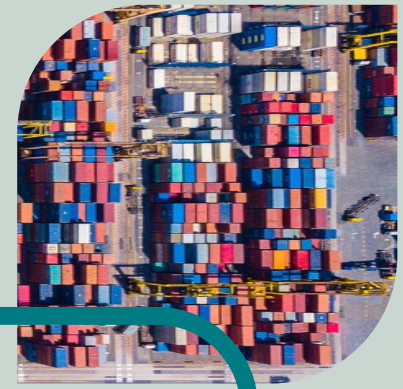
Australian Government

Department of Agriculture, Fisheries and Forestry

Hitchhiker Pest Program



May 2023

Brian Garms presenting for

Sarah Bruce

Principal Director, Hitchhiker Working Group

Hitchhiker pests defined

A hitchhiking pest is not a random contaminant, they have an association with containers and/or goods that can be **understood based on their biology and behaviours.**

A contaminating pest is *'a pest that is carried by a commodity, packaging, conveyance or container, or present in a storage place and that, in the case of plants and plant products, does not infest them'* (IPPC 2021).

Biological characteristics

- Attraction to inanimate cargo, containers or conveyances.
- Ability to survive extended international travel journeys.
- Ability to distribute and establish upon arrival in destination country.

Examples of hitchhiker pests

Overwintering

- BMSB
- Harlequin ladybeetle
- Asian giant hornet

Egg laying

- Flighted spongy moth complex
- Spotted lantern fly
- Joro spider

Nesting

- Asian honeybee
- Red imported fire ant
- Browsing ant

Sheltering

- Giant African snail
- Korean round snail
- White-lip garden snail

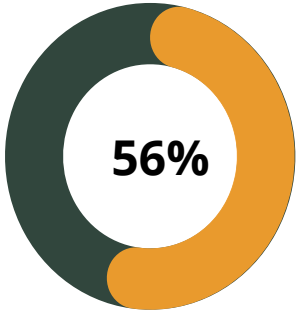
Internal

- Khapra beetle
- Trogoderma spp.

Extensive global risk

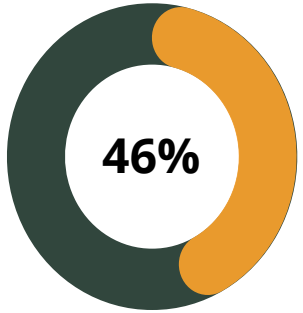
Surveys from across the globe demonstrate that there are significant hitchhiker and other biosecurity risks associated with the global movement of sea containers.

Kenya
reported that:



of 789 sea containers they inspected from 2019-2022 **were contaminated.** Contamination was both external and internal.

China
reported that:



of 264,482 loaded containers AND 33% of 428,616 repositioned containers inspected in 2017 were **contaminated with plant pests.**

Australia
reported that:

of 126,689 containers from high-risk countries inspected from 2019-2022 were **externally contaminated**.

New Zealand
reported that:

of 116,701 empty sea containers inspected from 2010-2015 were **contaminated with hitchhiker pests**. Contamination was both external and internal.

Estimated economic consequences

Hitchhiker pests have the potential to inflict significant damage

Hitchhiker Pest Program

Through innovation and collaboration, the Hitchhiker Pest Program aims to build a stronger biosecurity system to protect Australia from hitchhiker pests in sea containers and their cargoes.

The program encompasses a comprehensive range of projects, categorised into five themes:

Risk & assurance

Collaborative arrangements

Data & information

Risk assessment & management enablers

Data analytics & risk-based mgmt systems

Risk & assurance

Risk and control framework

We are creating a new framework to guide how we manage the risks of hitchhiker pests associated with sea containers, their cargoes and associated packaging. It will classify sea containers into 3 categories:

Low risk

Industry managed with departmental assurance

Medium risk

Jointly managed by approved industry participants and the department

High risk

Require higher levels of direct regulatory intervention by the department

Data & information

Hitchhiker pest survey

External container inspection by Qube Logistics in QLD.

