants (Crazy Ants – *Paratrechina longicornis*) detected on board a vessel carrying containers to New Zealand.

By Dave Nendick, Biosecurity Standards Group, Biosecurity New Zealand, Pre-clearance Directorate and Megan Sarty, Post-clearance Directorate; with Simon O'Connor, Secretariat of the Pacific Community; Gerhard Rechenberg and Roy Skucek, Chief Container Services; Cas Vanderwoude, Anti-Ants; and Grant Weston, Tauranga Area Manager, MAF Quarantine Service.

Preventing invasive pests establishing in New Zealand is one of the principal aims of Biosecurity New Zealand (BNZ) in order to protect the economy, environment and human health.

The best way to achieve this, and protect New Zealand from invasive pests such as ants, is to focus on effective off-shore risk management programmes and auditing on arrival, rather than relying on costly post-border surveillance systems and incursion responses.

Around 65 percent of invasive ants detected at the New Zealand border arrive on or in sea containers or goods from the Pacific Islands. Empty containers are mostly brought into New Zealand from the Pacific Islands and Australia to ensure New Zealand's export trade is serviced appropriately.

Containers from designated high-risk countries undergo full external and internal inspections by the MAF

Quarantine Service (MAF QS) on arrival in New Zealand. However, these inspections are time consuming and costly for importers and involve many hours of MAF QS inspection time.

A high percentage of empty containers from Papua New Guinea and the Solomon Islands are infested with invasive ants. Several post-border incursions appear to be directly linked to containers imported by one of the major importers, Chief Container Services (Figures 4 and 5).

To effectively prevent entry of invasive ants via the container pathway, the establishment of an off-shore container management programme for container decontamination and audit is desirable. A cooperative programme between MAF and industry to reduce contamination with invasive ants, other pests and contaminants to acceptable levels will reduce costs and time delays borne by importers, and cut down the need for intensive MAF QS inspections, freeing up resources for use on other pathways.

Off-shore container management programme trial design

In early 2006, Chief Container Services cooperated with MAF to run a three-month off-shore container management programme trial at the ports of Lae and Port Moresby (Papua New Guinea) and Honiara (Solomon Islands) for containers imported into Napier and Tauranga. Chief Container Services contracted a specialist contractor (Anti-Ants) to provide technical advice at the off-shore ports on ant management measures. Each of the off-shore ports included in the trial implemented a consistent management programme for containers, considered by MAF to be 'equivalent' to inspections and decontamination practices on arrival in New Zealand at transitional facilities.

The programme was designed primarily for empty containers. However, containers with full loads of cargo received an external wash and insecticidal spray as for the empty containers. In general, empty container management is

as follows:

- The containers selected for shipping to New Zealand are stored on designated ‘hard-stand’ areas where re-contamination with soil and other contaminants after external cleaning is unlikely.
- Storage areas are kept clean with toxic ant baiting, snail baiting (targeting giant African snails), weed control and debris removal to deny refuge to ants, snails and other pests.
- The containers are decontaminated using a combination of interior sweeping and internal and external high pressure washing.
- Re-infestation is prevented by the application of a residual insecticide to exterior surfaces, especially around entry points (door seals, air vents and other hiding places) and subsequent storage in designated contaminant-free storage areas.

Containers included in the off-shore container management programme are segregated on board vessels from containers originating in other ports, to ensure cross-contamination is minimised. Once the containers arrive at the New Zealand border they are inspected by MAF QS, where cleanliness is verified.

All empty containers are then processed through decontamination (transitional) facilities in New Zealand after arrival. All of the containers receive an additional inspection during processing at the decontamination facility by an Accredited Person. A clear benefit for Chief Container Services is that they are now paying for fewer container washes at these facilities because the containers that are included in the programme are much cleaner.

Results of three-month trial

Before the three-month trial of the off-shore container management programme, up to 17 percent of containers imported by Chief Container Services were found to be contaminated with ants, and

Figure 2. Container cleaning on “hard stand” areas in Lae, PNG.



around 50 percent were found with other contaminants. The containers were often grossly contaminated with soil and grain residues and the frequency of insects, including invasive ants, was high.

Under agreement with Chief Container Services, MAF set target contamination thresholds of 0.16 and 5 percent respectively for ants and general contamination. The MAF QS inspection results were monitored for the three-month trial period in relation to the target thresholds and regularly reported to MAF Biosecurity New Zealand and Chief Container Services.

The results of the trial showed that levels of contaminants (invasive ants) decreased significantly. There was also an associated decrease in post-border detections of invasive ants at the storage, repair and decontamination transitional facility used by Chief Container Services (Figure 5 and Table 1).

