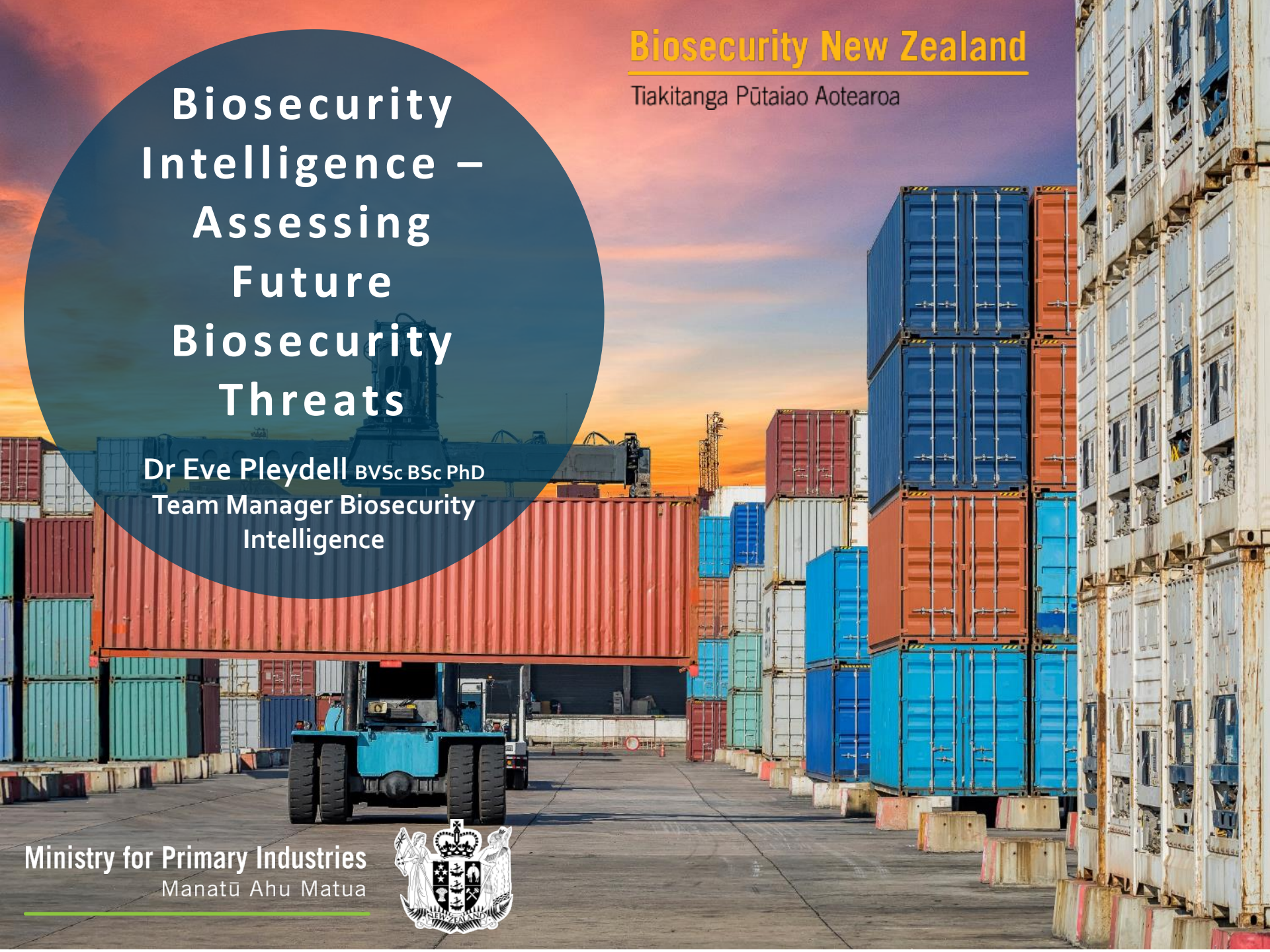


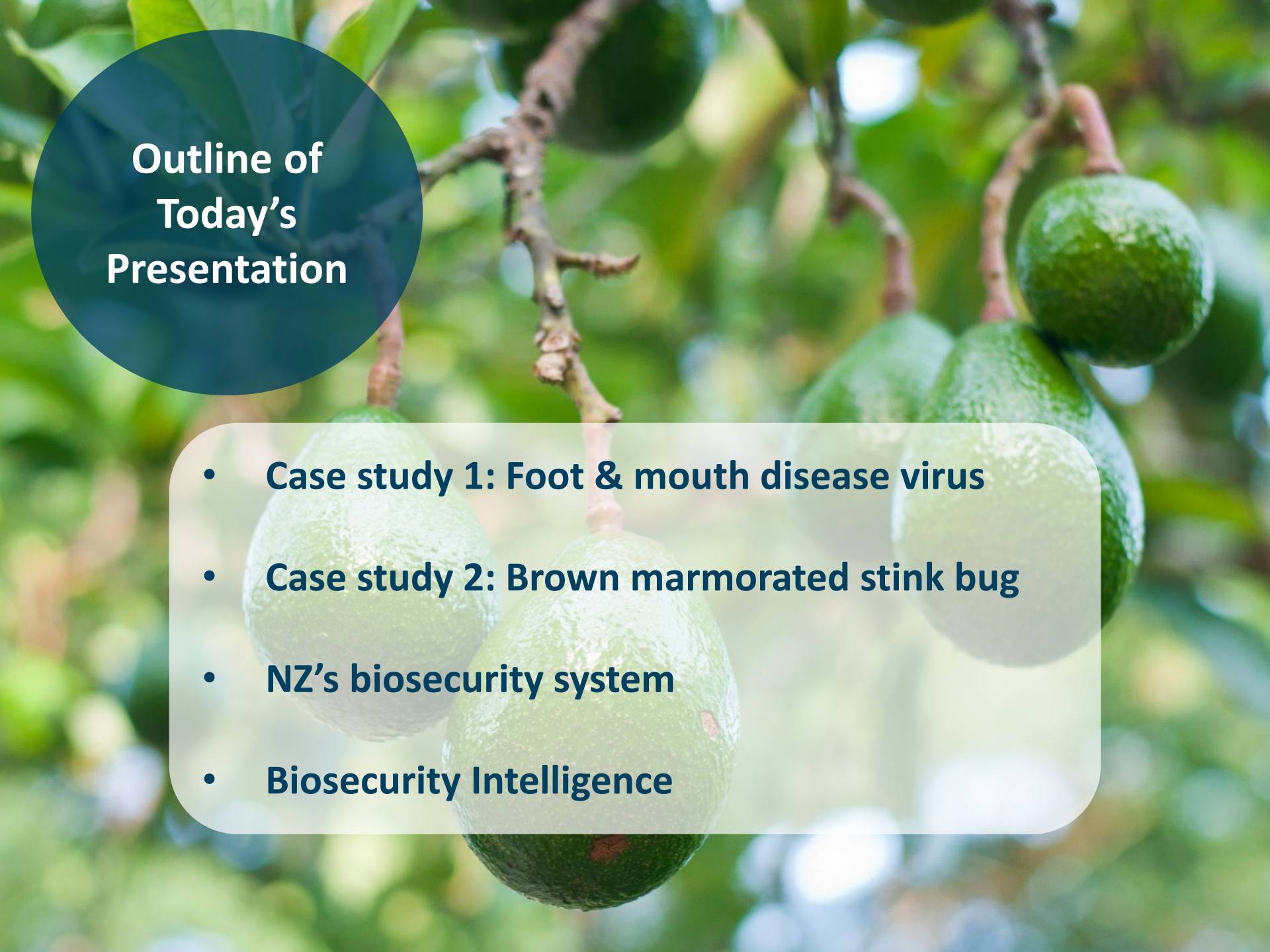
Biosecurity Intelligence – Assessing Future Biosecurity Threats

Dr Eve Pleydell BVSc BSc PhD
Team Manager Biosecurity Intelligence

Biosecurity New Zealand
Tiakitanga Pūtaiao Aotearoa

Ministry for Primary Industries
Manatū Ahu Matua


Biosecurity is the exclusion, eradication or management of pests and diseases…
…that pose a risk to the economy, environment, cultural and social values, including human health