- In partnership with Qube Logistics, we are conducting a survey to obtain more data on hitchhiker pests arriving in Australia via sea containers.
- Involves inspection of the external surfaces of sea containers from a selection of countries that are **not** on the department's Country Action List (CAL).
- Over 1,200 containers inspected to date with over 50 detections of live pests and contaminants. Results will help inform risk-settings in the new framework.

Risk assessment & management

Hand-held hyperspectral camera system

We are working with Australian company, Intelligent System Design (ISD), to develop a hand-held device for detecting pests and seeds in difficult to inspect areas and goods.

How it works

Onboard Artificial Intelligence (AI) + Hyperspectral camera Analyses wider spectrum of light = Instant detection of target pests & seeds

Image sourced from isd.ai

Testing the hyperspectral camera on produce

Expected benefits

- Increased speed & reliability
- Instant results
- Reduced impact on resources

Risk assessment & management

Sea container design improvements

We are working with Murdoch University to research modifications to container structural components, which could help reduce spaces in sea containers that create spaces for pests and contaminants.

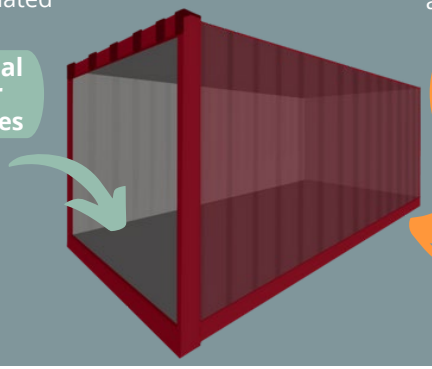
Historical data

We analysed historical data of sea container inspections for shipments entering Australia from 42 countries that the department considers high-risk.

Results

Over 90% of internal risks are associated with **internal floor surfaces**

Over 90% of external risks are intercepted on the **external bottom side**



Current container issues

The **cracks and crevices in container wooden floors** can attract species with overwintering behaviours.

The **crossbeams on the underside of containers** provide refuge for pests & places for contaminants to gather.

Khapra beetle in container

Soil on container underside

Potential solutions

The hotspots should be priority targets for structural modifications to maximise biosecurity return.

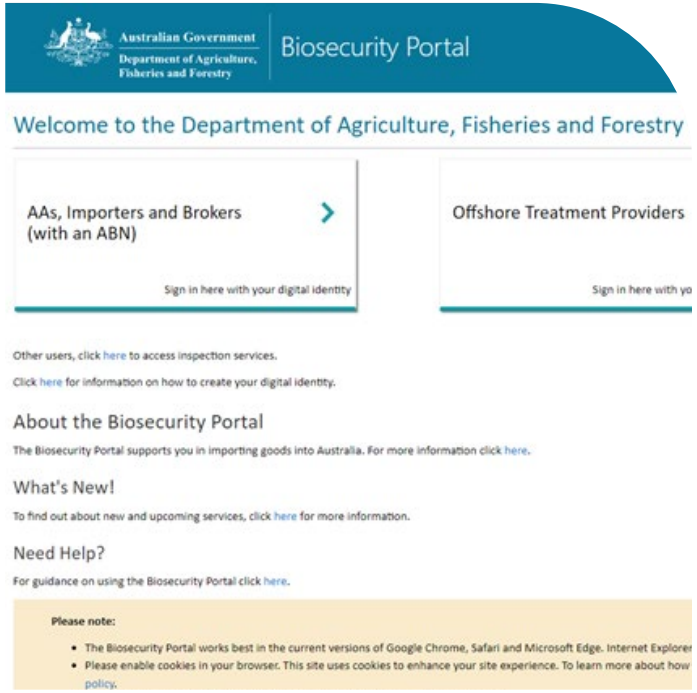
Replace cross beams with a more uniform, smooth surface on container undersides.

Replace timber flooring with a less suitable hitchhiker habitat e.g. steel.

