Australian Government
Department of Agriculture, Fisheries and Forestry

Australia's Freedom from Bovine Tuberculosis (TB)

(Last updated February 2012)

Ongoing surveillance confirms that Australia is free from TB in all animal species.

Summary

Australia declared official freedom from bovine tuberculosis in December 1997. This followed an intensive national eradication program which began in 1970. The last confirmed case of TB in any species in Australia was detected and destroyed in 2002.

Australia is currently the only major exporter of livestock that has successfully eradicated bovine tuberculosis. Many other countries have reduced the TB prevalence of infected herds, but reservoirs of tuberculosis in wild-living animals appear to have prevented total eradication. Australia does not have wildlife reservoirs for bovine tuberculosis and is free in all animal species.

Why did Australia eradicate bovine tuberculosis?

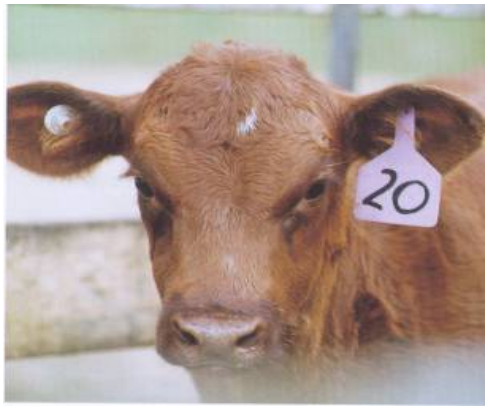
1. To eliminate associated risks to human health.
2. To protect and enhance Australia's export of cattle, genetics and dairy products.
3. To improve productivity in cattle.

Introduction

Bovine TB is caused by the bacteria *Mycobacterium bovis*. It is a chronic disease that seldom becomes apparent in animals until it has reached advanced stages. Early infections are usually asymptomatic.

In cattle, transmission of *M. bovis* occurs via aerosols from infected individuals or through ingestion of the organism. *M. bovis* is shed in the milk, faeces, urine, vaginal discharges and semen of infected individuals. Symptoms in the later stages of infection in cattle include progressive emaciation, low-grade fluctuating fever, inappetence and weakness. At its latest stages, TB causes acute respiratory distress and in some cases, enlargement of the lymph nodes and possible rupturing.

M. bovis is a significant zoonosis and is spread to humans via unpasteurized dairy products and aerosols from infected individuals. It can also spread to people through eating inadequately cooked meat or through breaks in the skin.



How did Australia achieve freedom?

Individual state and territory departments progressively introduced independent TB control programs in dairy cattle in the early 1900s. The development of an improved tuberculin test resulted in an expansion in control programmes after World War II.

In 1970 industry, state, territory and the commonwealth government united to form the national Brucellosis and Tuberculosis Eradication Campaign (BTEC). The goal of this campaign was to eliminate *M. bovis* from all cattle and buffalo herds in Australia. No cases of tuberculosis have been detected in any species in Australia since 2002. There were several key features for the success of this program.

National commitment and support form Industry and Government
Commonwealth (national) and State Governments and the livestock industry provided financial support to farmers through out BTEC. Producers, veterinary practitioners, industry and government bodies worked together to develop Standard Definitions and Rules (SDRs). These SDRs prescribed the requirements for herd and area status and the stages in the progression towards elimination of the disease.

Whole herd test and slaughter program
The diagnosis of tuberculosis in cattle in the field used tuberculin testing with slaughter of reactors and financial compensation to farmers for culled stock. In the early stages of the campaign, doubtful reactors were culled. The low sensitivity of the caudal-fold tuberculin test was enhanced by a program of repeated herd testing. Over a two-year period, four negative whole-herd tests were required for the lifting of movement restrictions. A fifth tuberculin test was done five to eight years later for a herd to become ‘certified-free’.

Movement controls, quarantine and traceback
Movement controls meant that stock from infected herds could only move to slaughter or to other infected herds. Controls were imposed until the infection was eradicated. Tail tags indentified the owner and property of origin of cattle and enabled traceback of all cattle that were moved, sold or slaughtered.

The establishment of a national tuberculosis reference laboratory
The national tuberculosis reference laboratory provided advice and diagnostic services to field workers and a quality assurance program for the culture and typing of *M. bovis*. This helped to ensure that standards were maintained. These standards were documented in the Australian Standard Diagnostic Techniques for Animal Diseases.

Thorough knowledge of the epidemiology of *M. bovis*
Properties with a high prevalence of *M. bovis* infection were completely destocked. Minimum time periods were enforced to ensure that *M. bovis* was destroyed in the environment before stocks were reintroduced. In recognition that *M. bovis* had a long incubation period and the incidence was higher in older cattle, stock on extensive grazing properties were segregated by age and the older animals were culled for slaughter.

Demonstration that there were no wildlife reservoirs
Australia did not have reservoirs of TB in wildlife that could re-infect the cattle population. Pigs were end hosts for *M. bovis* infection. In the north, feral cattle and buffalos were trapped or located by radiotracking tracer animals and removed.

