World Organisation for Animal Health

中国兽医药品监察所
China Institute of Veterinary Drug Control
国家动物布鲁氏菌病参考实验室
National Reference Laboratory for Animal Brucellosis

Australia's success story on elimination of bovine brucellosis and how it maintains freedom from *Brucella abortus* in susceptible animals

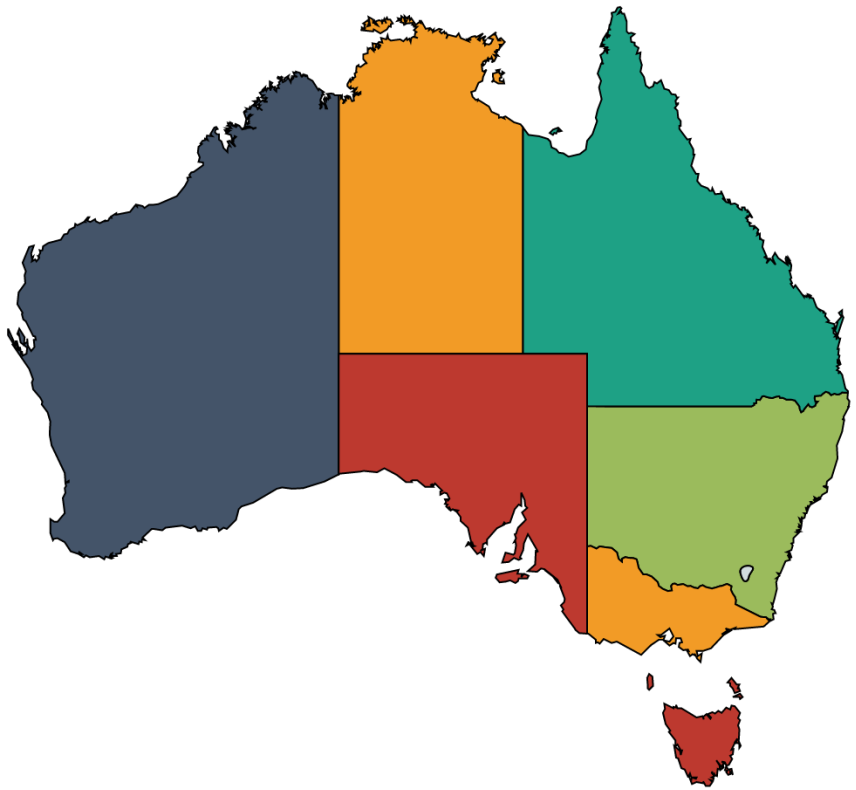
Australia

Dr Ron Glanville

Former Chief Veterinary Officer, Queensland

WOAH Regional Training Workshop on Brucellosis Diagnosis
Beijing, China P.R., 5 – 8 August 2025

4th International Academic Conference on Brucellosis
(5 August)



BTEC

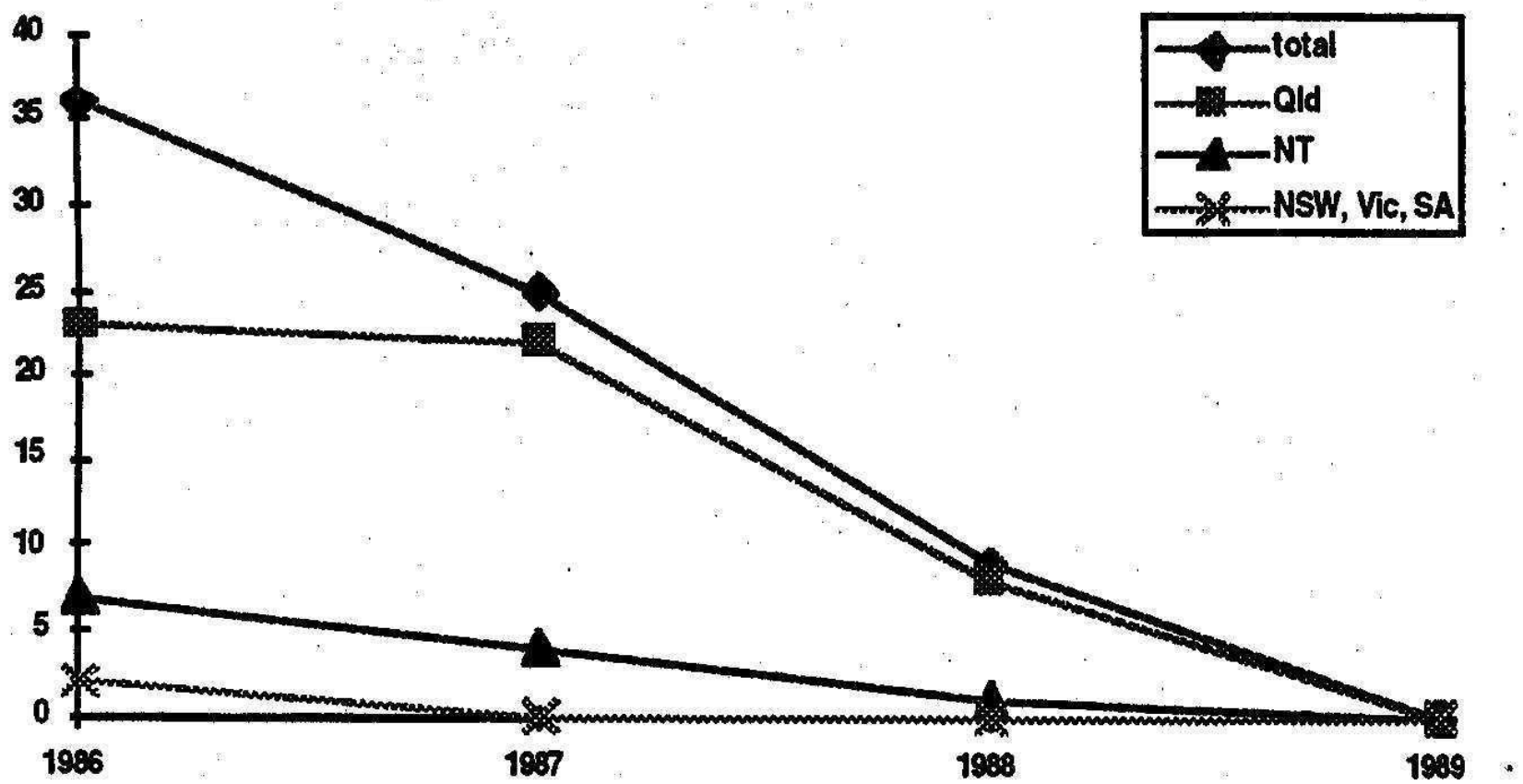
Brucellosis and
Tuberculosis
Eradication
Campaign

THEY SAID IT COULDN'T BE DONE!