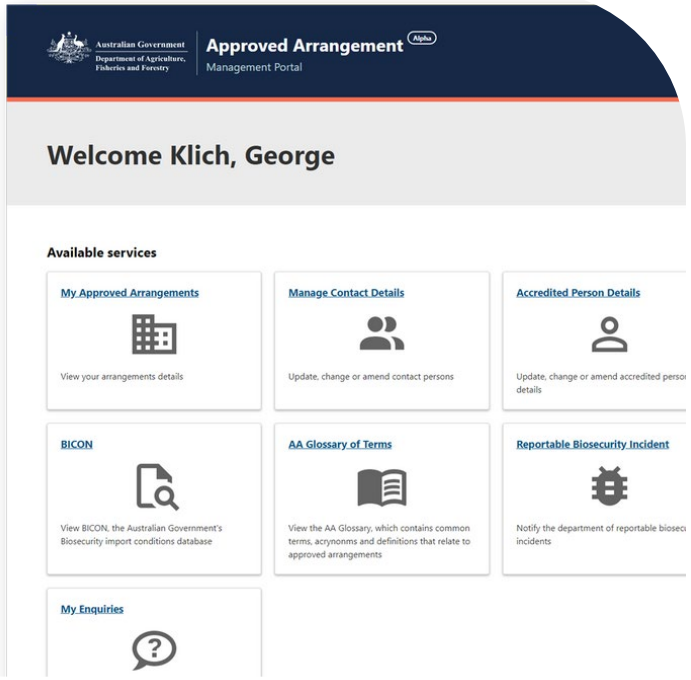
Data analytics & risk-based mgmt systems

Enterprise Pest Solution

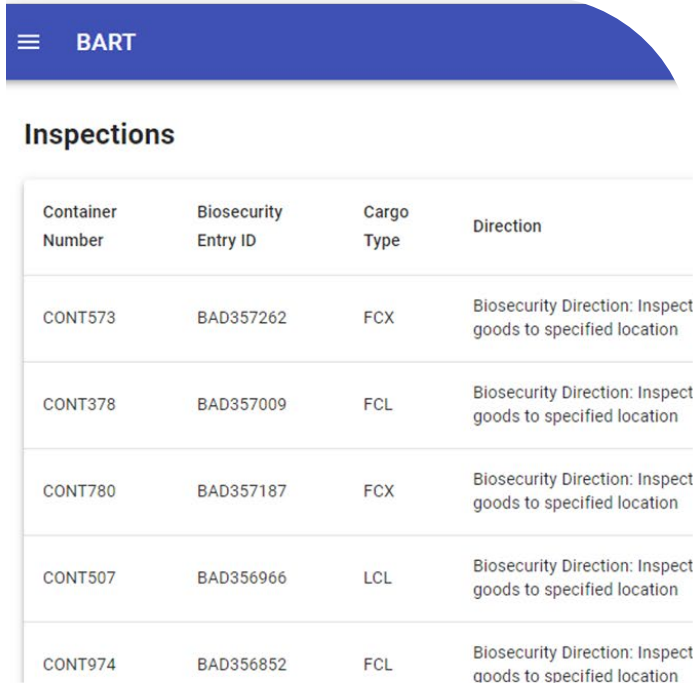
We are investing in an Enterprise Pest Solution (ICT system) to provide a future state assessment and management capability to manage hitchhiker pest risks.



New online registration capability for Offshore Treatment Providers



Self service portal for Approved Arrangements



Biosecurity Activity Reporting Tool (BART) allows AAs to efficiently report results to department

National Plant Protection Organisation collaboration

We have established collaborative arrangements with international governments and industries to address the biosecurity risks of sea containers. This has included representation on the IPPC's Sea Container Focus Group, along with:


CANADA

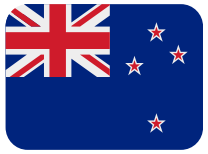

EGYPT


THE NETHERLANDS


UNITED STATES OF AMERICA


CHINA


KENYA


NEW ZEALAND

Thank you

Sarah Bruce
Principal Director, Hitchhiker Working Group