Outline of Today's Presentation

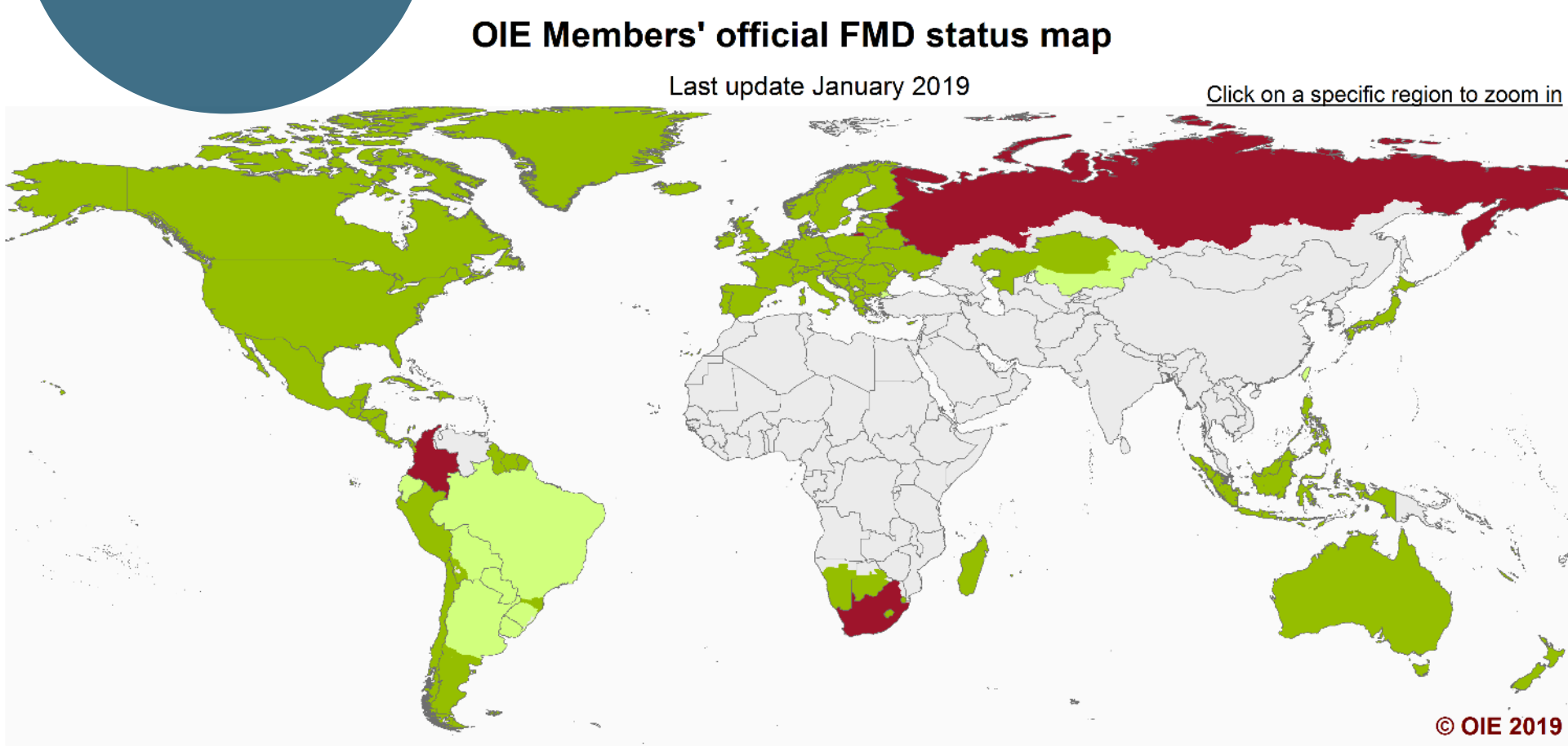
- Case study 1: Foot & mouth disease virus
- Case study 2: Brown marmorated stink bug
- NZ's biosecurity system
- Biosecurity Intelligence


Case Study:
Foot & Mouth
Disease
(FMD)

What is FMD?

- Caused by a highly infectious virus
  - That spreads rapidly
- Affects all cloven hooved animals
  - It can be fatal
  - Not all affected animals show clinical signs
  - Major impacts on productivity
- The virus survives in the environment for a long time: e.g. in animal products or soil

