

Biosecurity New Zealand

Tiakitanga Pūtaiao Aotearoa

An Intelligence Approach to Biosecurity Forecasting

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A Swiss Cheese Model of NZ's Biosecurity System

All layers of the system are required to provide maximum protection

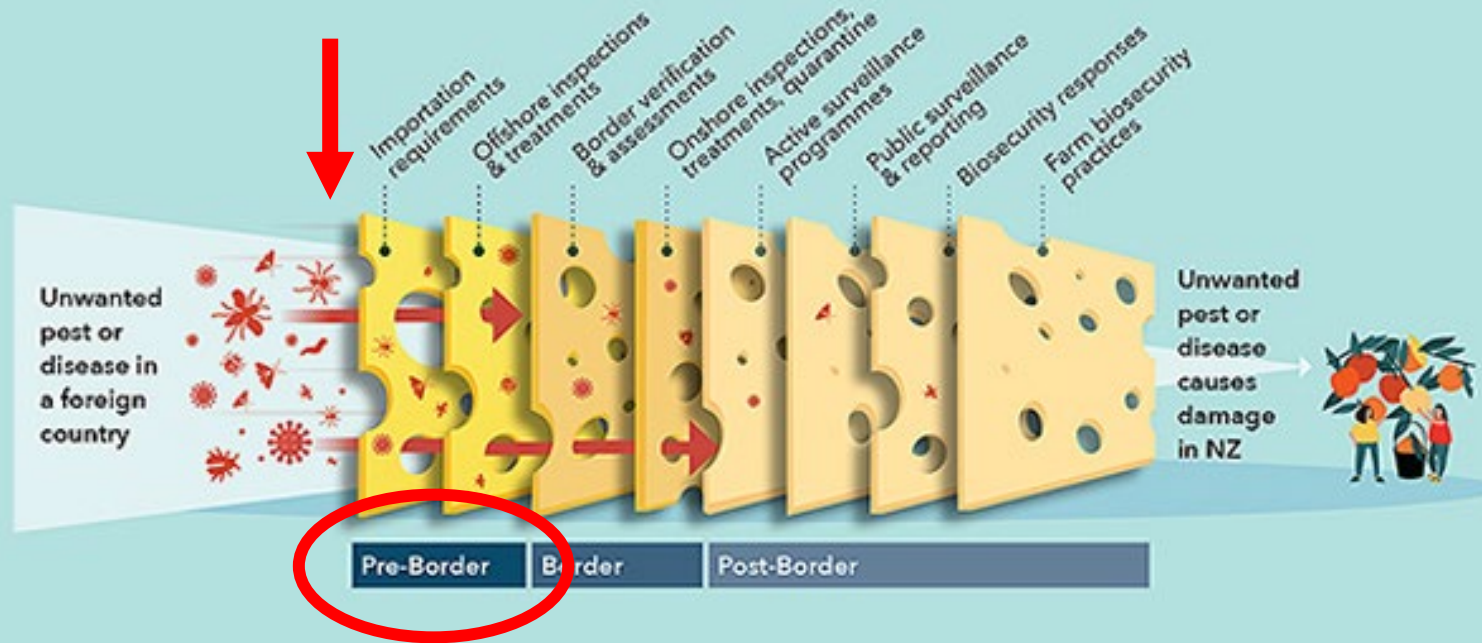


Image created by James Reason

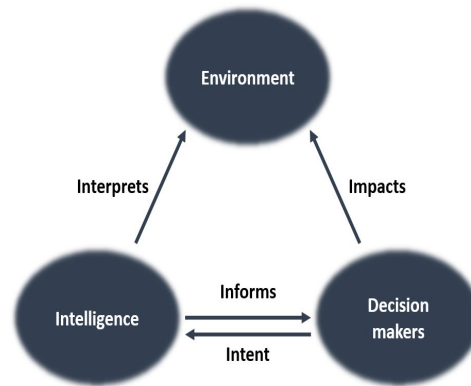


What is Intelligence?

Process: professional practice of systematic collecting, collating, evaluating, and analysing all-source information.

Product: processed information that can be acted upon. Timely, accurate and relevant insight and foresight.

End goal: Support decision making.