(Brucellosis)

Australia declared Free July 1989

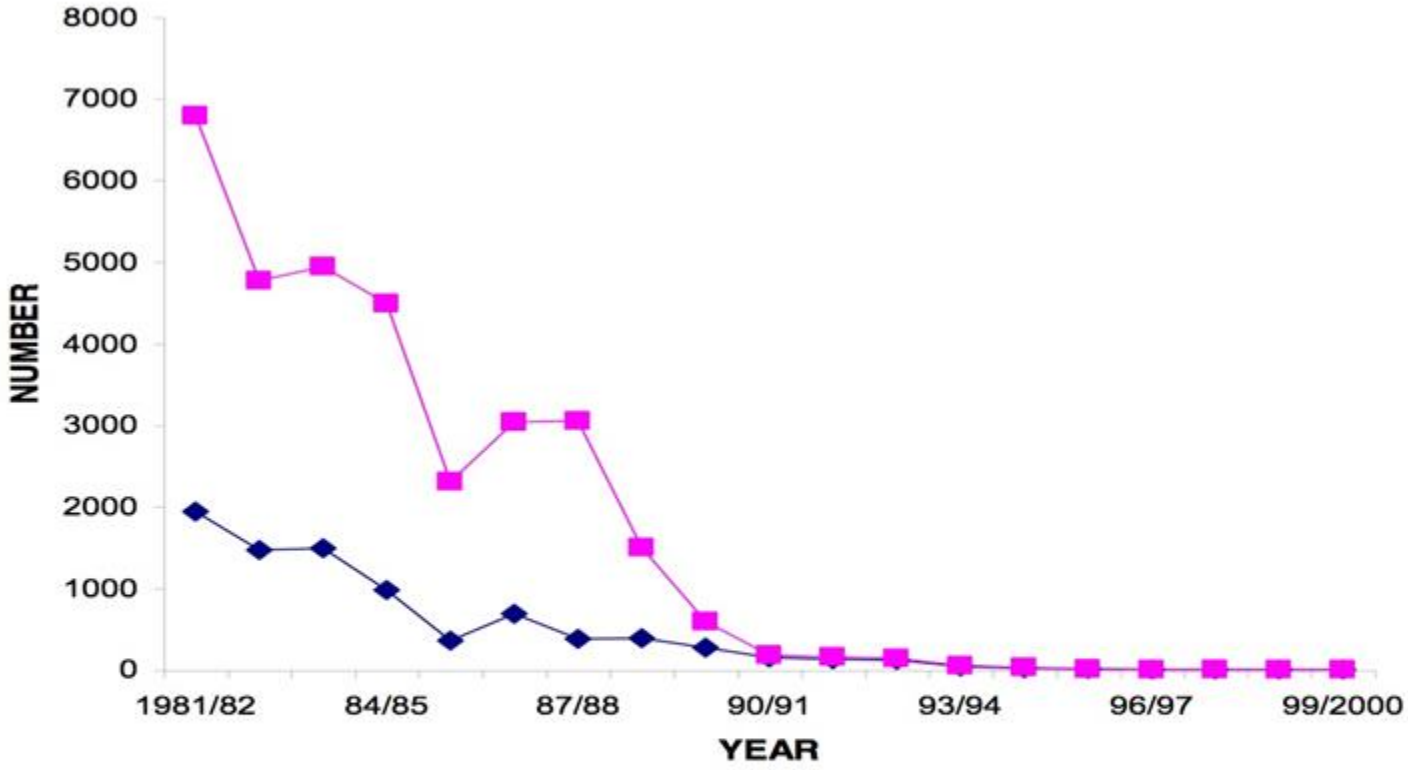
Figure 4. Numbers of brucellosis-infected properties (figures at 30 June each year)



THEY SAID IT COULDN'T BE DONE!