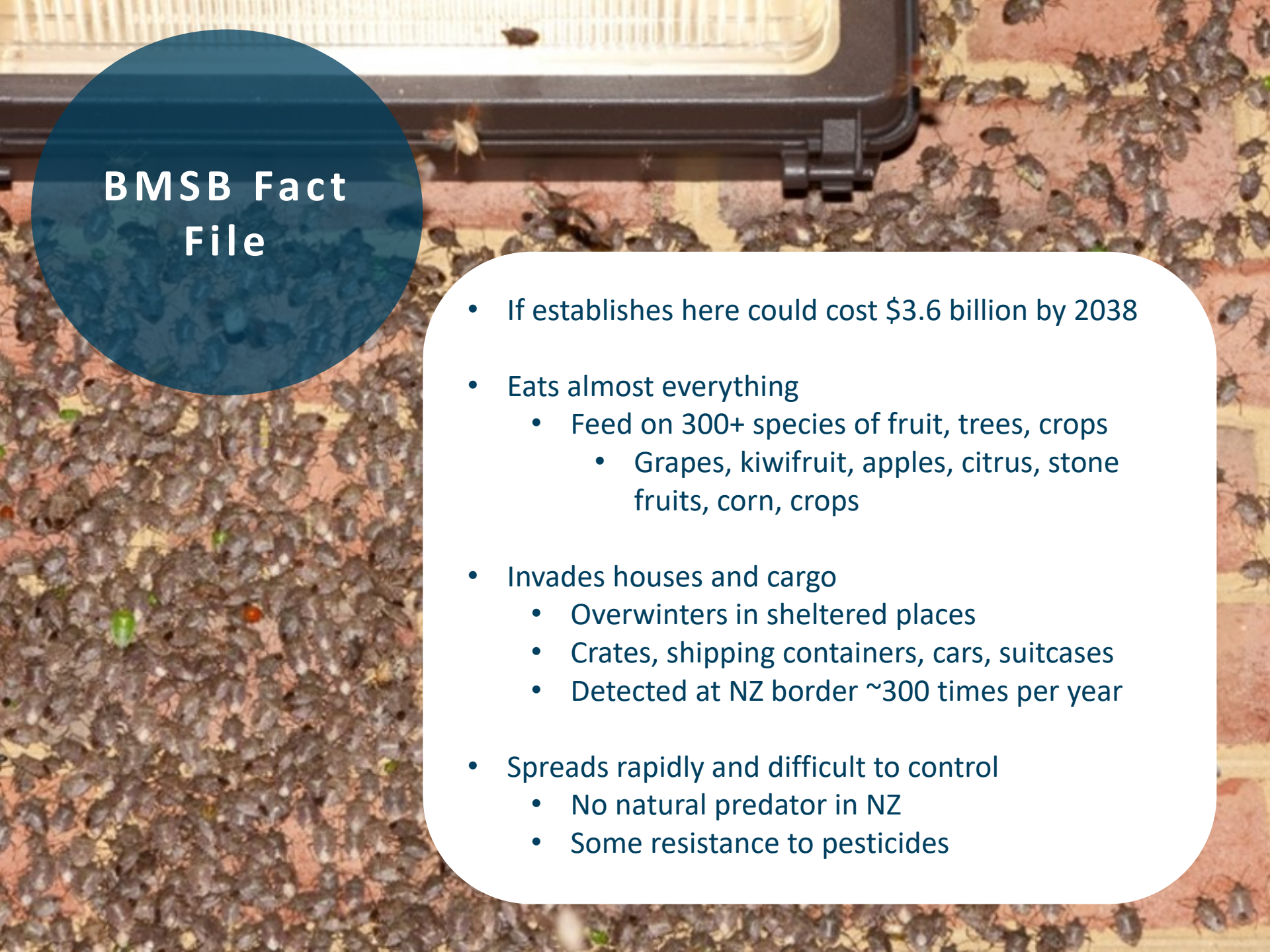
Where is FMD?


OIE Members' official FMD status map
Last update January 2019
Click on a specific region to zoom in
© OIE 2019
Members and zones recognised as free from FMD without vaccination
Members and zones recognised as free from FMD with vaccination
Suspension of FMD free status
Countries and zones without an OIE official status for FMD

The Impacts of FMD

- A large epidemic could cost NZ $16.2 billion
  - Real GDP could decrease by 5%
  - Tip the economy into recession
  - 2014 economic modelling
- 50,400 jobs would be lost in first year
  - Mainly primary sector & supporting industries
- Environmental impacts – carcass disposal
- Mental health impacts – rural community

Case Study: Brown Marmorated Stink Bug (BMSB)



BMSB Fact File

- If establishes here could cost $3.6 billion by 2038
- Eats almost everything
  - Feed on 300+ species of fruit, trees, crops
    - Grapes, kiwifruit, apples, citrus, stone fruits, corn, crops
- Invades houses and cargo
  - Overwinters in sheltered places
  - Crates, shipping containers, cars, suitcases
  - Detected at NZ border ~300 times per year
- Spreads rapidly and difficult to control
  - No natural predator in NZ
  - Some resistance to pesticides

