An integrated risk based approach to the management of Johne's disease in Australia

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ABSTRACT
Australia’s National Johne’s Disease Control Program was established in 1996 to provide effective coordination of Johne’s disease programs across all states, territories and affected industries.

The program aims to protect the favourable status of Johne's disease in large parts of Australia and reduce the impact of the disease and control measures on industries by managing the risk across a number of affected species and the impacts that one industry’s control strategy could have on another industry.

The initial approach, based on Market Assurance Programs (MAPs) at the farm level and a traditional model of regulatory animal disease control, was inadequate within endemic areas as Johne’s disease continued to spread. Affected industries and governments sought better management strategies which resulted in the development of additional management tools. As a result, Australian industries have moved toward risk-based trading for endemically infected regions, with governments taking a more targeted regulatory approach in other regions.

Operational assurance systems, such as the Assurance Based Credit (ABC) scheme for sheep, Beef Only and Q-Alpaca have been developed for each industry sector. These are supported by nationally standardised written declarations which identify the level of assurance of the animals being sold or moved. The declarations are known as “national animal health statements” and are supported by state legislation to ensure the integrity of the statements that are made by producers.

BACKGROUND
The Australian National Johne’s Disease Control Program (NJDCP) is a cooperative program involving Australian livestock industries, government and the veterinary profession and managed by Animal Health Australia (see Figure 1).

![Figure 1. Structure of the Australian National Johne’s Disease Control Program](image)

The earliest national approaches comprised:

- Voluntary Australian Johne’s Disease Market Assurance Programs (MAPs) at the farm level;
- Traditional state regulatory animal disease control programs based on quarantine and area movement restrictions conforming with a set of nationally agreed Standard Definitions and Rules; and.
- National standards for diagnostic tests.
Regulatory programs had successfully eradicated bovine tuberculosis and brucellosis from Australia and, in the 1990s, was the accepted methodology for the management of infectious disease generally, including Johne’s disease. In northern regions of Australia, where the Johne’s disease is rare or absent, risk assessment and management is still undertaken at a population level and governments manage regulatory programs that include quarantine and depopulation whenever the disease is identified. However, regulatory practices proved inadequate to control the spread of both bovine and ovine Johne’s disease (called BJD and OJD respectively) in south-eastern Australia. In 2003, OJD was also detected in the previously free zone of Western Australia.

It was agreed that an alternative approach was needed to address some of the inequities that made producers reluctant to investigate suspect Johne’s disease in their herds and flocks. A search for better risk assessment and management strategies redirected the Australian approach towards voluntary risk-based trading schemes. Over the past five years different flock or herd risk based trading schemes have been developed to assist producers or industries to manage the risk of Johne’s disease. Each of the industry schemes is complemented by nationally agreed written declarations that producers can use to declare the level of assurance of the animals being sold or moved. The declarations are known as “national animal health statements” and are underpinned by state legislation to ensure the integrity of the statements that are made by producers.

The benefits of the change from regulation to an effective voluntary risk based approach include:

- The need to involve all producers is recognised.
- Producers’ fear of having infected herds or flocks is reduced.
- Trading options are provided, whilst the risk of and rate of disease spread should be reduced.
- A fair, supportive environment encourages cooperation.
- Tools are developed to help producers of infected herds/flocks to trade.
- Awareness and understanding of Johne’s disease risk increases.
- Low risk herds and flocks are promoted as sources of replacements.

ASSURANCE BASED CREDIT (ABC) SCHEME FOR SHEEP

The scheme was introduced in 2004, based on a quantitative OJD risk assessment model that was developed for the Australian wool industry. A sheep producer can claim credit points for his or her sheep under four categories up to 10 credits in total. The higher the ABC score, the greater is the assurance that the sheep are unlikely to be infected with ovine Johne’s disease. The declaration is made by the owner in writing on the National Sheep Health Statement.

The four categories are:

A. Area and flock of origin - The known Johne’s disease status of the flock or the prevalence of OJD (estimated from abattoir surveillance) in the area in which the flock is located.

B. Ovine Johne’s Disease testing history, including flock tests for the Sheep Market Assurance Program and inspection of sheep at abattoirs.

C. Vaccination history of the sheep and the flock.

D. Risk Assessment of the particular consignment of sheep by a veterinarian.

NATIONAL DAIRY BOVINE JOHNE’S DISEASE ASSURANCE SCORE

The dairy industry’s Dairy Score aims to help dairy farmers assess the risk of bovine Johne’s disease (BJD) when they are buying or selling stock, or seeking to improve the Score of cattle within their herd. It is not a quantitative risk assessment but ranks the existing regulatory and MAP herd statuses, based on scientific principles for bovine Johne’s disease management and provides clear pathways to progress. A herd can declare a base score
between 0 to 10, depending on the herd’s BJD history, testing history and prevalence, geographical location (zone) and calf rearing practices. The higher the Score the greater is the assurance. Herds that do not test or implement calf rearing are rated below infected herds at a Score of 0.

As hygienic calf rearing can significantly reduce the risk of calves becoming infected with bovine Johne’s disease, calves reared under the Victorian Johne’s Disease Calf Accreditation Program (JDCAP) are eligible for 3 extra points and those reared under an approved 3-Step Calf Rearing Plan are eligible for 1 extra point.

Q-ALPACA
After an initial outbreak in the early 1990s, Johne’s disease has been virtually eradicated from alpaca in Australia. However, alpaca often graze with other livestock and to help assure its members’ herds, the Australian Alpaca Association initiated this voluntary scheme with the endorsement of State and Federal animal health authorities in 2005. By requiring veterinary investigation of any death within a herd it not only monitors and assures for Johne’s disease, but also monitors and assists management of other significant endemic diseases, such as severe worm infestation, liver disease, liver fluke infestation and coccidiosis.

GOAT RISK RATING
The most recent scheme aims to improve understanding of goat health and reduce risks associated with Johne’s disease and a number of other important production diseases including footrot, caprine arthritis encephalitis (CAE) and lice, as well as drenching and vaccination history. Developed in 2008 by the Goat Industry Council of Australia (GICA) with state animal health authorities, it also promotes a simple message that higher the rating, the lower the risk. Like the sheep scheme, owners can voluntarily declare their herd’s Goat Risk Rating on the National Goat Health Statement

CONCLUSION
The implementation of risk based trading has largely ‘depoliticised’ the management of Johne’s disease and facilitated trade in south-eastern Australia where eradication of the disease is not considered possible in the foreseeable future.

ADDITIONAL INFORMATION
For additional information please refer to:

Animal Health Australia

Australian Alpaca Association

Dairy Australia