

# **NATIONAL JOHNE'S DISEASE PROGRAM**

## **Standard Definitions and Rules for Cattle**

**and for goats, deer and camelids  
infected with cattle strains of  
*Mycobacterium paratuberculosis***

**ANIMAL HEALTH COMMITTEE**



Animal Health Committee

**EDITION 7 B**

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## INTRODUCTION

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These Standard Definitions and Rules (SD&Rs) comprise nationally accepted guiding principles and practices upon which the state and territory governments formulate disease control programs to suit their circumstances, and have been approved by Animal Health Committee (AHC) and provided to the Primary Industries Standing Committee (PISC) and the National Biosecurity Committee (NBC) for information.

The SD&Rs are designed to assist disease control in a nationally coordinated manner. They complement the Rules and Guidelines of the Australian Johne's Disease Market Assurance Programs for Cattle (CattleMAP) and other eligible species, which have been designed to provide a degree of assurance for the sale and movement of animals from herds which have a low risk of infection. State and territory programs are designed to control disease in known Infected (IN) herds. The SD&Rs also outline criteria for control of movements between zones with regards to Johne's disease status.

These SD&Rs refer to other authoritative documents including the Australian and New Zealand Standard Diagnostic Procedures ([ANZSDPs](#)) and the [CattleMAP](#), [AlpacaMAP](#) and [GoatMAP](#). The relevant definitions used in the MAPs are consistent with the SD&Rs.

Detailed operating procedures developed for implementation of Johne's disease control programs are the responsibility of the animal health authorities in each state and territory that can provide advice as to the interpretation of this document.

It is intended these SD&Rs will continue to be progressively reviewed in the light of anticipated progress with existing state/territory Johne's disease control programs and the MAPs, and in response to improvements in scientific knowledge and understanding of the disease in the various susceptible species.

As a result, from time to time, AHC will endorse modifications to the SD&Rs contained in this document. Jurisdictions conducting programs based on these SD&Rs will implement any necessary changes from the date of AHC resolution agreeing to the modification(s).

The seventh edition of the SD&Rs standardised the terms '[Tested to MAP Standard \(TMS\)](#)' and '[Tested 4 Year Olds \(T4YO\)](#)', includes an updated list of [approved tests](#) for Johne's disease, and includes the use of pooled faecal culture as an approved test in [CattleMAP](#) and [AlpacaMAP](#). Edition 7B includes three changes which were proposed during the 2010 review but were not resolved until March 2011. Reference to S-strain infection has been removed from the BJD SDRs. The Herd Environmental Culture (HEC) test has been approved to be equivalent to a Check Test and a maintenance Test in dairy cattle herds. The use of the cattle Pooled Faecal Culture test has been specified in Appendix 1.

Note:

1. These SD&Rs relate only to the cattle strains of *M. paratuberculosis*. Bovine Johne's disease is genetically and epidemiologically a different disease entity to that in sheep under Australian grazing conditions. On the basis of ongoing monitoring of the cross-infectivity of strains of *M. paratuberculosis*, cross infection between sheep and cattle in Australia is considered to be a rare event. However, where Johne's disease is suspected in any animal species in direct or indirect contact with another species that is known to be infected, the case(s) should be carefully investigated and typing undertaken to determine the strain of *M. paratuberculosis* causing the infection. Separate guidelines to assurance based trading are in place for ovine Johne's disease.
2. For the purposes of these SD&Rs, species susceptible to infection with bovine strains of *M. paratuberculosis* are cattle, goats, deer and camelids.

3. The traditional certification that Johne's disease is not known or suspected to have occurred in a herd for five years was abandoned in the Second Edition 1999 as a basis for defining a Non-Assessed herd. However, because of the variable availability of records on which to base historical certification, it was agreed that 1 January 1991 be used as a basis for time limiting some aspects of the criteria for determining herd status.
4. Individual movement tests have been abandoned in favour of an assessment of the status of the herd of origin.