Biosecurity Protects our Values

Environmental

Economic

Cultural

Social

Key Facts at a Glance

Legislation	**Biosecurity Act 1993**
Responsible Minister	**Minister for Biosecurity – Hon Damien O'Connor**
Lead Agency (many others are involved)	**Ministry for Primary Industries**
Central Government Spending (many others spend $ on biosecurity)	**$250 million per year**

Offshore

At the Border

Within NZ

Protecting New Zealand Through Multiple Layers

Pre-Border

- International Animal & Plant Health Standards – OIE, IPPC, IMO
- Trade agreements, etc.
- Risk assessment
- Import Health Standards

Border Interventions

Verifying compliance & intercepting risks across key pathways of entry:

- Craft
- Passengers
- Cargo
- Mail
- Natural

Post-Border

Surveillance:
for early detection

Readiness
e.g. FMD programme

Response:
contain or eradicate

Long-term management

Partners in Biosecurity

Statutory roles

Industry organisations
(Government Industry Agreements)

Regional councils
(Regional pest management, TB eradication)

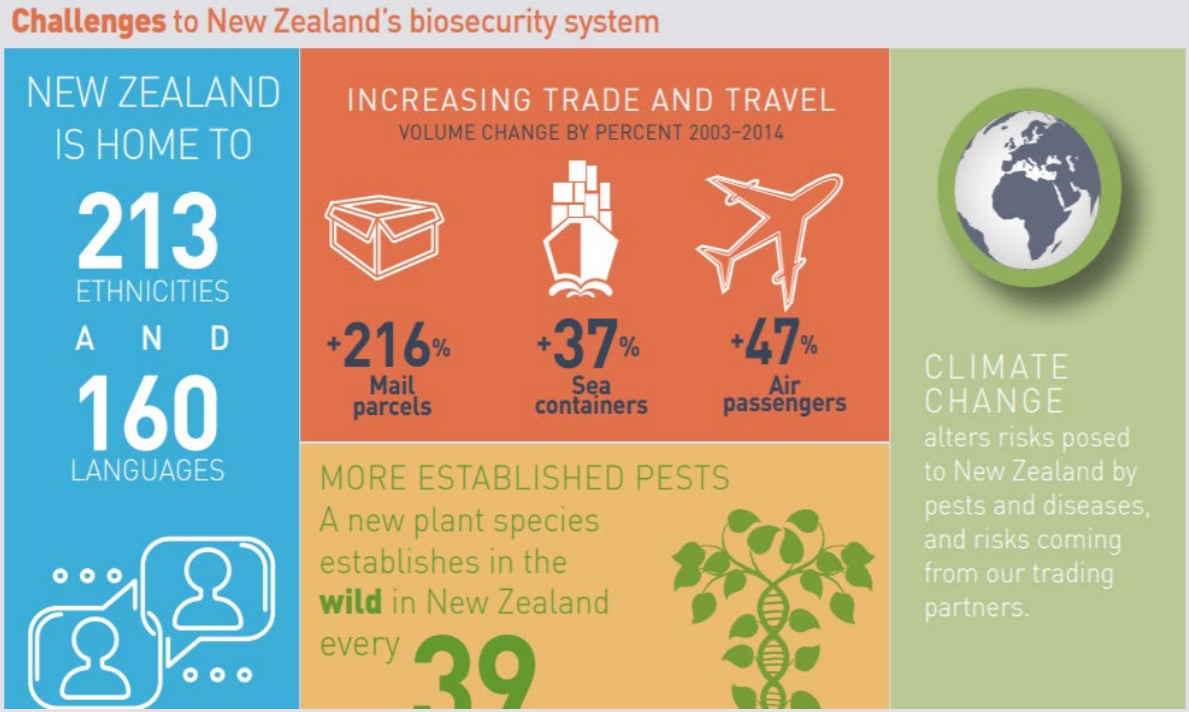
Māori
(resource management roles under Treaty settlement legislation)

Department of Conservation

The Future of Biosecurity

NZ's biosecurity system is working well, but:

- There are mounting pressures
- There are opportunities to improve




Increasing
Costs &
Impacts of
Biosecurity
Operations

Increasing Costs & Impacts of Biosecurity Operations

Eradicating cattle disease M. bovis in New Zealand may be costly, even impossible, but we must try