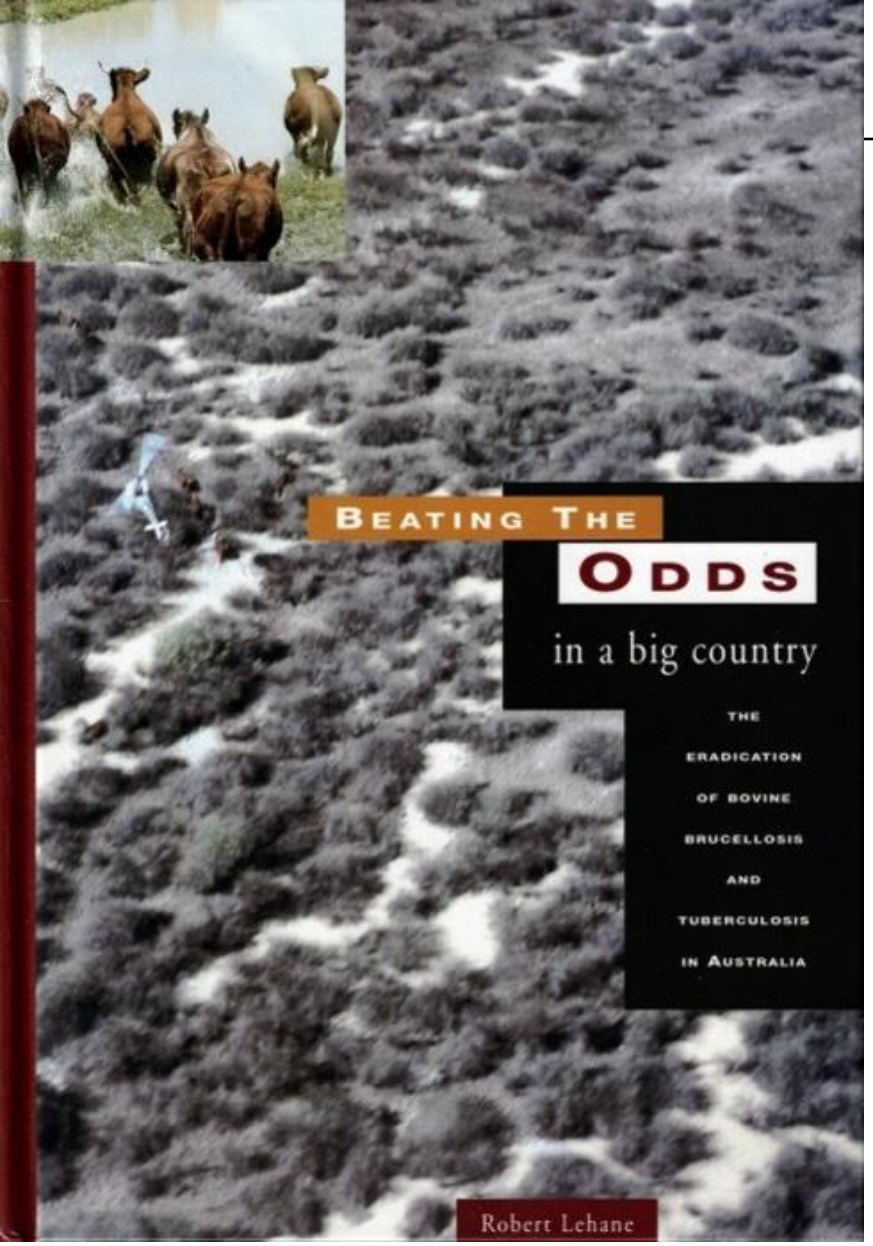
(Tuberculosis)

Australia declared Free December 1997



Source: Roberts et al (1998)

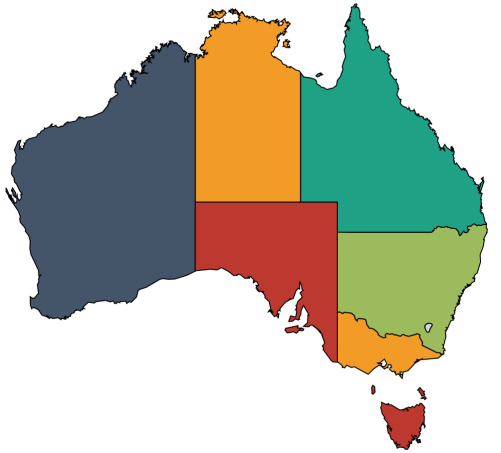
Figure 2 TB-infected cattle in Australia (1981–2000), as detected by abattoir monitoring (■) and field testing (◆)



BTEC Expenditure ~ $1 Billion Aud

$3 Billion in today's money

Brucellosis Eradication Timeline



USA and Germany threaten trade restrictions

1930s → **1940s** → **1970** → **1973**

Abortion free herd schemes established

Strain 19 vaccination begins (mainly dairies)

BTEC launched (TB and brucellosis)

Tasmania declared Free

Prevalence reduced significantly

- Initially concentrated in south
- Blood collection at abattoirs
- Progressive ‘test & slaughter’
- Strain 19 - 3-6 month old heifers
- Strain 45/20 vaccination for infected herds
- New testing laboratories established
- Registration of farms
- Mandatory tail tagging

Brucellosis Eradication Timeline

1975

National 'Standard Definitions and Rules' first published

Routine vaccination ceased

1976 - 1979

Computerised Disease management System

Testing accelerated

Mobile testing laboratories

Peaking testing – 11 million samples in one year

Indirect haemolysis test (IHLT) adopted to distinguish S19

1980

Reduced dose S19 For adult cattle

Large scale depopulation in remote areas

New assistance measures

1983

ELISA test adopted as adjunct to Complement Fixation test

Brucellosis Eradication Timeline

False positives caused by *B. suis* crossover from feral pigs routinely investigated.

1984

New government-industry funding arrangement established (50:50).

National BTEC Committee including industry established

1985

Adult Strain 19 used for last time on a 'problem' dairy herd in Queensland

Western Australia declared Free

1988-1989

NSW, Victoria, South Australia declared free (88)

Queensland and NT declared Free (89)

1990-1991

Last case of brucellosis in Queensland (and Australia) detected.

Depopulation completed by June 1991.

December 1993

Routine blood collection at abattoirs ceases

Australia Brucellosis Free July 1989

Brucellosis Eradication Success Factors

Industry & Government Commitment

Funding & Cost Sharing

Program Management

Agreed Technical Standards

Legal Backing

Abattoir Surveillance

Tracing

Strict Controls

- ✓ Testing
- ✓ Movement controls based on status
- ✓ Targeted depopulation (residual infection)
- ✓ Compensation and subsidies for affected farmers

Department of Primary Industry
Bureau of Rural Science

National Bovine Brucellosis and
Tuberculosis Eradication Campaign
Standard Definitions and Rules