## LIST OF ACRONYMS

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AHC	Animal Health Committee
AlpacaMAP	Australian Johne's Disease Market Assurance Program for Alpaca
AGID	agar gel immunodiffusion test
ANZSDPs	Australian and New Zealand Standard Diagnostic Procedures
BJD	bovine Johne's disease
CattleMAP	Australian Johne's Disease Market Assurance Program for Cattle
CT	Check Test
CVO	Chief Veterinary Officer
DAFF	Department of Agriculture, Fisheries and Forestry (Australia)
DB	Disbanded
DNA	deoxyribonucleic acid
EPDMP	Enhanced Property Disease Management Plan
ELISA	enzyme-linked immunosorbent assay
GoatMAP	Australian Johne's Disease Market Assurance Program for Goats
IN	Infected
JDCAP	Johne's Disease Calf Accreditation Program
MAP	Market Assurance Program
MN	Monitored Negative
MN1, 2	Monitored Negative in a numbered series
NA	Non-Assessed
NAHIS	National Animal Health Information System
NLIS	National Livestock Identification System (Australia)
PISC	Primary Industries Standing Committee (Australian Government)
PDEP	Property Disease Eradication Plan
RD (1, 2)	Restricted (number of consecutive negative herd tests)
SCAHLs	Subcommittee on Animal Health Laboratory Standards (of Animal Health Committee)
SD&Rs	Standard Definitions and Rules
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization
SU	Suspect
T4YO	Tested Four Years Old and over
TAG	Technical Advisory Group
THP	Tested High Prevalence
TLP	Tested Low Prevalence
TMP	Tested Moderate Prevalence
TMS	Tested to MAP Standard

## PART 1 - DEFINITIONS

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### 1.1 Miscellaneous

#### 1.1.1 Johne's disease

For the purposes of this document, unless otherwise stated, Johne's disease is deemed to be caused by infection with cattle strains of the organism *Mycobacterium paratuberculosis*.

#### 1.1.2 Infected animal

A Johne's disease infected animal is one confirmed as infected by histopathological investigation or culture of faeces or tissues or other definitive tests conducted in accordance with the [ANZSDPs](#) for bovine Johne's disease, and in accordance with any provisions in the relevant Appendix for that species.

Where infection is detected in a herd for the first time, a range of definitive tests should be applied and interpretation based on the results of all tests conducted. Infected animals that may have been exposed directly or indirectly to sheep during their life should be strain typed to determine if the infection is due to cattle strain or sheep strain *Mycobacterium paratuberculosis*.

In a known Infected (IN) herd, a reactor or an animal showing clinical signs consistent with Johne's disease may be deemed by the CVO to be infected without further testing.

#### 1.1.3 Suspect animal

An animal may be classified as suspect if it has:

1. clinical signs consistent with a diagnosis of Johne's disease, which remain uninvestigated
2. gross post mortem lesions consistent with Johne's disease
3. been in direct contact with an infected animal at a susceptible age
4. been run on contaminated land at a susceptible age
5. reacted to a test but not been subject to a follow-up definitive test in accordance with these SD&Rs; or
6. been born into or grazed when under 12 months of age with an IN or Suspect (SU) herd.

#### 1.1.4 High-risk animals

Animals in an IN herd may be considered as high-risk animals, which should be preferentially culled, where the CVO considers on epidemiological grounds them to be at particular risk of being infected. The following animals may be considered high-risk animals:

1. dam, progeny and maternal siblings of clinical cases
2. dam and maternal siblings of infected animals
3. peers of clinical cases (i.e. cohorts reared with infected animals)
4. animals exposed at a susceptible age to clinical cases or to highly contaminated land
5. animals introduced from the same source as the infected animal(s)
6. animals, which when at a susceptible age, grazed contaminated land
7. groups or classes of animals in a herd which have been identified as high-risk through the results of herd testing.