July 12, 2018 5:40pm AEST

Stink bug infested ships back to Auckland, where they're running out of cars

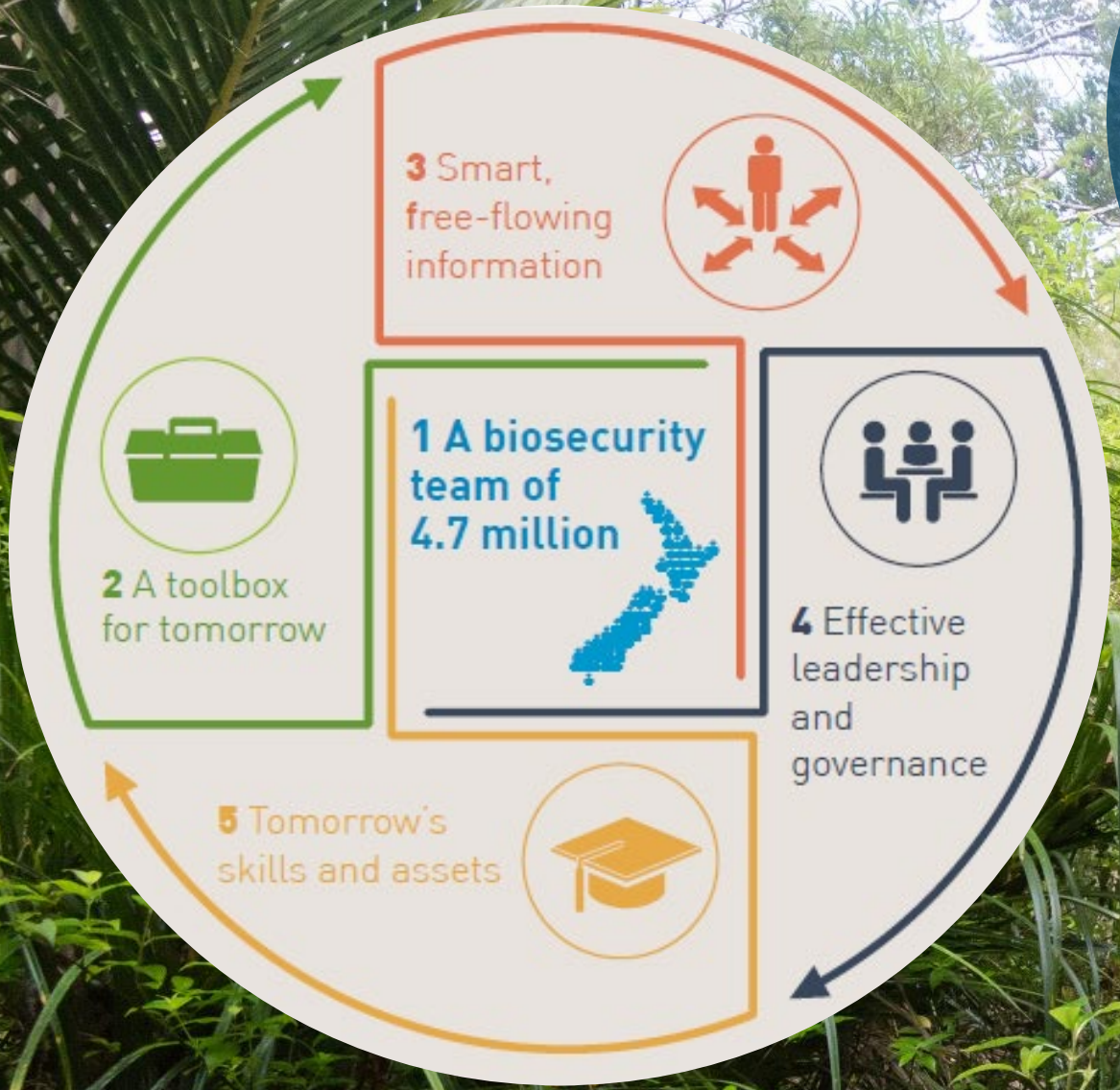
Julie Iles · 15:07, Feb 24 2018

Increasing Costs & Impacts of Biosecurity Operations

DAVID WHITE/STUFF

Three ships carrying cars that were turned away from Auckland after an infestation of brown marmorated stink bugs was found will have to undergo heat treatment before coming back to NZ.

