

Risk Assessment

Bovine Brucellosis (*Brucella abortus*) in New Zealand

Animal and Plant Health Inspection Service
United States Department of Agriculture

Introduction

This report evaluates the probability that bovine brucellosis (*Brucella abortus*) is currently present in New Zealand. Information and data for the assessment were provided by the Ministry of Agriculture (MAF), Government of New Zealand. The report was prepared by Lynn Miller and Richard Fite, Animal and Plant Health Inspection Service (APHIS), Policy and Program Development (PPD), Risk Analysis Systems (RAS).

Format

This report provides information for assessing and characterizing the probability that bovine brucellosis (*Brucella abortus*) is present in cattle in New Zealand. As stated in the Code of Federal Regulations, part 92, the decision to permit imports from a region will be based on a risk assessment evaluating the specific animal or animal product proposed for export from that region. The risk assessment must consider information about the animal health situation existing in the region and the probability that the proposed export would transmit and establish disease in the United States. Accordingly, this report focuses on risk factors pertaining to the region from which the proposed imports will originate, specifically the 11 factors outlined in 9 CFR 92. The 11 factors are:

- ✧ Authority, organization, and infrastructure of veterinary services;
- ✧ Disease surveillance;
- ✧ Diagnostic laboratory capabilities;
- ✧ Disease outbreak history and disease prevalence;
- ✧ Active disease control programs if the agent is known to exist in the region;
- ✧ Vaccination status;
- ✧ Disease prevalence and outbreak history in adjacent regions;
- ✧ Separation from regions of higher risk through physical or other barriers;
- ✧ Control of movements of animals and animal products from regions of higher risk;
- ✧ Livestock demographics and marketing practices; and
- ✧ Animal health policies and infrastructure for disease control.

Risk Factors for Bovine Brucellosis in New Zealand

Authority, organization, and infrastructure of veterinary services in the region.

APHIS staff believe that New Zealand's veterinary services have authority, organization, and infrastructure equivalent to veterinary services in the United States, and that New Zealand's veterinary services are adequate to control, diagnose, prevent, and eradicate bovine brucellosis.

Disease surveillance in the region.

Bovine brucellosis was last diagnosed in New Zealand in 1989. Active disease surveillance using the bulk milk ring test, brucellin skin test, and complement fixation tests continued for 5 _ years (1989-1995), with no cases of bovine brucellosis found. Currently, unexplained bovine abortions and cases of human brucellosis are investigated in order to detect bovine brucellosis if it were present. No evidence of bovine brucellosis in domestic cattle has been found.

In some remote regions and on some offshore islands, wild cattle exist. These cattle are periodically culled to control bovine tuberculosis. Epidemiological exam of culled cattle has not identified any bovine brucellosis, and there have been no cases of bovine brucellosis identified in farm animals in occasional contact with these wild cattle.

Evaluation: Active disease surveillance continued for 5 _ years after the last known diagnosis of bovine brucellosis in New Zealand. Passive surveillance has continued since the discontinuation of active surveillance. APHIS staff believe that New Zealand has had adequate surveillance to detect bovine brucellosis if the disease were present.

Diagnostic laboratory capabilities.

APHIS staff believe that New Zealand has adequate diagnostic laboratory capability to diagnose bovine brucellosis.

Disease outbreak history and disease prevalence in the region.

Bovine brucellosis was first recorded in New Zealand in 1893. In 1966, a slaughterhouse survey indicated that 15% of cattle were infected with *B abortus*. To reduce the prevalence of disease, New Zealand began a compulsory strain 19 vaccination. In 1971, compulsory testing and slaughter and quarantine of infected herds were initiated, and by 1977, all cattle herds were being tested. By 1987, 35 herds remained infected, and New Zealand banned vaccination. The last two infected herds were accredited free of the disease in 1989. In 1992, routine screening detected a single beef animal with a positive complement fixation (CF) titer to brucellosis, and four additional animals with suspicious titers. Further investigation of these animals ruled out brucellosis in these animals and identified a nonspecific serologic response to *Yersinia enterocolitica* serotype 9. This serotype was subsequently recognized in several animals where suspicious titers were

detected on the CF test. Testing for bovine brucellosis continued through mid-1995 without detection of additional cases.

