A Cautionary Tale

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Outline

- History of TB in New Zealand
- Case Study
- Mitigations
- Conclusion
Origins of Bovine TB In New Zealand

• Probably introduced via cattle brought in with European colonisation in 1830s-1840s
Australian brush tail possum

(Trichosurus vulpecula)

Imported from Tasmania and mainland Australia to establish a fur industry
TB control strategy

1. National Surveillance
   - TB testing all cattle and deer
   - Abattoir meat inspection

2. Movement Control
   – Out of areas of high vector risk
   - Out of infected herds

3. Vector control (10 million Ha risk area) -
A Cautionary Tale

- Dairy herd (A) in surveillance area – triennial testing as not considered a vector risk area

- **TB test on herd**
  - 7/462 cows skin test +ve

- **Bovigam on STPs**
  - 4/7 cows Bovigam +ve

- **Slaughtered 4 cows**

- **Nov 2012**

- **1 cow confirmed TB**
Second whole herd test (WHT)

- TB test on herd
- 24 cows skin test +ve
- Parallel Bovigam
- Negative to skin test
- 1 cow Bovigam +ve
- Slaughter
- 15 cows confirmed TB
- Slaughter
- No visible lesions

Jan 2013
Three cows re-tested

3 cows STP Nov 2012

2 cows skin test +ve again

Bovigam negative

Bovigam positive

1 cow skin test -ve

Slaughter

Confirmed TB

Jan 2013

Lesson – use any indicator of TB to identify infection
January WHT cont’d

Jan 2013

Calves TB tested

51/123 calves skin test +ve

Bovigam

30/51 Bovigam positive

Slaughter

41/51 Confirmed TB
“Product Recall”

- Traced all 2012 born calves raised on farm – 244 in total
- Did not TB test -sent directly to slaughter
- 63/244 - 26% had TB lesions
- 15 properties identified as having bought calves
- 7/15 confirmed with TB – the NAIT RFID tags invaluable to correctly identify calves
Third WHT May 2013

Whole herd test

16 skin test +ve

Slaughter

4/16 Confirmed TB

May 2013

1 with generalised lesions – cow 154
Cow 154

- Udder lesion accounted for infection seen in the calves
- Lung lesions accounted for high degree of spread within herd
- This cow had tested negative in Nov 12 and Jan 13 to both skin and parallel Bovigam™
  - fourth test in May, 154 was finally STP
Timeline

- April 08: Cow 154
- June 08: “Budget” Herd A created
- March 09: Herd B broke down
- Nov 12: Herd A broke down
- Herd B sold culls
Lessons learnt

- Budget herd A was not registered with TBfree New Zealand - 2008
- Changed hands and moved – 2010 – still not registered
- Therefore no TB testing for 4 1/2 years
- VNTR confirmed same strain type as Herd B
Lessons learnt cont’d

• Rapid expansion of dairy industry in NZ has led to retention of cows that would normally have been slaughtered

• Un-tested dairy herds are TB incubation factories

• As vector risk is declining in certain areas in NZ there is a rise in the relative importance of “movement” between farms as a cause of TB breakdowns
Mitigations

- Closer cooperation with all dairy companies in NZ
  - A condition of milk supply – all herds must prove they are registered with TBfree New Zealand and NAIT (National Animal Identification and Tracing)

- Tracing tool, GIS based, developed to assist with identifying risk once a herd has been identified with TB
  - Where cows have originated
  - Where they have gone
  - And all herds associated with them
Improved assurance infected herds free of infection

- Parallel blood testing of all breeding cows at final clearance test
  - to increase certainty that herd is truly free of infection (dairy and beef)

- Herds at high risk of recrudescence to be parallel blood tested three years after clearance
  - earlier detection of residual infection
New developments

- Whilst the intensity of TB testing driven by vector risk has served NZ well, the time has come to review

- Development of “herd risk based” testing regime being planned
• Intensity of TB testing will be two-pronged
  
  – Herd risk – based on previous history of TB infection and trading practices
  
  – Vector risk – where herd is located and extent of vector control completed
Conclusion

• Anything that delays the diagnosis of disease will lead to the maintenance and spread of disease

• Need to constantly re-evaluate eradication programmes as prevalence drops

• Update policy based on results in reality
Thank You

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