Biosecurity 2025

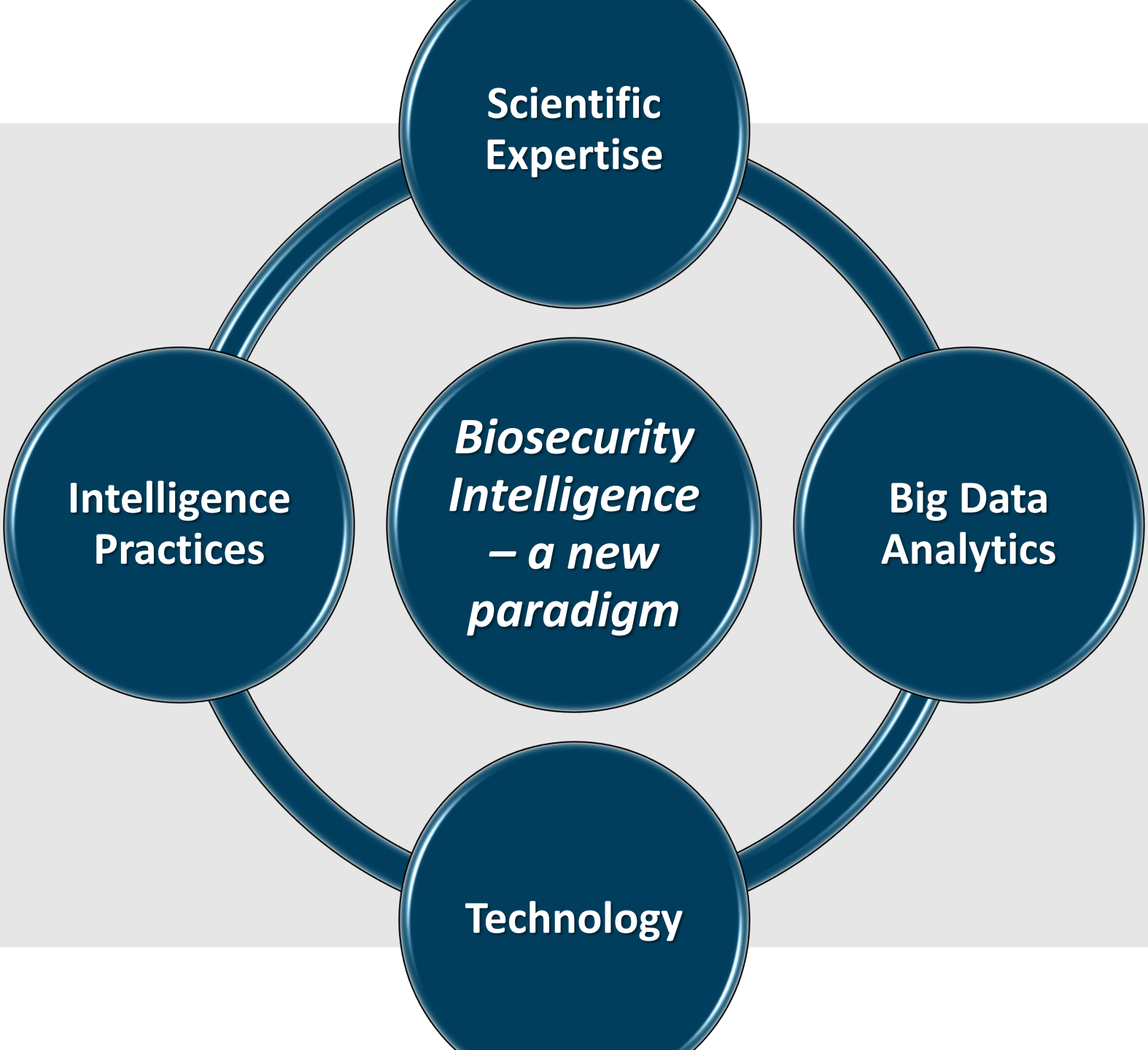


Government launches new biosecurity intelligence unit

Matt Stewart · 18:55, Apr 30 2018

BRADEN FASTIER

Biosecurity Minister Damien O'Connor said the Ministry for Primary Industry's new bisecurity business unit would shift the public focus back onto what the top priority of preventing and predicting pest and disease breaches.