In addition, the amount of contamination (soil or grain) per container has decreased in volume. Most importantly, the incidence of invasive ants has substantially decreased from 17% to 0% for both Port Moresby and Honiara, while only three out of 2338 (0.13%) empty containers were contaminated with invasive ants from Lae (Table 1).

Contaminant	Lae	Port Moresby	Honiara
Ants	0.13	0.00	0.00
Spiders	0.21	0.41	0.12
Cockroach	0.73	1.24	0.12
Grain	2.01	1.45	3.45
Soil	1.92	2.90	0.12
Other	1.03	0.41	0.23
Total	6.03	6.42	4.03

Table 1. Final percentage contamination rates for containers imported by Chief Container Services from Lae and Port Moresby (PNG) and Honiara (Solomon Islands) with total numbers of containers 2338, 966 and 869 respectively. Data obtained from MAF QS during border inspections.

It is anticipated that, with refinements to the off-shore container management programme, general contamination will continue to decrease over time. This could be achieved by targeting particular problem areas, for example, interior container contamination with grain (Honiara) and exterior soil contamination (Port Moresby).



Figure 3. Tropical fire ant (*Solenopsis geminata*) nests and weeds adjacent to clean container storage areas. Areas subsequently received herbicide treatment and toxic baiting for ant management.

Finalisation of off-shore container management programme

Due to the programme’s great success, Chief Container Services has agreed to continue running it in partnership with MAF. Under agreement, Chief Container Services has ensured that chemical baiting for ants, and application of barrier sprays to cleaned containers continues, and that a constant supply of the controlling chemicals is available in all three ports. Chief Container Services intends to run internal audits and report to MAF monthly, while the local Quarantine Services (MAF equivalent in Papua New Guinea and the Solomon Islands) will also audit the programme and report to MAF.

A final audit of the programme by representatives from MAF Biosecurity New Zealand and MAF QS is required for completion and is planned for late September or early October 2006. Following the final audit and approval, it is anticipated that empty container inspections conducted by MAF QS (on arrival in New Zealand) will drop progressively to an appropriate audit regime.

Where thresholds for ant contamination are not being exceeded, empty container inspections will initially drop to 50 percent for containers from Port Moresby and Lae, while inspections for containers from Honiara will initially drop to 20 percent. MAF QS will continue to collect contamination data and pass this on to Biosecurity New Zealand’s Biosecurity Monitoring Group and Post-clearance Directorate for further assessment and analysis. Contamination rates will be re-assessed every three months, at which time inspection levels will be reviewed and, if compliant, audit regimes will be reduced further.

There are substantial benefits to Chief Container Services and the port companies of Napier and Tauranga with

the reduced inspection requirements on arrival in New Zealand. Apart from direct cost savings from reduced MAF QS inspections, there will be less congestion at the ports and fewer container ‘moves’ directed by MAF QS, all which contribute to cost savings for the importer and free up machinery for other port company purposes.

Summary

The success of the off-shore container management programme has demonstrated how hitch-hiking pests such as invasive ants can be effectively managed before arriving at the New Zealand border (Figures 5 and 6, and Table 1).

Another important consideration is the associated cost savings and reduced time delays for Chief Container Services and the reduced demands upon port company services and infrastructure.

In addition, several biosecurity strategic objectives have been achieved by:

- developing a targeted programme to move risk mitigation measures off-shore
- MAF contributing to reduce threats to New Zealand’s biodiversity by targeting significant hitch-hiker pathways for pests and contaminants through agreements with our Pacific neighbours; and
- helping neighbouring countries to enhance their regional biosecurity by reducing threats throughout the Pacific islands, and possibly applying similar container treatments to intra-Pacific trade routes.

This type of programme could be a model for other Pacific-based importers of empty containers or containers bringing cargo into New Zealand, in order to further manage biosecurity risks in an effective manner.

MAF intends to engage widely with industry, other importers of containers and associated stakeholders in the last quarter of 2006 to further progress the adoption of similar off-shore-based risk mitigation programmes.