Most animals in endemically infected herds will initially be considered as high-risk animals, depending on the time that bovine Johne's disease is introduced into the herd. They can be subsequently reclassified after further investigations.

#### **1.1.5 Progeny**

Progeny is an animal physically born of a dam. A dam includes a surrogate mother (i.e. an embryo recipient) but excludes an embryo donor.

#### **1.1.6 Contaminated land**

Land, including yards, cattle sheds, loading ramps etc, that has been contaminated or likely to have been contaminated with the faeces of an infected animal or herd and which has not been decontaminated.

#### **1.1.7 Decontaminated land**

Contaminated land which has been decontaminated according to the procedures described in [section 2.9.2](#).

#### **1.1.8 Approved veterinarian**

A registered veterinarian who has completed the Approved Program for Australian Veterinarians course and has completed the approved Johne's disease MAP training program to the satisfaction of the CVO in the state or territory of primary registration.

#### **1.1.9 Approved laboratory**

A veterinary laboratory approved by the CVO to carry out diagnostic tests for the identification of Johne's disease in livestock.

#### **1.1.10 Approved control program**

An official control program, developed with the owner and approved by the CVO, to prevent or minimise the spread of infection within the herd and to other herds. As a minimum, approved control programs must be based on the implementation of herd management procedures addressing all of the following issues:

1. preventing spread of infection to other farms
2. identification of animals at high-risk for preferential culling for slaughter
3. husbandry and herd management to prevent infection of replacement and introduced stock
4. control of dairy effluent discharges and manure (where applicable)
5. maintenance of accurate breeding records and permanent cattle identification.

#### **1.1.11 Approved Test and Control Program**

An official control program, approved by the CVO, which incorporates all the elements of an approved control program, with the addition of a whole herd testing and culling program and controls over introduction of susceptible species.

#### **1.1.12 Approved Enhanced Property Disease Management Plan (EPDMP)**

A program under the Financial and Non-Financial Assistance Package to manage Johne's disease on a property, with the aim of eventual eradication of the disease from a property, which is approved by the CVO. It is based on either an official, audited herd testing and management program (in accordance with the Appendix for that species) or destocking all susceptible species grazing that property with subsequent management of the land to ensure it is decontaminated (in accord with [section 2.9.2](#)). Restocking can only occur from *Beef Only* or higher herd status.

#### **1.1.13 Approved Property Disease Eradication Plan (PDEP)**

A program to eradicate Johne's disease from a property, which is approved by the CVO and is based on either an official, audited herd testing and management program (in accordance with the Appendix for that

species) or destocking all susceptible species grazing that property with subsequent management of the land to ensure it is decontaminated (in accord with [section 2.9.2](#)).

#### **1.1.14 Approved monitoring program**

An approved monitoring program is one approved by AHC and will vary in nature and extent in different zones (see [section 2.13](#)).

#### **1.1.15 Approved fence**

A fence or other physical feature approved by the CVO as providing assurance that all cattle or other susceptible species in the herd are under effective control and are maintained as a discrete unit.

#### **1.1.16 Approved barrier**

A physical separation approved by the CVO, which minimises the risk of environmental spread of infection.

#### **1.1.17 Susceptible species**

For the purpose of these SD&Rs, cattle, deer, goats and camelids are susceptible to infection with cattle strains of *M. paratuberculosis*.

#### **1.1.18 Susceptible animals**

Cattle are usually infected as calves and, for the purposes of these SD&Rs and the CattleMAP, cattle over the age of 12 months are considered to be at very low risk of becoming infected. Deer, goats and camelids are considered to be susceptible at any age.

#### **1.1.19 Herd**

A group of animals of a susceptible species that is maintained as a separate and discrete unit, in terms of physical contact with other susceptible species, by an approved fence or barrier to the satisfaction of the CVO.

#### **1.1.20 Breakdown**

The occurrence of Johne's disease infection in any herd of MN1 status or better under the CattleMAP, or any herd in a Protected or Free Zone.

