Australian Government
Department of Agriculture, Fisheries and Forestry

Improvements in Sea Container Designs to Minimize Movement of Plant Pests and Contaminants

Intermodal Asia Conference

23 May 2024

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Sea container risks – no boundaries

- Although 80 percent of all food comes from plants, 40 percent of global crop yields or USD 220 billion is lost to pests.
- The Commission on Phytosanitary Measures recognized the global movement of plant pest risks through the Sea Container Pathway.
- Globally, approximately 25 million containers are in circulation and 250 million container movements occur annually.
- Even a small proportion of contaminated containers can lead to international spread of pests.
- In addition to pests hitching a ride in containers, certain pests have the ability to survive in containers for extended periods.

Factors that make sea containers a suitable habitat

- Food residues
- Moisture and condensation
- Dark and undisturbed spaces
- Gaps and openings
- Temperature and climate



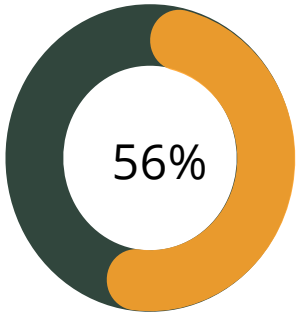




Global Interception surveys

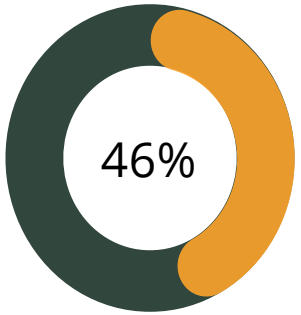
Surveys from across the globe demonstrate that there are significant plant pest risks associated with the global movement of sea containers.

Kenya reported that:



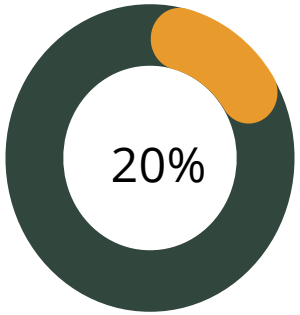
of 789 sea containers they inspected from 2019-2022 were **contaminated**. Contamination was both external and internal.

China reported that:



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

Australia reported that:



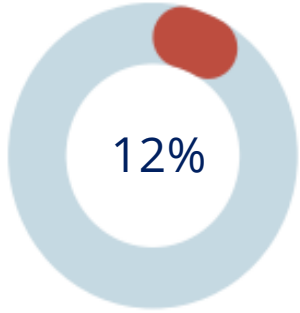
of 126,689 containers from high-risk countries inspected from 2019-2022 were **externally contaminated**.

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.

Khapra Approach Rate Trial

Australia reported that:



of 2000 randomly selected containers surveyed in 2021 12 % had **evidence of khapra beetle**. Of this, 11% indicated previous presence of the pest, and 1% indicated active presence of the pest.

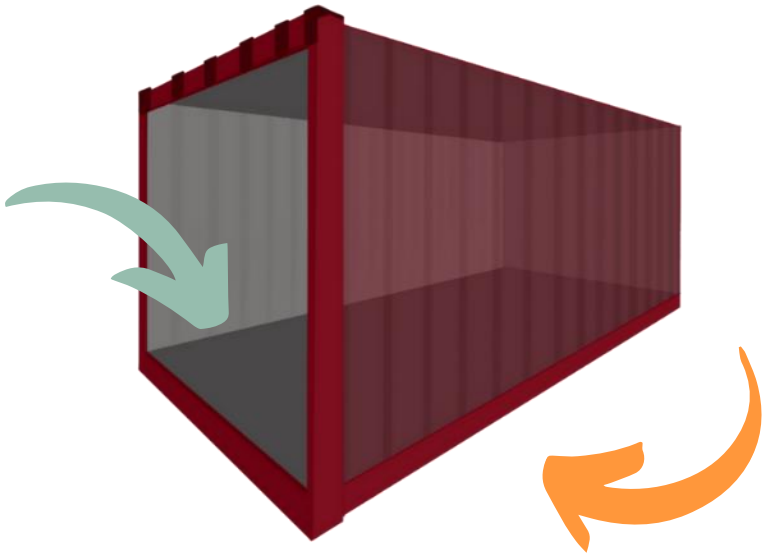
Historical sea container data

Historical data of sea container inspections was analyzed.

We found that:

Over 90% of internal risks are associated with

Internal floor surfaces



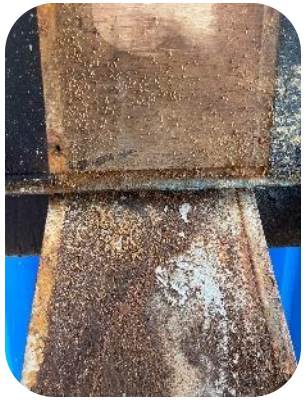
Over 90% of external risks are intercepted on the

External bottom side

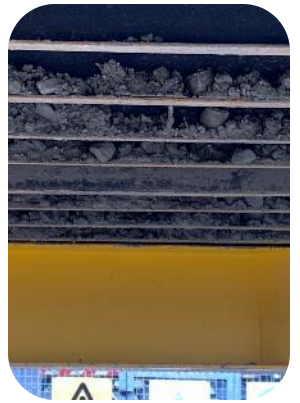
Issues with a typical container

Gaps between floorboard and container wall

Underfloor subspaces



Underside



Sea container (internal)

Subspaces

Sea container (internal)

Access to sub-floor spaces

Cracks

Broken seals

Nail holes

Sea container (external)

Underside Crossbeams

Vents

CPM Recommendations

1

Floor types that have no gaps, are less prone to developing cracks and crevices, and that are easier to clean

Australia and China are undertaking container design trials to verify the effectiveness of different floor types

CPM Recommendations

2

Apply light-coloured coatings to container undercarriages to improve the detectability of pest contamination

CPM Recommendations

3

Modifications to undercarriages can contribute to further risk reduction

CPM Recommendations

4

More research into replacing current, bitumastic, undercarriage coatings to reduce their “stickiness”

Safeguarding Trade Routes from Pest Risks: Everyone's Responsibility

Thank you