VOLUME ONE

Approved by the Standing Committee on Agriculture
1986

Australian Government Publishing Service
Canberra 1986

AUSTRALIAN BUREAU OF ANIMAL HEALTH

Standing Committee on Agriculture
Animal Health Committee

BOVINE BRUCELLOSIS AND TUBERCULOSIS NATIONAL ERADICATION CAMPAIGN

STANDARD DEFINITIONS AND RULES

AUSTRALIAN GOVERNMENT PUBLISHING SERVICE
CANBERRA 1975

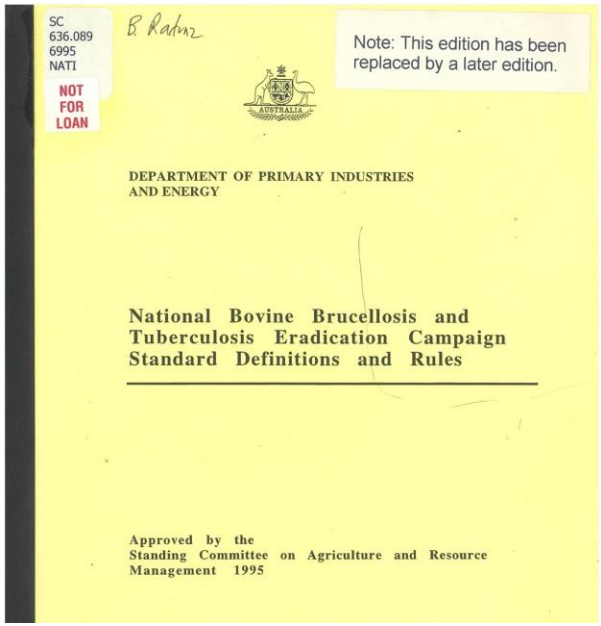


TABLE OF CONTENTS

Vaccination

- Strain 19 for calves 3-6 month
- Reduced dose (1:400) S 19 for adults in problem herds
- Strain 45/20 for infected herds.
- Strain 45/20 for anamnestic testing in some herds.

Phased out from 1975 to allow for test & slaughter.

Surveillance & Detection

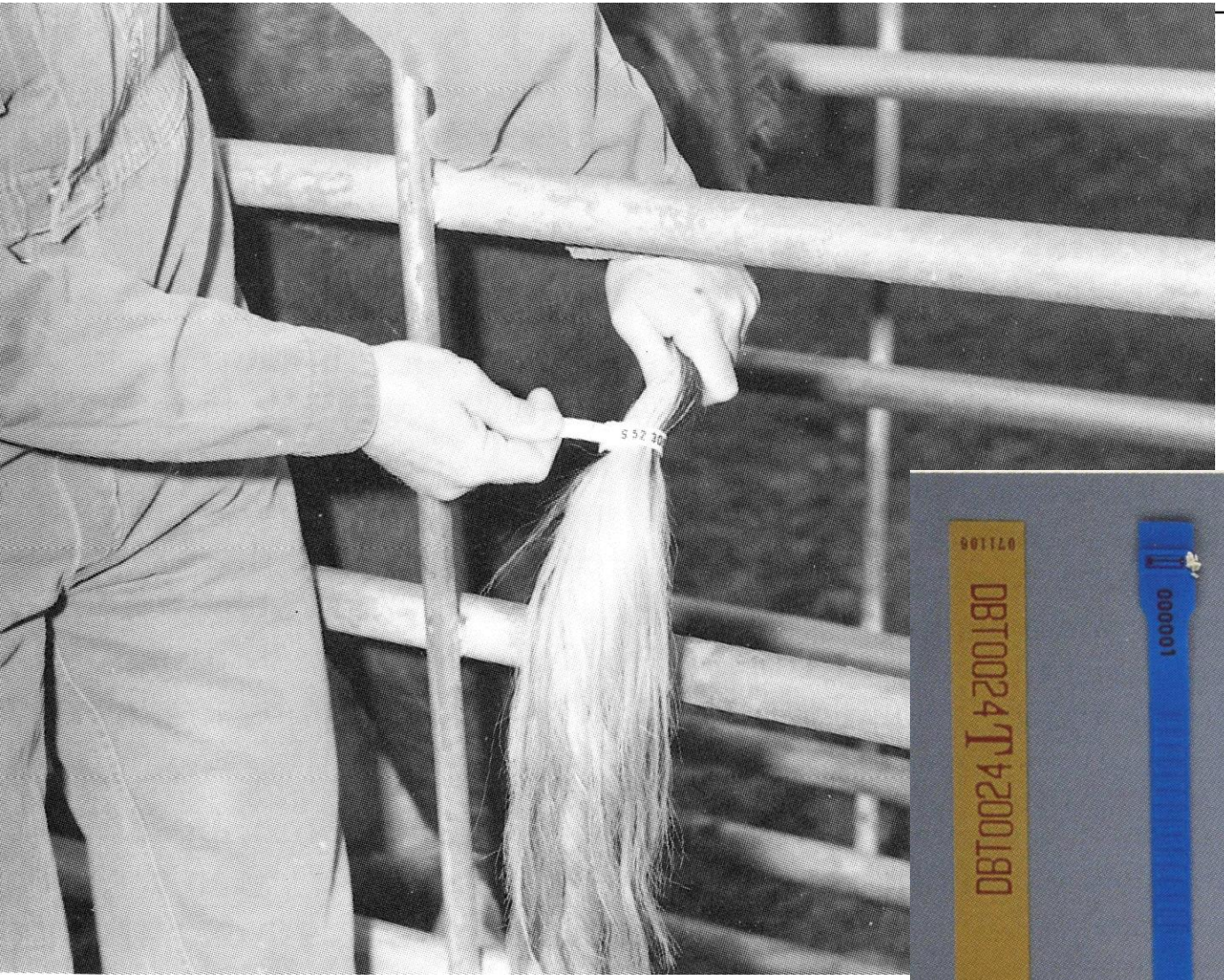
- Abattoir monitoring – blood collected & tested from all breeding animals slaughtered
- Milk ring testing of dairy herds
- Field testing – this was ramped up as the program progressed, with special purpose field teams appointed.

