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## Self-declaration by New Zealand of historical freedom from *Brucella abortus*

Declaration sent to the World Organisation for Animal Health (OIE) on 28 April 2021 by Dr Tony Zohrab, OIE Delegate for New Zealand, Chief Market Access Officer, Policy and Trade Branch, Ministry for Primary Industries.

### 1. Introduction

In accordance with the OIE procedure for publication of a self-declaration of freedom from a disease, the New Zealand Ministry for Primary Industries (MPI) is submitting the following documentation for publication by the OIE, attesting that New Zealand is historically free from infection with *Brucella abortus* in all susceptible species. Declaration of freedom from *B. abortus* is made for the country as a whole and reaffirms New Zealand's status which has been in effect since 1996.

### 2. Evidence that *Brucella abortus* is a notifiable disease in New Zealand

MPI is the lead organisation for New Zealand's biosecurity system, and is responsible for administering the provisions of the [Biosecurity Act of 1993](#). The overall objectives of the Act are to exclude, detect, eradicate and effectively manage pests and unwanted organisms from or within New Zealand, and protect against the possible adverse effects on human health, the New Zealand economy and the New Zealand environment that may be associated with risk organisms.

Under sections 44 and 46 of this Act, all New Zealanders have a responsibility to report to MPI findings that might indicate the presence of notifiable organisms or organisms not normally present in New Zealand. This requirement applies throughout the entire country. The [Biosecurity \(Notifiable Organisms\) Order 2016](#) lists particular organisms that are required to be notified if suspected of being detected within New Zealand. *B. abortus* is a notifiable organism under this Order.

### 3. History of *Brucella abortus* in New Zealand

#### a. Eradication

Bovine brucellosis was recorded for the first time in New Zealand in 1893.<sup>1</sup>

In 1966, a slaughterhouse survey revealed approximately 15% of cattle were infected with *B. abortus*, and consequently, compulsory vaccination for *B. abortus* of all female calves (between 3 and 6 months of age) was undertaken to reduce the prevalence of infection prior to attempting eradication through a test and slaughter

<sup>1</sup> MacDiarmid, S (1994) [Bovine brucellosis eradication in New Zealand](#). Surveillance 21(2): 18-21

programme. Compulsory test, slaughter and quarantine commenced in 1971, alongside vaccination, and all cattle herds were under this testing regime by 1977.<sup>1</sup> Vaccination was prohibited from 1987.

*B. abortus* was last isolated in New Zealand in 1988, and the last two cattle herds under quarantine were accredited free from the disease in 1989.<sup>1,2</sup> Active surveillance, by means of on-farm testing for *B. abortus*, continued over a five year period (1989 to 1994), and no cases were detected.<sup>2</sup> Since that time surveillance, as described below, continues to affirm the absence of *B. abortus* from New Zealand.

In 1996 New Zealand's declaration of freedom from *B. abortus* was published in the OIE Bulletin.<sup>3</sup>

#### b. Susceptible animal populations in New Zealand

*B. abortus* mainly causes infection in cattle, and has also been observed in camelids, deer, buffalo, bison, goats, sheep, and pigs.<sup>4,5</sup>

The [National Animal Identification and Tracing \(NAIT\) Act 2012](#) establishes an animal identification and animal tracing system for domestic cattle (including farmed/captive bison and buffalo) and deer. Farmers and people in charge of animals are required to identify and register animals with NAIT. This registration requirement extends to zoological parks, game estates and safari parks. All cattle and deer movements must be recorded, including to slaughter and sale yards. Figure 1a and 1b show the distribution of cattle and deer farms across New Zealand, respectively. In 2020, there were approximately 17,624,718 cattle on 68,985 farms, and approximately 1,201,457 deer on 2,002 farms. South American camelids (alpaca and llamas) are present in New Zealand. There are approximately 13,622 alpaca and llamas distributed across 1,044 farms (see Figure 1c).

There is no individual animal identification system for goats, sheep and pigs in New Zealand. However, an animal status declaration (ASD), as described in the [Animal Products Notice: Specifications for Products Intended for Human Consumption \(May 2020\)](#), must accompany farmed animals when they are moved to a slaughterhouse, new property or sale yard. In 2020, there were approximately 181,246 goats on 5,456 farms, 33,322,688 sheep on 38,422 farms, and 301,681 pigs on 4,606 farms<sup>6</sup>.