#### **1.1.21 Chief Veterinary Officer**

The person appointed as the Chief Veterinary Officer or Chief Inspector of Stock or other equivalent title as the case may be under legislation for the control of Johne's disease in that state or territory, or the person for the time being having the delegated authority of that office.

#### **1.1.22 Quarantine**

An order or written undertaking empowered by legislation restricting susceptible species to a certain location and requiring authorisation for movement to and from that location.

#### **1.1.23 Traceback**

The identification of the property or properties of origin of animals.

#### **1.1.24 Traceforward**

The identification of the place of destination of animals.

#### **1.1.25 Notification**

Advice by the owner or persons in charge of cattle and other susceptible species, meat inspectors, veterinarians or approved laboratories of Johne's disease infection or suspicion of Johne's disease infection in accordance with the legislative requirements of the state or territory concerned.

### **1.1.26 Reactor**

An animal which has a positive reaction to an approved immunological test for Johne's disease.

## **1.2 Zones**

Areas declared by legislative or administrative action to enable the exclusion, control or eradication of Johne's disease infection in accordance with these SD&Rs.

## **1.3 Approved tests**

Approved tests for Johne's disease are the techniques recommended and documented, and as modified from time to time, in ANZSDPs approved by PISC and AHC or in special circumstances approved by AHC. Approved tests for each species, current at the time of publication, can be found in Appendices 1-4, while users should refer to the [ANZSDPs](#) for the most up-to-date information. Approved tests for diagnosing bovine Johne's disease include:

### **1.3.1 Clinical examination**

The assessment of the history and clinical features necessary to make a presumptive diagnosis or a possible differential diagnosis.

### **1.3.2 Post-mortem examination**

The examination of a carcass for Johne's disease as prescribed in the [ANZSDPs](#).

### **1.3.3 Histopathology examination**

The microscopic examination of tissue samples as prescribed in the [ANZSDPs](#).

### **1.3.4 Bacteriological methods**

Culture of faeces or tissues using bacteriological methods as prescribed in the [ANZSDPs](#), or approved by AHC pending inclusion in the ANZSDPs.

### **1.3.5 DNA detection using polymerase chain reaction (PCR)**

Examination of bacterial culture media, faeces, tissues, blood, milk or other material to detect the presence of the DNA insertion sequence according to methods as prescribed in the [ANZSDPs](#), or approved by AHC pending inclusion in the ANZSDPs.

### **1.3.6 Immunological tests**

Approved tests for the immunological diagnosis of Johne's disease are detailed in the Appendix for each species and may include the enzyme-linked immunosorbent assay (ELISA), agar gel immunodiffusion (AGID) test or any other approved test.

## **1.4 Screening and definitive tests**

### **1.4.1 Screening test**

A test that is used, mainly on a large number of animals, to identify animals that are to be tested by a definitive test. An approved screening test may detect immunological, bacteriological or molecular evidence of infection.

### **1.4.2 Definitive test**

A test that provides a definitive result for Johne's disease infection for the purpose of these SD&Rs.

## **1.5 Testing of herds**

### **1.5.1 Sample Test**

Test of all or a sample of animals in a herd as defined in the relevant MAP for that species. Where a Sample Test comprises a screening test, the test is not complete until any reactors have been further

investigated using a definitive test to establish the infection status of the herd (i.e. once infection is confirmed in one animal on one definitive test, it is not necessary to continue testing all reactors with definitive tests).

### **1.5.2 Herd test for Infected herds**

A test of all animals of eligible age for the test being used in an IN herd.

### **1.5.3 Herd test of four years old and over**

A test of cattle that are four years old and over up to the sample sizes required in the *Testing strategies* section of the CattleMAP (i.e. all cattle up to 210 then a sliding scale that plateaus at 300 animals in very large herds).