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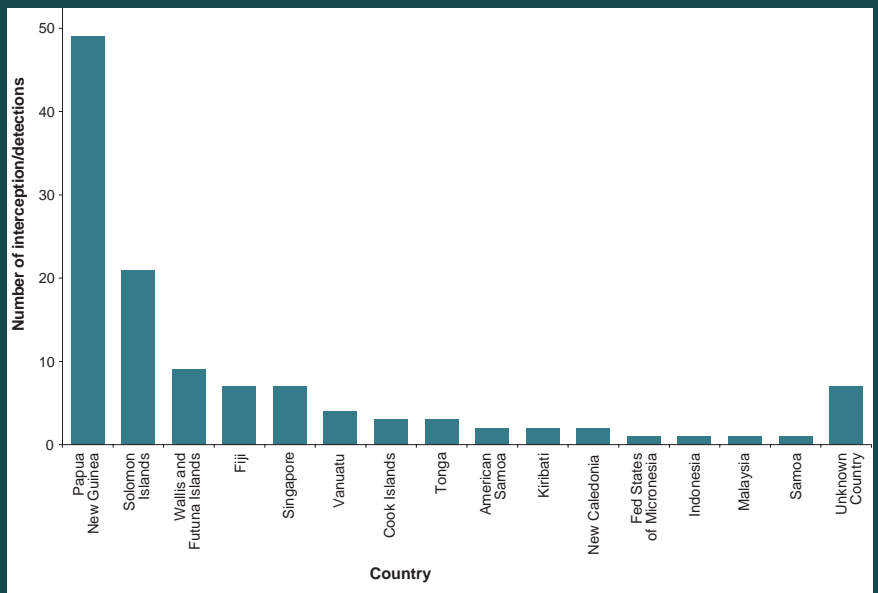


Figure 4. Number of interceptions of invasive ants from empty containers at the New Zealand border recorded from 1988 to April 2006.

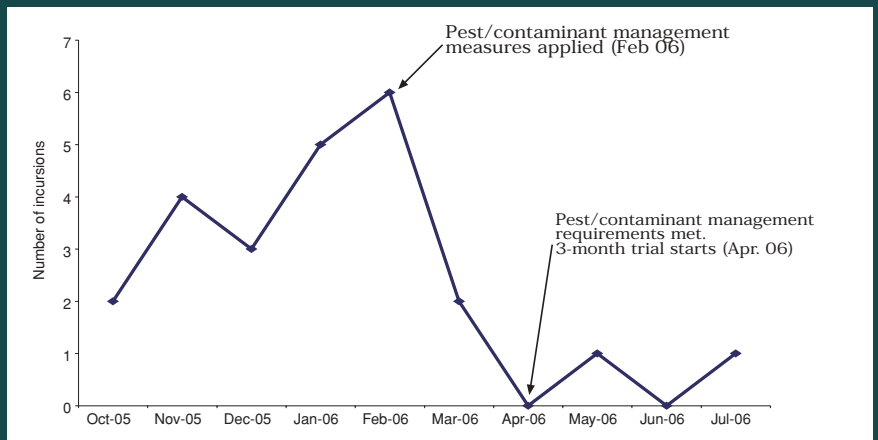


Figure 5. Number of incursions of ants associated with empty containers from Papua New Guinea and the Solomon Islands. Data is from visual monitoring conducted at Container Repair and Storage (transitional facility), Mount Maunganui, where Chief Container Services containers are cleaned before further use in New Zealand.

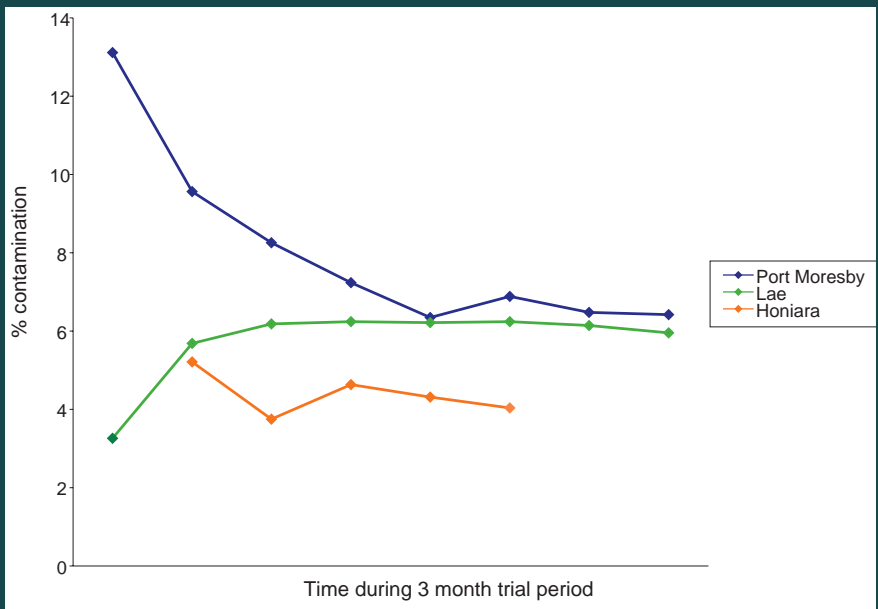


Figure 6. Cumulative total container contamination rate throughout the three-month trial. The trial ran from 10 April to 10 July 2006 with total numbers of containers 2338, 966 and 869 for Lae, Port Moresby and Honiara respectively. Data obtained from MAF QS during border inspections. Note: Not all vessels carried containers from Honiara.