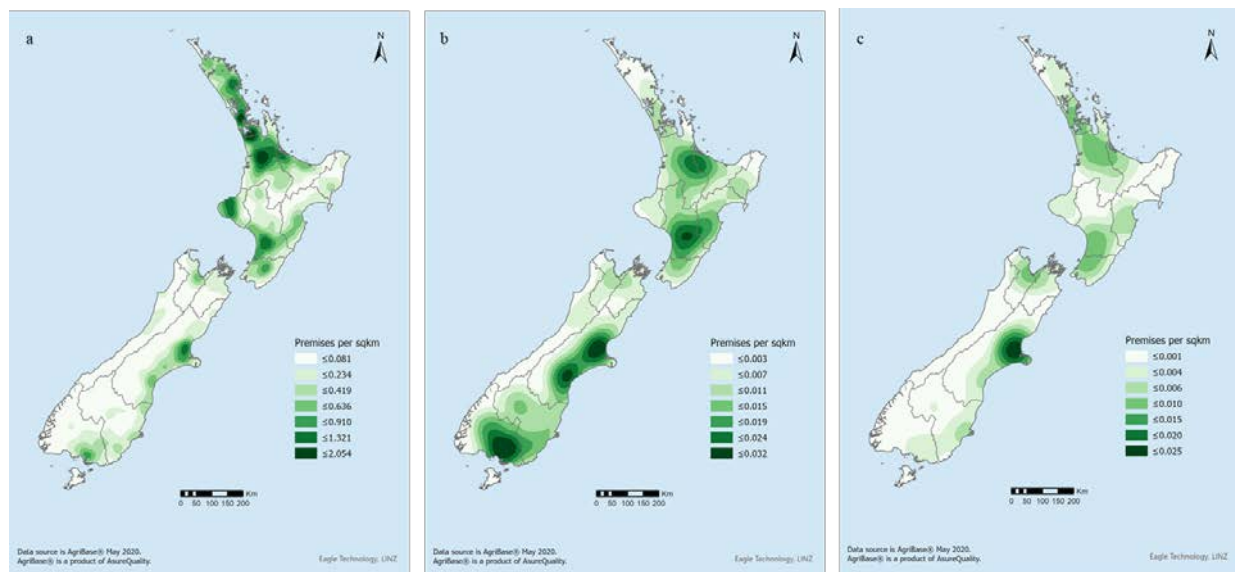


Figure 1. Distribution of cattle (a), deer (b), and camelid (c) premises across the North and South islands of New Zealand. Data source is AgriBase®, a product of AssureQuality (May 2020).

<sup>2</sup> Mackereth, G (2003) [Reaffirming New Zealand's freedom from bovine brucellosis](#). Surveillance 30(3): 3-6

<sup>3</sup> O'Neil, B (1996) [New Zealand declares itself free from bovine brucellosis](#). OIE Bulletin 108: 264-265

<sup>4</sup> World Organisation for Animal Health [Terrestrial Animal Health Code \(2019\) Chapter 8.4 Infection with Brucella abortus, B. melitensis and B. suis](#)

<sup>5</sup> World Organisation for Animal Health [Manual of Diagnostic Tests and Vaccines for Terrestrial Animals \(2019\) Chapter 3.1.4 Brucellosis \(Infection with Brucella abortus, B. melitensis and B. suis\)](#)

<sup>6</sup> Livestock numbers are best estimates.

There are no wild cattle, camelid, or sheep in New Zealand as defined in the [OIE Terrestrial Animal Health Code \(Terrestrial code\)](#).

Deer were introduced in 1851, and feral populations of seven species of deer have established throughout New Zealand with the exception of Northland.<sup>7</sup> There are also established populations of tahr<sup>8</sup> in the central Southern Alps of New Zealand's South Island. Feral pigs and goats are also present in New Zealand.<sup>9,10</sup>

#### c. Infection not known to be established in wildlife

There is no evidence of *B. abortus* in New Zealand wildlife.

Feral deer, goats, and pigs are continuously hunted in New Zealand by recreational hunters and hunters licensed to harvest these animals for human consumption. These species are also subject to population control programmes due to their negative impacts on native habitats, and feral pig and deer populations are monitored to inform control efforts by [TBFree New Zealand](#) the non-profit organisation responsible for the national pest management strategy for bovine tuberculosis in New Zealand).

Hunted animals (including farmed animals that have become feral and then killed) that enter the regulated food chain are subjected to post-mortem (PM) examination in accordance with New Zealand's [Animal Products \(Specifications for Products Intended for Human Consumption\) Notice \(May 2020\)](#). From 1 January 2019 to 31 December 2020, a total of 32,418 feral deer, 4,937 feral goats, and 250 tahr were submitted for PM examination. A total of 13,872 feral pigs were submitted for PM examination from 1 January 2012 to 31 December 2020. While *B. abortus* is not likely to be detected on PM examination, it is likely that there would be human infections resulting from *B. abortus* exposure (e.g. aerosols and infected tissues) during handling and dressing.