### **1.5.4 Check Test**

A test of adult animals in the herd biased to increase the probability of detecting infection (see Appendix for each species). A Check Test may only be undertaken in herds in which there is no suspicion of infection and be used only to support a Vendor Declaration for animals bred in that herd ('home-bred') and for animals introduced with a Vendor Declaration as originating from a Check Tested herd or a herd of higher status.

### **1.5.5 Maintenance Test**

A test of adult animals in the herd biased to increase the probability of detecting infection. A Maintenance Test may only be undertaken in herds in which there is no suspicion of infection and be used only to support a Vendor Declaration for animals bred in that herd ('home-bred') and for animals introduced with a Vendor Declaration as originating from a herd of same or higher status.

## **1.6 Miscellaneous test**

Testing of some or all susceptible animals in a herd for purposes not primarily related to the conduct of either a disease control or surveillance program or a MAP (e.g. for export, introduction, show, sale etc.).

### **1.7 Diagnostic test**

Testing of one or more animals in a herd for Johne's disease in connection with the investigation of a disease problem.

### **1.8 Positive sample test**

A Sample Test at which one or more infected animals are detected.

### **1.9 Negative sample test**

A Sample Test at which no infected animals are detected.

### **1.10 Positive herd test**

A herd test at which one or more infected animals are detected.

### **1.11 Negative herd test**

A herd test at which no infected animals are detected.

### **1.12 Vaccine**

A vaccine for Johne's disease approved by AHC and the Australian Pesticides and Veterinary Medicines Authority.

## **1.13 Herd status**

### **1.13.1 Assessed status**

A herd status, based on an objective assessment, assigned under the Rules and Guidelines of a MAP for the species concerned.

### **1.13.2 Monitored Negative (MN)**

Monitored Negative 1, 2 or 3 (MN1, MN2 or MN3) are assessed herd statuses under the MAPs.

### **1.13.3 Non-Assessed (NA)**

A Non-Assessed (NA) herd is one:

1. with no history of Johne's disease or where any suspicion of infection has been resolved to the satisfaction of the CVO and which has not been assessed under an approved MAP for that species, or
2. in which the last confirmed case was prior to 1 January 1991 and has been the subject of an official approved control program to the satisfaction of the CVO and which has not been assessed under an approved MAP for that species.

### **1.13.4 Check Tested herd**

A Check Tested herd is one that has no history or suspicion of Johne's disease and which has undergone testing as per [section 1.5.4](#) with negative results within the last 12 months.

### **1.13.5 Beef Only**

A *Beef Only* herd is a herd maintained by owner declaration which has been managed and tested in accord with [Appendix 1, section 12](#).

### **1.13.6 Tested to MAP Standard (TMS)**

A herd Tested to MAP Standard (TMS) is one that does not have an assessed status but which has undergone testing on the herd equivalent to a Sample Test under a MAP program in the last 24 months with negative results. A TMS herd may maintain its status provided that all suspect cases of Johne's disease are investigated and return negative results AND another Sample Test, herd test of four years old and over, Maintenance Test is undertaken within that 24-month period.

TMS status may only be used to declare animals bred in the herd or introduced with a declaration of the same or higher status.

A previously Restricted (RD) or Suspect (SU) herd that has successfully completed a program of testing may progress to this status with CVO approval in accordance with the Appendix for each species.

### **1.13.7 Tested Four Years Old and over (T4YO)**

A herd Tested Four Years Old and over (T4YO) is one in which all cattle aged four years old and over have been tested in accord with sample sizes in the *Testing strategies* section of the MAP program. A T4YO herd may maintain its status provided that all suspect cases of Johne's disease are investigated and return negative results AND another Sample Test, herd test of four years old and over or Maintenance Test is undertaken within that 24-month period.

T4YO status may only be used to declare animals bred in the herd or introduced with a declaration of the same or higher status.