Scientific Expertise
Intelligence Practices
Biosecurity Intelligence – a new paradigm
Big Data Analytics
Technology

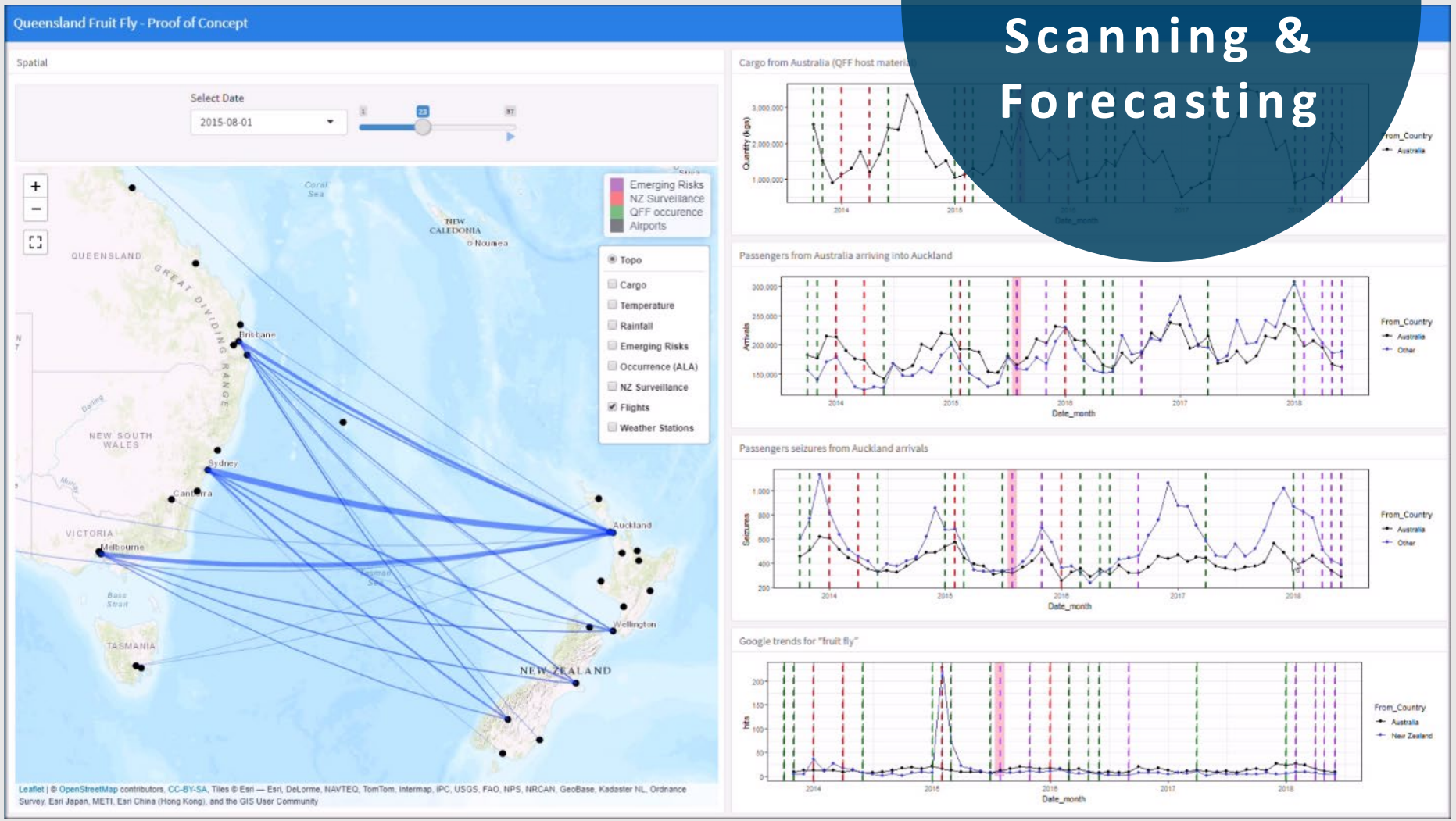
Collecting & Assessing All Relevant Information

- Scientific information
  - e.g. biology, environment, climate etc
- Information about legal risks
  - e.g. trade & travel patterns, manufacturing / shipping processes, treatments & mitigations
- Information about illegal risks
  - e.g. people-related factors & behaviours that may bring pests and diseases to NZ
- Social, cultural, technological, legal, political, geographical or media influences

Connecting

- Harnessing valuable knowledge held by:
  - Groups across MPI
  - Other central & local government agencies
  - Industry bodies
  - Researchers – academic, crown research institutes
  - International colleagues
  - Public

Enhancing Pre-Border Scanning & Forecasting



Summary

- Maintaining biosecurity is:
  - Important, complex & costly
- Our biosecurity system has to be agile
- Agility requires good intelligence
- Good intelligence requires:
  - Innovation & connection