Intelligence Drivers and Indicators

- **Drivers**: High level themes
- **Indicators**: Specific, observable events or trends

Driver 1

- Indicator 1.1
- Indicator 1.2

Driver 2

- Indicator 2.1
- Indicator 2.2

Driver 3

- Indicator 3.1
- Indicator 3.1

Civil Emergencies



Geopolitics



Biosecurity Systems



Emerging P&D



Climate Change



Social behaviour



Trade

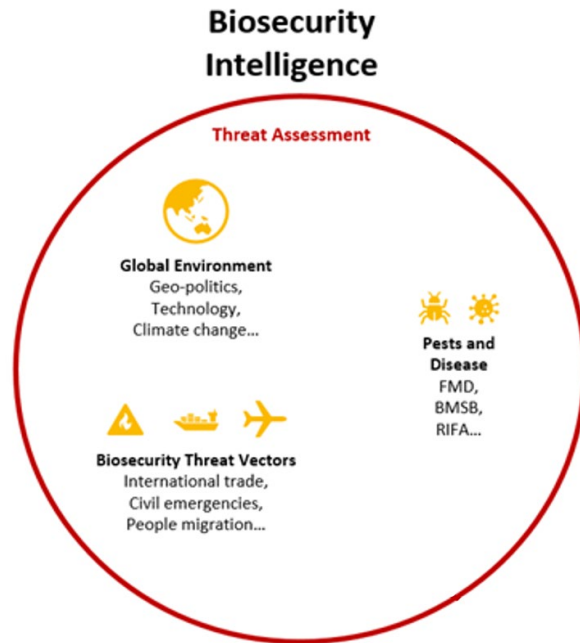


Technology



BSI's place in the Biosecurity System

- **Pre-border**
 - focus on understanding changes in opportunity for pest and disease arrival
- **Achieved by**
 - Active monitoring drivers and indicators
 - Predicting and forecasting future biosecurity threats
 - Active monitoring of high-profile threat organisms



Civil Emergencies



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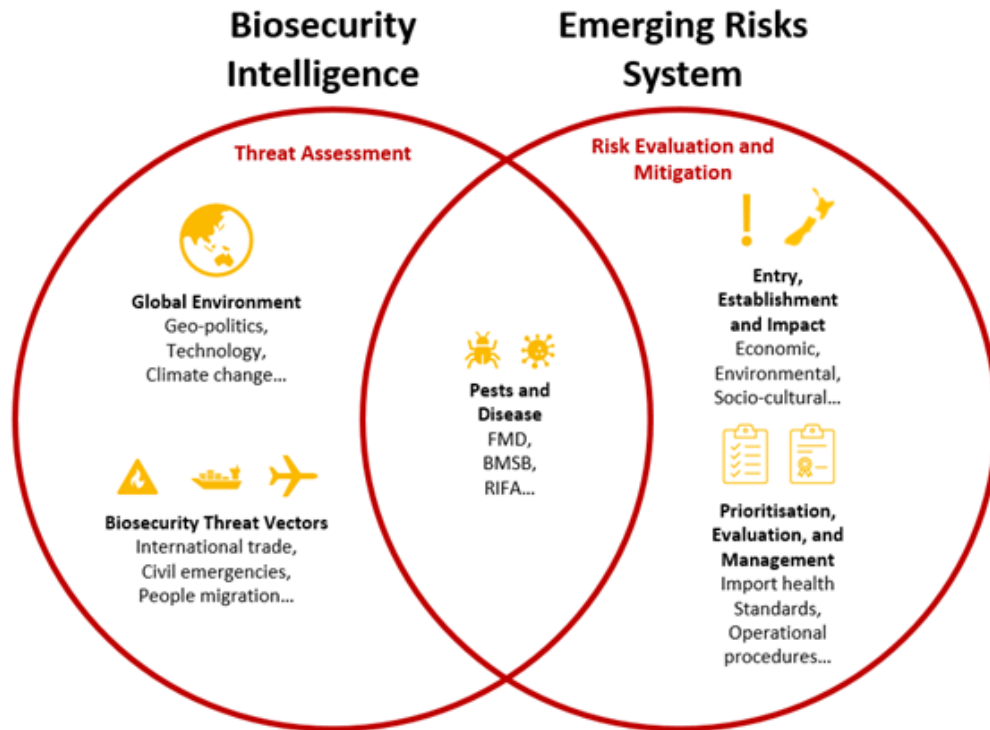
Trade