National computer database
A national database was established to record all cattle properties and results of testing. This permitted a regular review of progress towards eradication.

Flexibility to include approaches from new research
During the course of the eradication campaign, new advances from TB research were incorporated into the program.

What does Australia do to maintain Tuberculosis freedom?

Surveillance programs

Immediately after Australia declared country freedom from bovine tuberculosis in 1997, the Tuberculosis Freedom Assurance Program (TFAP) was established. TFAP helps maintain Australia's freedom from bovine TB and incorporates both active and passive surveillance procedures for the effective detection of TB in Australia. The original TFAP program finished in December 2002 and was replaced by the Tuberculosis Freedom Assurance Program 2 (TFAP2).

TFAP provides effective assurance that Australian cattle remain free from *M. bovis* infection. The last case of TB in Australia was detected and destroyed in 2002.

Tuberculosis Freedom Assurance Program
TFAP includes several vital components.

The National Granuloma Submission Program (NGSP)
The inspection of slaughtered meat by the Australian Quarantine and Inspection Service (AQIS) has been the primary surveillance activity for bovine TB since 1992. The NGSP increases the sensitivity of abattoir surveillance by maximising the number of granulomas submitted from cattle, buffalo, camels and deer for laboratory examination. The NGSP uses a risk based approach that places emphasis on (but is not confined to) lymph nodes in the head and thorax in older animals. It has been modified as circumstances changed and as the risk of TB diminished towards zero. A total of 50,841 granuloma samples were submitted for TB testing as part of the NGSP between March 1992 to June 2009. Below are the results of all granulomas submitted from 2004 to 2008 (data sourced from the Animal Health Australia website: www.animalhealthaustralia.com.au).

Field operations
Targeted herd testing is performed to ensure monitoring of properties supplying the live export trade.

Tuberculosis Reference Laboratory
All Australian laboratories examining granulomas are accredited to international standards by the National Association of Testing Authorities (NATA) under ISO/IEC 17025:2005. In addition, each year all laboratories approved for culture of *Mycobacterium bovis* must pass an external quality assurance program run by the Australian reference laboratory for TB. Based in Perth, this is one of only three laboratories in the world that is designated as a Reference Laboratory for TB by the OIE.

NGSP database
The NGSP database contains information from tuberculosis surveillance and is funded by the commonwealth government.

	2004	2005	2006	2007	2008
Number of granulomas submitted	4639	2671	1320	797	596
Positive results	0	0	0	0	0

Table 1. Total number and results for all granulomas submitted in accordance with NGSP from 2004-2008.

Occurrence of TB in each Australian State from 1992 to 2009

	NSW	NT	Qld	SA	Tas	Vic	WA	Aust
1992	1	4	1	1	0	0	3	**10**
1992	0	4	2	0	0	0	0	**6**
1994	4	6(4)	0	0	0	0	4(1)	**24**
1995	3(1)	4(3)	2(0)	0	0	1	1	**11**
1996	0	5(2)	1	1	0	1	2	**10**
1997	0	4	2	0	0	0	0	**6**
1998	0	2	1	0	0	0	0	**3**
1999	0	2	0	0	0	0	0	**2**
2000	0	0	2	0	0	0	0	**2**
2001	0	0	0	0	0	0	0	**0**
2002	0	1	1	0	0	0	0	**2**
2003	0	0	0	0	0	0	0	**0**
2004	0	0	0	0	0	0	0	**0**
2005	0	0	0	0	0	0	0	**0**
2006	0	0	0	0	0	0	0	**0**
2007	0	0	0	0	0	0	0	**0**
2008	0	0	0	0	0	0	0	**0**
2009	0	0	0	0	0	0	0	**0**

Emergency response strategy

TFAP includes an emergency response strategy and an Approved Property Plan for the eradication of TB in the unlikely event of re-introduction of *M bovis*. Animal Health Australia has also produced a Bovine Tuberculosis Case Response Manual. This manual includes a technical response plan and guidance for Australia based on sound analysis, strategy and coordination in the unlikely case of a TB incursion, and can be viewed at: http://www.animalhealthaustralia.com.au.

Biosecurity

Biosecurity Australia has strict importation requirements which are implemented by AQIS and help prevent the entry of *M. bovis* into Australia.

Legal requirements

Legislation of each state/territory government in Australia requires:

- notification of suspected cases of bovine tuberculosis
- investigation of suspected clinical cases
- compliance with agreed Standard Definitions and Rules to ensure free country status for Australia, and
- all surveillance data to be supplied to NAHIS.

Bovine Tuberculosis-freedom of herds meets OIE standards

Australia has maintained official freedom from TB under Chapter 11.6 of the OIE Code for the past 14 years. TB occurrences are increasing rare and the last confirmed case in any species was destroyed in 2002. In view of the ongoing passive surveillance system and absence of wildlife reservoirs in Australia, TB is now considered exotic to Australia. Further testing of individual cattle or their products or genetic material is therefore unnecessary.

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