Brucellosis in humans is caused by multiple species of *Brucella*. Brucellosis is notifiable under the New Zealand [Health Act 1956](#) to the Medical Officer of Health and its listing can be found in [Schedule of Notifiable Diseases](#). There has been no evidence of locally acquired brucellosis in humans from any species of *Brucella* since New Zealand declared freedom in 1996;<sup>11</sup> although there are reports of brucellosis in people who have acquired the infection while overseas.

## 4. Surveillance and early warning systems for *Brucella abortus* in New Zealand

New Zealand has a well-established general surveillance system which provides ongoing passive surveillance for *B. abortus* through a notification and investigation system and endemic disease monitoring.

#### a. Notification and investigation system

As noted above, there is a legal requirement to report suspected cases of brucellosis to MPI. Rapid reporting of suspected exotic or notifiable organisms in domestic animals or wildlife is enabled through an Exotic Pest and Disease hotline which is operational at all times. All members of the public, including medical professionals, veterinarians and farmers, can notify MPI of suspect exotic disease such as brucellosis. A team of MPI incursion investigators comprised of veterinary epidemiologists manage investigations to identify or exclude the presence of an exotic disease. A New Zealand-wide network of non-MPI veterinarians can also be mobilised to support an investigation. Diagnostic testing to exclude exotic organisms is performed at New Zealand's reference laboratory, the National Animal Health Laboratory (AHL).

Table 1 (first row) shows the number of tests for *B. abortus* (all negative) as the result of suspected exotic disease from 2010 to 2020. Of the 106 tests performed over this period, 85 were for cattle, 10 alpaca, 10 equine, and one canine. A complement fixation test (CFT) was used for all species, except for alpaca which were tested with a serum agglutination test (SAT). Descriptions of the investigation of suspected exotic animal diseases are published in New Zealand's [Surveillance](#) magazine.

<sup>7</sup> New Zealand Department of Conservation website: [Deer: Animal Pests \(doc.govt.nz\)](#)

<sup>8</sup> New Zealand Department of Conservation website: [Himalayan tahr \(doc.govt.nz\)](#)

<sup>9</sup> New Zealand Department of Conservation website: [Feral goats: New Zealand animal pests and threats \(doc.govt.nz\)](#)

<sup>10</sup> New Zealand Department of Conservation website: [Feral pigs hunting \(doc.govt.nz\)](#)

<sup>11</sup> Institute of Environmental Science and Research (2019) [Notifiable diseases in New Zealand Annual Report 2017](#)

## b. Endemic disease monitoring

MPI also monitors and analyses trends in disease occurrence that might indicate the presence of an exotic disease. There are three commercial veterinary diagnostic laboratory companies in New Zealand operating across a number of sites. MPI maintains contracts with these laboratories for the provision of a number of services including (but not limited to), provision of diagnostic information for surveillance, screening of submission forms for key words that could indicate exotic disease, notifying within strict timeframes upon suspicion of an exotic or notifiable organism, and maintenance of minimum operational and technical quality assurance requirements. Audits are regularly conducted by MPI to ensure compliance with contractual requirements. These laboratories receive samples taken by veterinary practitioners and researchers for routine sick animal disease testing, export testing and health screening tests, and provide MPI with monthly reports on all sick animal cases among production livestock, wildlife and companion animals. During 2020, a total of 19,389 sick animal cases and diagnoses involving cattle were received from veterinary laboratories. Abnormalities of the reproductive tract and abortions accounted for a number of these cases. Given the large number of cases being processed, *B. abortus* would be detected if it were present in susceptible animal populations.

Additionally all farmed animals slaughtered by processors in New Zealand must at a minimum undergo ante-mortem inspection and all carcasses undergo post-mortem inspection in accordance with the [Animal Products \(Ante-Mortem and Post-Mortem Examination of Mammals, Ostrich and Emu Intended for Human Consumption\) Notice \(May 2015\)](#). Suspected exotic disease is notified to the Exotic Pest and Disease hotline.

## c. Export testing

Where export testing for *B. abortus* was required by an importing country despite New Zealand's free status<sup>12</sup>, it was completed in accordance with the *Terrestrial Code*. A total of 8,585 tests for *B. abortus* were done during the period from 2010 to 2020 (excluding those tests undertaken for exotic disease). All animals were negative for *B. abortus*.<sup>13</sup>

Of the 8,585 tests undertaken, CFT accounted for a total of 6,395 tests. Most of these were completed for bovine animals (6,165), with cervine (101), equine (61), ovine (35), caprine (20), porcine (10), alpaca (2) and a giraffe (1) making up the rest. The remaining export tests were done with SAT (2,190), and included alpaca (1,748), cervine (430), bovine (4) and caprine (8). A SAT test was used only when required by overseas market access requirements.