Technology



Collaboration



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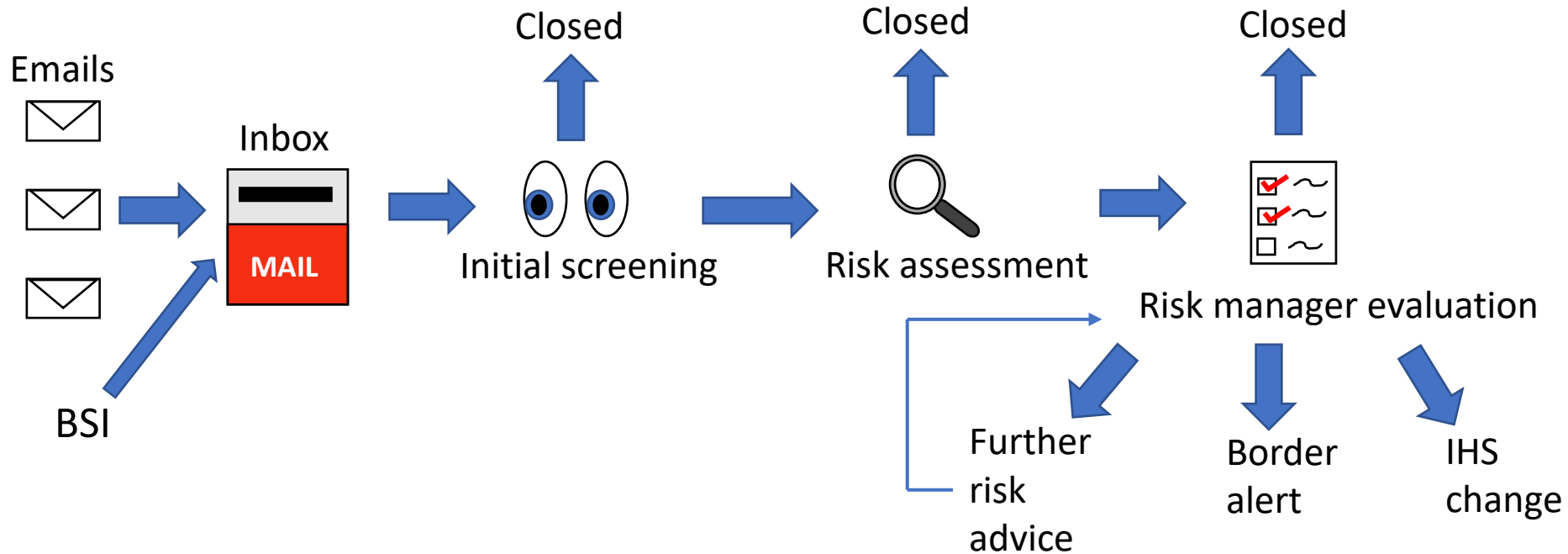
The Emerging Risk System (ERS)

Abigail Durrant – Plant Pest And
Emerging Risk Assessment

Ministry for Primary Industries
Manatū Ahu Matua



The Emerging Risk System



What goes in?

Any Biosecurity related alert - particularly:

- Changes in geographic distribution
- Changes in host range
- Changes in pathogenicity
- New vector associations
- New pathogenic organisms
- Changes in pathways
- New research and awareness



Apples and Pears

In the past 5 years: 88 alerts with apple as the main host:

- *Diplodia bulgarica* (bark canker fungus)- spread Germany, Serbia, Turkey
- *Xylella fastidiosa*
- Fruit fly outbreaks
- DAWE risk assessment for apples from PNW
- No urgent IHS changes



Apples and Pears

- In the past 5 years: 48 alerts with pear as the main host
- Lots of reports of newly described organisms:
 - 2 new *Colletotrichum* species
 - 19 new *Diaporthe* species
- No urgent IHS changes



Trends and Predictions

- New species identified
- Taxonomic changes
- Climate change
- New pest species as crops grown in different areas
- Pests moving to different areas



Moving forward

- 'Passive' information gathering
- Main sources-Government agencies or peer reviewed literature
- Small proportion of alerts from industry/public
- How we work has changed
- Industry best placed to inform us



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Questions?
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