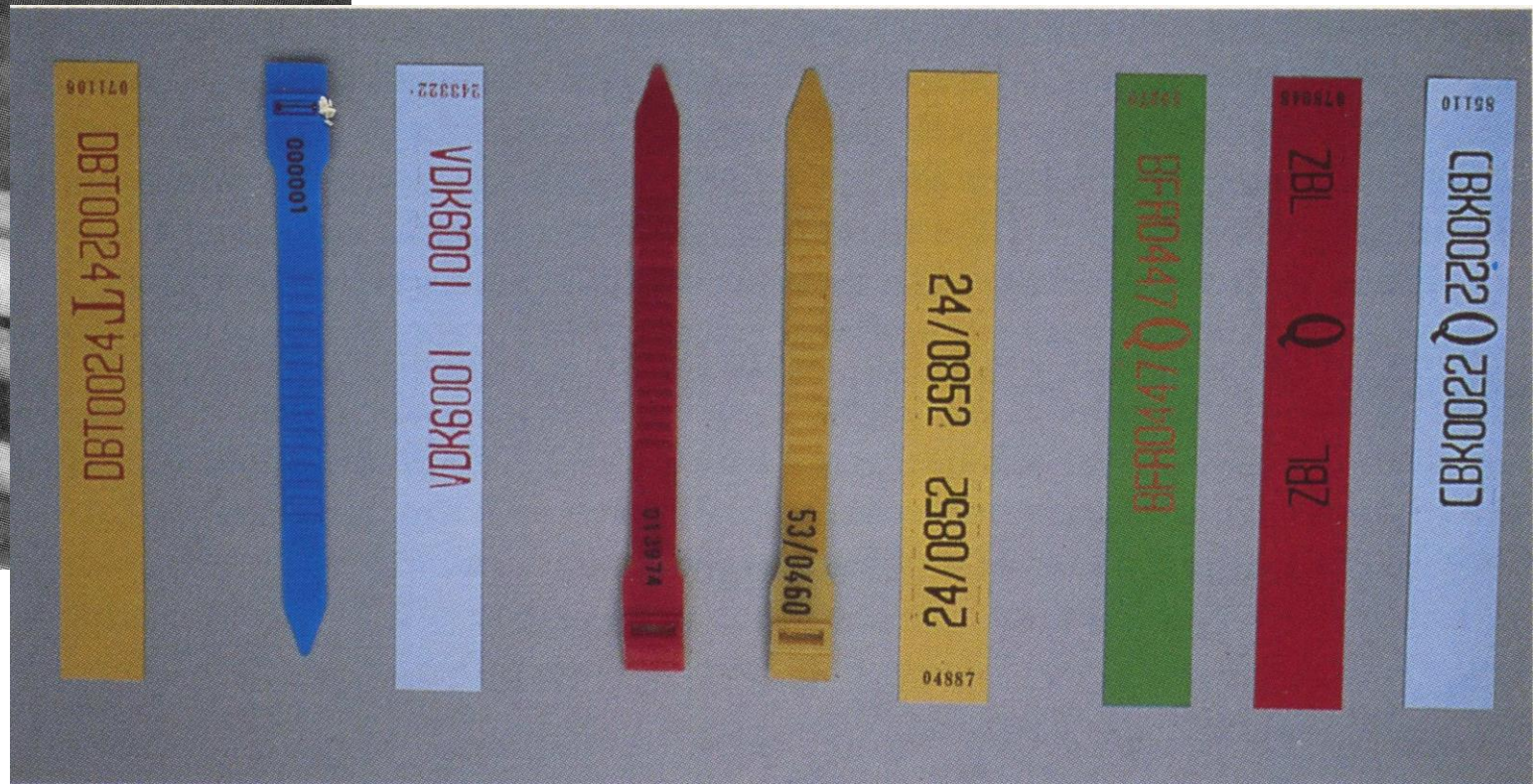
Complement Fixation (CF) test primarily used.

Supported by:

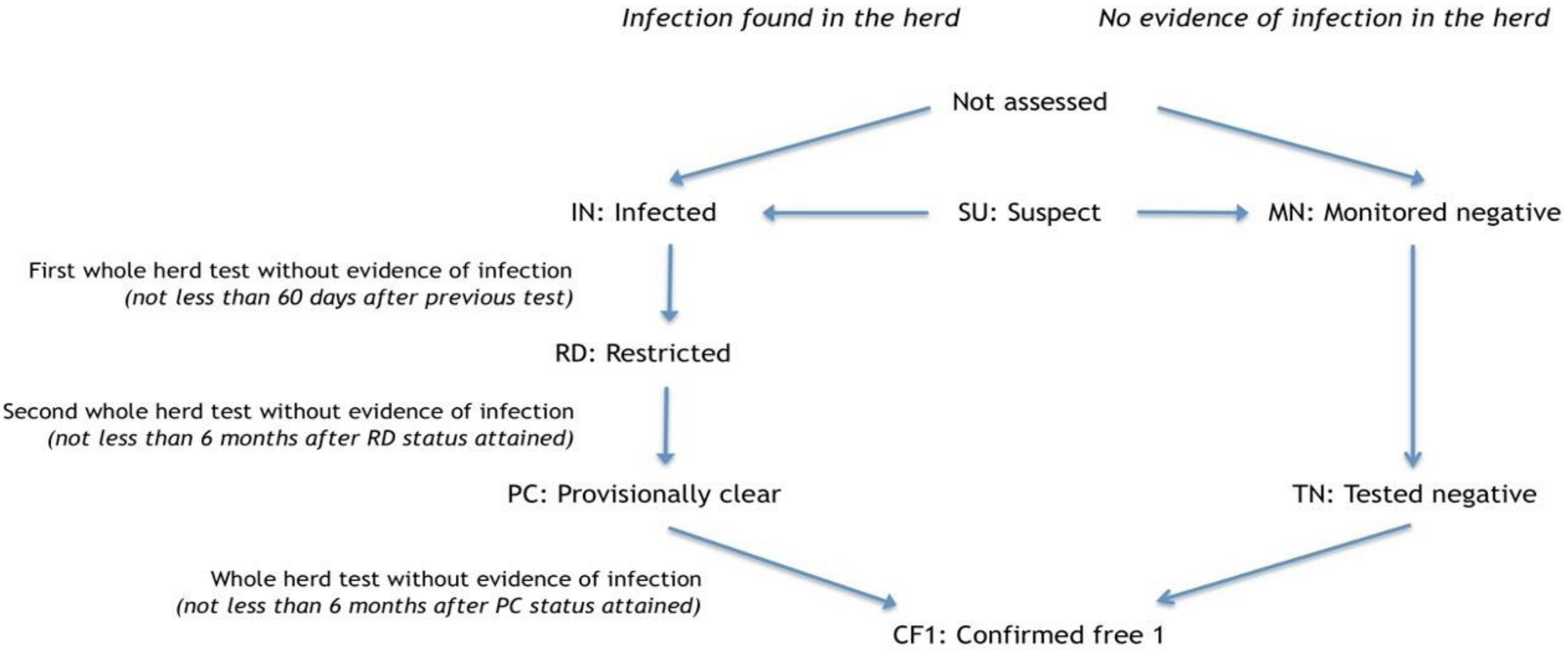
- Rose Bengal test
- IHLT
- ELISA

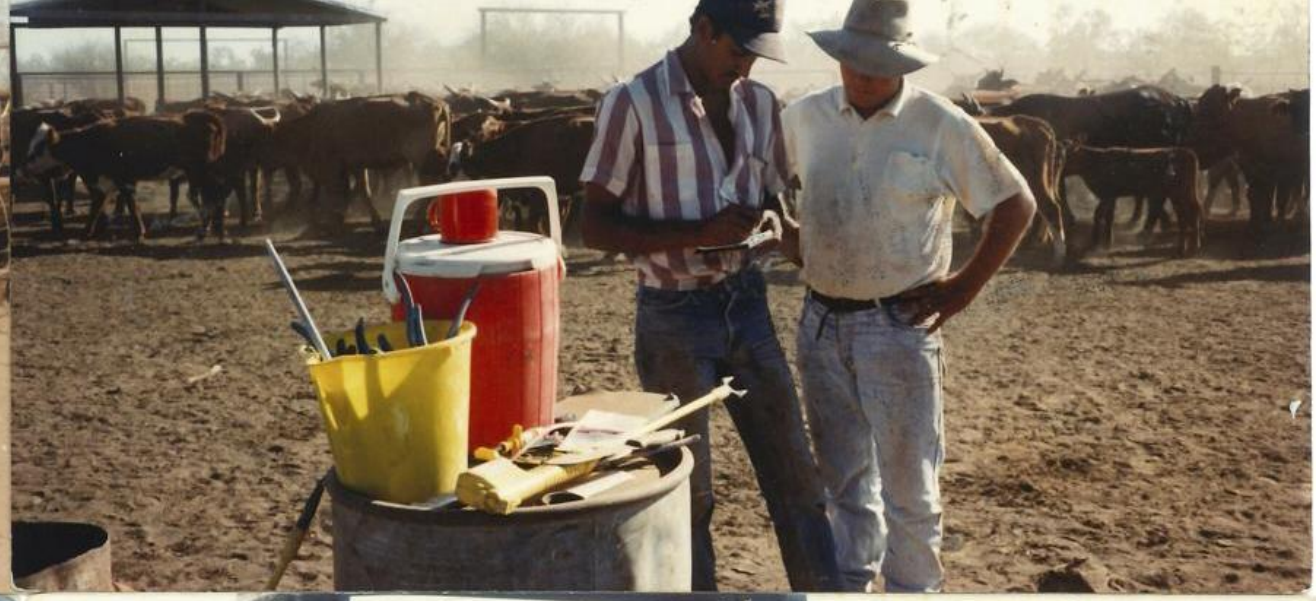
Livestock Identification: Tail tagging





Brucellosis Herd Status Progression





Approved Property Program

- Property Details & Disease History
- Program Summary & Problems Anticipated
- Program Details By Group, including:
  - Identification
  - Testing
  - Internal movements
  - Depopulation
  - Paddock / area inspections
  - Status progression
- Assistance measures
- General program conditions - clean musters, notifications, facilities etc.

Risk Based Trading

The Standard Rules and Definitions specified the animal movements allowed – determined by herd and area status.

Rules complex, but most importantly:

For Bulls & entire females from, Suspect, Infected, Restricted and Provisionally Clear herds - no movement between farms allowed.

This provided a huge incentive for cattle owners to eradicate the disease.

BTEC – Industry Partnership

20

Funding

50% Industry through levies

20% Commonwealth Government

30% State Governments

National and State BTEC Committees

“He/She Who Pays, Has a Say”

Assistance Measures

Compensation for animals destroyed or depopulated

Mustering subsidies

Freight subsidies

Low interest loans

Taxation concessions

Advisory services

Challenges

Industry & Government Commitment

Funding & Cost Sharing

Program Management

Agreed Technical Standards

Persistence &
Be Prepared to be Tough

Legal Backing

Abattoir Surveillance

Tracing

Strict Controls

- ✓ Testing
- ✓ Movement controls based on status
- ✓ Targeted depopulation (residual infection)
- ✓ Compensation and subsidies for farmers affects