Table 1. Surveillance for *B. abortus* (all negative) for all susceptible species from 2010 to 2020. Testing done by AHL or MPI approved laboratory.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Suspected exotic disease (CFT/SAT)	44	4	10	12	0	3	6	15	6	5	1
Export testing (CFT)	831	533	454	481	347	378	724	646	766	613	622
Export testing (SAT)	404	481	170	100	244	218	77	67	157	146	126
<b>Total:</b>	<b>1279</b>	<b>1018</b>	<b>634</b>	<b>593</b>	<b>591</b>	<b>599</b>	<b>807</b>	<b>728</b>	<b>929</b>	<b>764</b>	<b>749</b>

## 5. Measures implemented to maintain freedom from *Brucella abortus*

### a. Import controls

New Zealand has strict border controls on what can be imported into the country, to protect the environment (flora and fauna), economy and human health from biosecurity risks that may be present across a wide range of imported goods, containers, and their means of transport. These controls are provided for under the Biosecurity Act 1993, and include provisions for the development and issue of import health standards (IHS) and craft risk management standards (CRMS). These standards specify the requirements to be met for the effective management of risks associated with importing risk goods and crafts<sup>14</sup>, and are developed from import risk analyses using the OIE risk analysis framework.

<sup>12</sup> Discontinuation of export testing should occur when this dossier is accepted by the OIE and given that New Zealand is now historically free.

<sup>13</sup> Screening for *B. abortus* is done with either CFT or SAT. Any non-negative samples are repeated with the CFT/SAT and a c-ELISA run in parallel. Any non-negative result as part of the parallel testing is notified to the MPI incursion investigators (section IV(a) above).

<sup>14</sup> "Crafts" has the corresponding meaning: sea vessels or aircraft.

Imported risk goods, including live animals and animal products, must remain at the port of arrival (border) pending biosecurity clearance. Imported animals are received by veterinarians, who are also MPI inspectors. Clearance of risk goods is authorised by an MPI inspector only if the inspector is satisfied that the goods meet the requirements of the relevant IHS.

New Zealand has *B. abortus* related import measures for live animals (ruminants and camelids), germplasm (semen and embryo), meat products, dairy products (human and non-human consumption) and wool based on country freedom, testing or treatment developed from a risk analysis or in accordance with the *Terrestrial Code*. All animals and animal products meet or exceed *Terrestrial Code* requirements for importation, or come from countries that are recognised as having animal health or food safety systems equivalent to those of New Zealand for *B. abortus*.

#### b. Emerging risk system

MPI maintains an emerging risk system to proactively identify and manage potential and emerging international risks to New Zealand's biosecurity. The system focusses on plant and animal hazards in the terrestrial and aquatic environments, and monitors for any change to the distribution, hosts or virulence of exotic organisms of biosecurity concern to New Zealand, including newly described organisms. If necessary, a rapid risk assessment may be done, and additional safeguards (e.g., changes to the IHS) are implemented.

## 6. Conclusion

In summary, in accordance with the provisions in Chapter 8.4, Article 8.4.3 (Country or zone historically free from infection with *Brucella* in specified animal categories) and items 2b of Chapter 1.4, Article 1.4.6. (Surveillance to demonstrate freedom from disease or infection) of the *Terrestrial Code* and consistent with information provided in OIE-WAHIS, I declare that:

- *Brucella abortus* has not occurred in New Zealand for the past 25 years (last isolated in 1988);

And for the past 10 years:

- *Brucella abortus* has been notifiable in the whole country;
- An early detection system has been in place for all relevant species;
- Measures to prevent the introduction of *Brucella abortus* have been in place. Importation of animals and animal products including their semen or embryos into New Zealand is carried out in accordance with Chapter 8.4 of the *Terrestrial Code*, or higher zoosanitary standards based on scientific risk assessment;
- Vaccination for *Brucella abortus* has been prohibited from New Zealand since 1987;
- Infection is not known to be established in wildlife within the country.

**The OIE Delegate of New Zealand declares that the country has met the requirements for historical freedom from infection with *Brucella abortus* as of 17 April 2021 in accordance with the provisions of Chapter 1.4., Chapter 1.6. and Chapter 8.4. of the OIE *Terrestrial Code* (2019 edition) and consistent with the information provided in OIE-WAHIS.**

I, the undersigned, Dr Tony Zohrab, Delegate of New Zealand to the OIE, take responsibility for the self-declaration of freedom from *Brucella abortus*.

Drawn up on 28 April 2021

A handwritten signature in blue ink, appearing to be 'TZ', is written on a light blue rectangular background.

Signature of the Delegate