Evaluation: APHIS staff believe the evidence is sufficient to conclude that New Zealand's eradication program for bovine brucellosis was successful. APHIS staff find no evidence to indicate that bovine brucellosis currently exists in New Zealand, even at a very low prevalence.

Active disease control programs, if any, if the agent is known to exist in the region.

Bovine brucellosis is not known to exist in New Zealand. No active disease programs are currently in place. Measures are in place to prevent the reintroduction of brucellosis through importation. Emergency disease response plans exist for brucellosis, as for other exotic diseases.

Evaluation: APHIS staff believe that New Zealand has no need for an active disease control program.

Vaccination status.

The use of vaccine for prevention of bovine brucellosis officially ended June 1987, after 22 years of compulsory vaccination. Vaccination is currently not permitted.

Evaluation: APHIS staff believe that because New Zealand has not allowed vaccination for the last 12 years, the country's cattle herd is now fully susceptible to bovine brucellosis. This should facilitate surveillance, disease detection, and accurate diagnosis.

Disease prevalence and outbreak history in adjacent regions.

New Zealand is an island nation with no adjacent regions.

Evaluation: APHIS staff believe that adjacent regions pose no identifiable risk to New Zealand.

Separation of the region from regions of higher risk through physical or other barriers.

New Zealand is an island nation separated from all other regions by oceans.

Evaluation: APHIS staff believe that New Zealand has sufficient natural physical barriers to effectively isolate New Zealand from any regions of higher risk for bovine brucellosis.

Control of movements of animals and animal products from regions of higher risk.

New Zealand requires that all live animals imported into the country have been resident in herds negative for *B abortus* for at least 12 months prior to going into pre-export isolation at a facility managed by the state veterinary authority of the exporting country. Germplasm importations must

meet these same requirements. Animals are not allowed entry into New Zealand without certification from the exporting country that they meet these herd-of-origin requirements. On arrival in New Zealand, animals are supervised by MAF Quarantine Service in post-entry quarantine for a minimum of 30 days. During this time, animals are tested for brucellosis. The importation of animals vaccinated against bovine brucellosis is prohibited.

Evaluation: APHIS staff believe that New Zealand has sufficiently restrictive import requirements to ensure that imported live cattle and germplasm are highly unlikely to be infected with brucellosis.

Livestock demographics and marketing practices.

APHIS staff believe that New Zealand has a large cattle population and modern cattle markets.

Animal health policies and infrastructure for animal disease control in the region

Policies and infrastructure used in the eradication of bovine brucellosis are still in place. Procedures used included test and slaughter, epidemiological investigations and tracebacks, compensation for depopulated herds, and quarantine of suspect or affected herds. Vaccination, which was used during eradication efforts, would not be used during an exotic disease outbreak. A policy statement _NASS Standard 153.23 Specification for Investigation and Eradication of Bovine Brucellosis_ has been issued which outlines specific actions, responsibilities and authorities in the event that a case of bovine brucellosis is detected within New Zealand.

Evaluation: APHIS staff believe that New Zealand has animal health policies and infrastructure equivalent to those in the United States. Staff further believe that New Zealand_s policies and infrastructure are sufficient to prevent, diagnose, control, and eradicate bovine brucellosis.

Summary

APHIS staff believe that the evidence is sufficient to conclude:

- 1) New Zealand has veterinary authority, infrastructure, and diagnostic capability sufficient to prevent, control, and, if necessary, eradicate bovine brucellosis;
- 2) New Zealand successfully eradicated bovine brucellosis by 1990 and has had no reintroductions since then;
- 3) New Zealand has sufficient controls and natural barriers to prevent the reintroduction of bovine brucellosis; and
- 4) Bovine brucellosis does not currently exist in New Zealand.

References

Information for this report was obtained from the New Zealand Ministry of Agriculture_s website and from New Zealand_s request to the OIE for classification as a country free of bovine brucellosis, April 9, 1996.