How Australia maintains freedom from *Brucella abortus* in susceptible animals

Three Pronged Approach

1. Cattle Import Conditions to Prevent Introduction of Brucellosis

Prevention

Commodity	Import Conditions
Live cattle	N/A - Australia doesn't import live cattle
Bovine semen & embryos (in vivo and in vitro)	Imports permissible only for certain bovine species. Comprehensive import conditions which may indirectly manage brucellosis.
Fresh beef and beef products (unretorted meat)	Australia currently only imports from Japan and NZ. Japan: country health status free from brucellosis *(B. melitnesis)*. The meat does not include brain or any pulmonary or reproductive organs or udders (and associated lymph nodes). NZ: some conditions apply but none directly referencing brucellosis
Retorted beef	'The goods must have been hermetically sealed in a container before being heat treated to a minimum core temperature of 100°C, obtaining an F0 value of at least 2.8.'
Casings	'Bovine-derived casings must be from countries recognised by the Department of Agriculture, Fisheries and Forestry as free from foot and mouth disease; and have been assessed by FSANZ and assigned a category 1 or category 2 BSE risk rating.'
Pet food with bovine materials	Needs to be retorted meat or meet high-level requirements including inactivation. Main concerns are contamination with major exotic diseases and the processes that manage this will manage brucellosis.
Milk	'The milk from which the dairy ingredients were made must be heat treated by a method approved by the Australian Director of Biosecurity.' - Not described as particular to brucellosis but process would also manage brucellosis risk

Early Detection

Zoonotic disease differentials for syndromes seen in cattle:

Syndrome	Disease	Modes of transmission	Precautions at the property
Reproductive	Bovine brucellosis	Direct contact / ingestion of animal products	Wear PPE for examination of animals. Avoid ingestion of contaminated material.
	Leptospirosis	Urine, reproductive fluids	Avoid splashing or inhaling body fluids, wear PPE.
	Listeriosis	Direct contact with infected placenta/foetus, ingestion of infected animal products	Wear PPE for examination of animals. Avoid ingestion of contaminated material.
	Q Fever	Inhalation of aerosols from infected animals particularly placenta and fluids, and contaminated dust. Direct contact through open wounds.	Wear appropriate PPE (particularly if not immune).
Respiratory signs	Bovine tuberculosis	Direct transmission by ingestion, inhalation and instillation	Remove suspect animals from food chain. Wear PPE for necropsy.
Skin lesions	Ringworm	Direct contact with infected skin	Wear gloves to examine animals. Wash hands and equipment.
	Pseudocowpox	Direct contact with infected cattle	Wear gloves to examine animals. Wash hands and equipment.
Sudden death	Anthrax	Direct contact with infected fluids and tissues	Wear PPE for examination of animals, avoid contamination from discharges and avoid opening carcass.

3. Emergency Response

AUSVETPLAN

Disease Strategy

Bovine brucellosis

Version 3.0, 2005

AUSVETPLAN is a series of technical response plans that describe the proposed Australian approach to an emergency animal disease incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.

Primary Industries Ministerial Council

WOAH Regi
Beijing, Chi

3.1 Overall policy

Bovine brucellosis is an OIE-listed disease that has the potential for rapid spread within a herd and may spread to other herds. It is important in the trade of cattle and is a significant public health issue. It is difficult to recommend a single strategy for the eradication of bovine brucellosis for Australia that will be practical for all circumstances or locations.

The overall policy is to eradicate brucellosis by:

- ***destocking,* which involves quarantine, slaughter of all infected and exposed susceptible animals and sanitary disposal of destroyed animals (where only a small number of properties are involved, this strategy will be extended to include them); and**
- ***test and slaughter*, which involves regular serological testing of suspect animals and slaughter of those that test positive, used if brucellosis has spread more widely.**

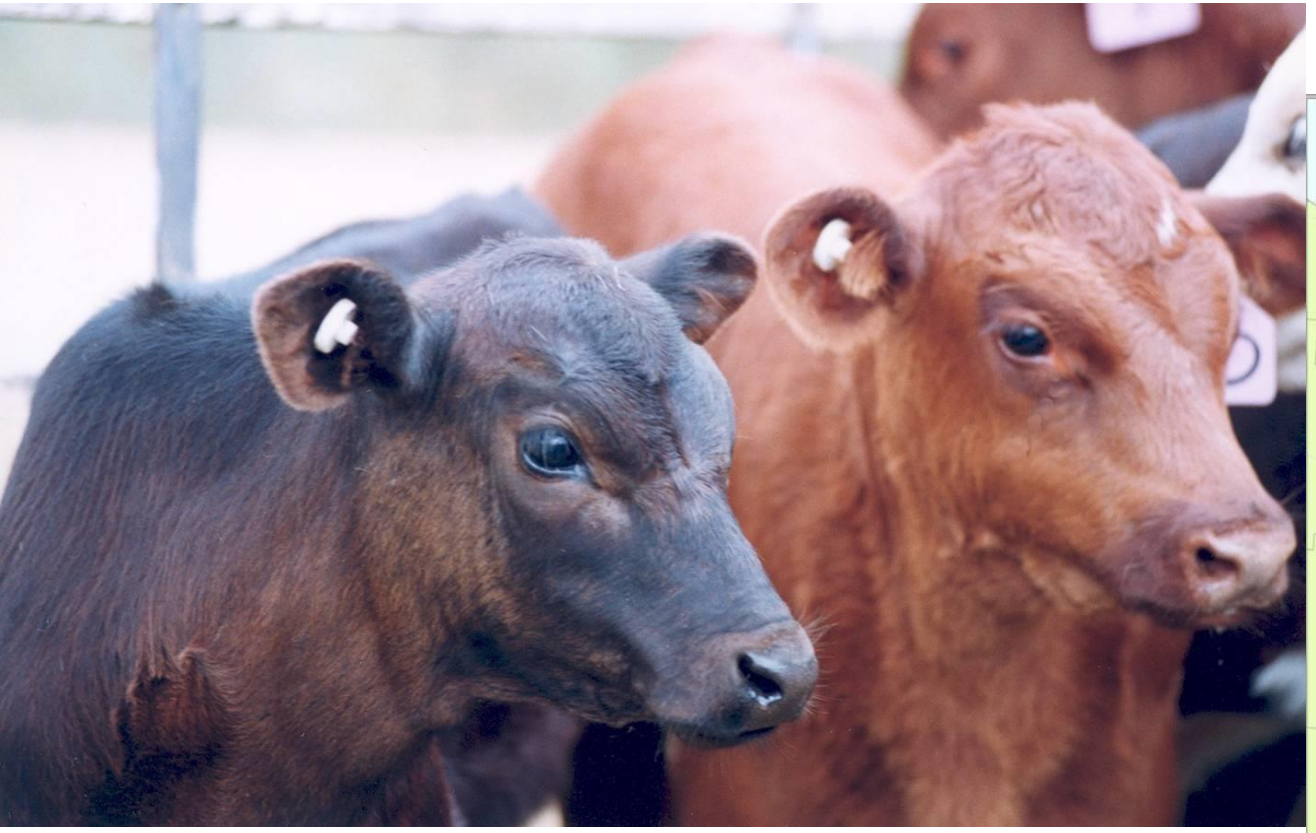
These strategies will be supported by:

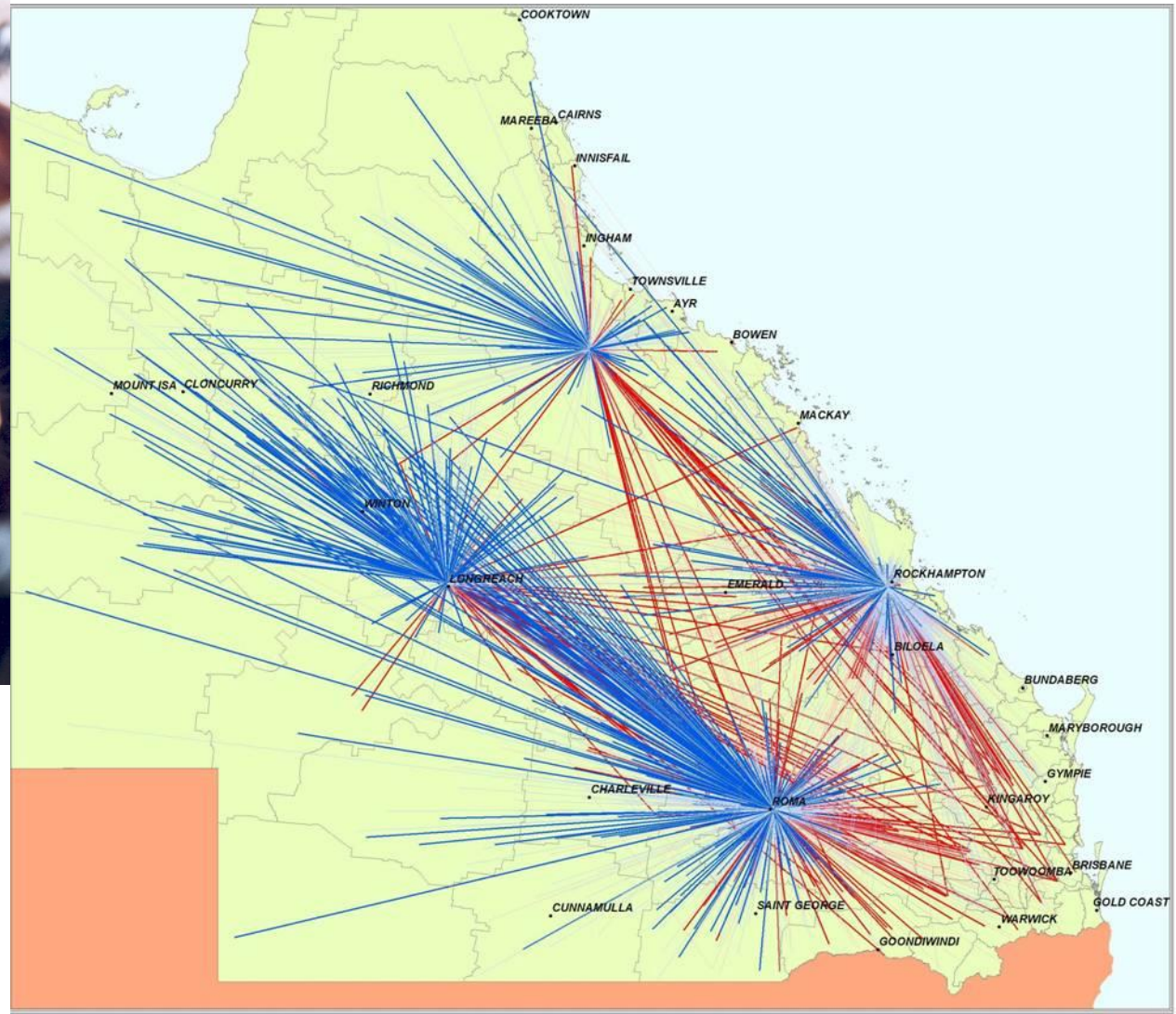
- ***quarantine and movement controls* on animals on infected and suspect properties to prevent the spread of infection;**
- ***tracing and surveillance* to determine the source and extent of infection and to provide proof of freedom from the disease;**
- ***vaccination,* which should be considered for assisting in the eradication of the disease if a major disease outbreak occurs in Australia or if particular situations warrant;**
- ***zoning* to define infected and disease-free areas; and**
- ***a public awareness campaign* to facilitate cooperation from industry.**

An uncontrolled outbreak of brucellosis would cause severe production losses to the affected producers with potential dislocation and financial losses to the cattle industry from effects on exports. There is potential for human disease and occupational health and safety measures must be adopted.

Bovine brucellosis is an Animal Health Australia Category 2 disease under the government–industry EAD Response Agreement for cost-sharing arrangements. Category 2 diseases are those for which costs will be shared 80% by government and 20% by industry.

National Livestock Identification System





Thank you!

Regional Representation for Asia and the Pacific
Food Science Building 5F - The University of Tokyo
1-1-1 Yayoi, Bunkyo-ku
Tokyo, 113-8657
JAPAN

rr.asia-pacific@woah.org
rr-asia.woah.org

Facebook
Twitter
Instagram
LinkedIn
YouTube
Flickr