### **1.13.8 Suspect (SU)**

A Suspect (SU) herd is one where the CVO determines that there is sufficient epidemiological evidence to suspect the presence Johne's disease, such as where, prior to January 1991

1. a herd had its last confirmed case of Johne's disease and has not been subject to, or has not satisfactorily complied with, an approved control program, or since January 1991:

2. a herd containing susceptible animals has been grazed on contaminated land, or
3. there is traceback or traceforward evidence of contact with an IN herd, or
4. reactors have been detected but have not been investigated, or
5. a herd contains animals with clinical signs consistent with Johne's disease that remain unresolved, or
6. an infected animal has been introduced and the CVO is satisfied that there has been little or no potential for transmission of infection to the herd or all exposed susceptible animals have been culled for slaughter.

SU status can be resolved by the CVO obtaining evidence to remove the suspicion of infection from the herd. One or more herd tests may be a necessary component of the process to remove suspicion.

### **1.13.9 Infected (IN)**

An Infected (IN) herd is one in which, since 1 January 1991

1. an infected home-bred animal has been found, or
2. an infected animal has been introduced and there has been potential for transmission of infection within the herd or the potential for transmission cannot be ruled out and all high-risk animals cannot or have not been identified and isolated from the herd.

The following statuses apply to IN herds according to the results of testing. Reference to IN herds in these SD&Rs includes all such herds unless otherwise indicated by the use of the more specific IN herd statuses.

#### *1.13.9.1 Tested High Prevalence (THP)*

An IN herd which is undertaking an approved Test and Control Program for bovine Johne's disease and has met the herd management and testing requirements of that program for at least the previous 12 months, has had a minimum of one herd test and the average annual rate of reactors and clinical cases detected in the past year was greater than 3 per cent if the whole herd was tested or 4 per cent if only cattle four years old and over were tested. THP status remains valid for two years without further testing provided an approved control program is implemented.

OR

A herd in which bovine Johne's disease has recently been detected and which has undertaken a herd test in which the number of reactors and clinical cases was greater than 3 per cent if the whole herd was tested or 4 per cent if only cattle four years old and over were tested, provided an approved control program is implemented.

If further testing is not completed after two years the herd will revert to a status of IN.

#### *1.13.9.2 Tested Moderate Prevalence (TMP)*

An IN herd which is undertaking an approved Test and Control Program for bovine Johne's disease and has met the herd management and testing requirements of that program for at least the previous 12 months, has had a minimum of one herd test and the average annual rate of reactors and clinical cases detected in the past year was 3 per cent or less if the whole herd was tested or 4 per cent or less if only cattle four years old and over were tested. TMP status remains valid for two years without further testing provided an approved control program is implemented.

OR

A herd in which bovine Johne's disease has recently been detected and which has undertaken a herd test in which the number of reactors and clinical cases was 3 per cent or less if the whole herd was tested or 4 per cent or less if only cattle four years old and over were tested, provided an approved control program is implemented.

If further testing is not completed after two years the herd will revert to a status of IN.

#### *1.13.9.3 Tested Low Prevalence (TLP)*

An IN herd which is undertaking an approved Test and Control Program for bovine Johne's disease and has met the herd management and testing requirements of that program for at least the previous two years, has had a minimum of two annual herd tests, and the average annual rate of reactors and clinical cases detected in the past two years was 1.5 per cent or less if the whole herd was tested or 2 per cent or less if only cattle four years old and over were tested. TLP status remains valid for two years without further testing provided an approved control program is implemented.

OR

A herd in which bovine Johne's disease has recently been detected and which has undertaken a herd test in which the number of reactors and clinical cases is 1.5 per cent or less if the whole herd was tested or 2 per cent or less if only cattle four years old and over were tested, provided an approved control program is implemented.

If further testing is not completed after two years the herd will revert to a status of IN.

#### *1.13.9.4 Restricted 1 (RD1)*

A herd with a history of infection which is undertaking an approved Test and Control Program (in accord with the relevant Appendix for that species) and which has achieved one negative herd test at least 12 months after the last known infected animal was removed from the herd.

If further testing is not completed after two years the herd will revert to a status of IN. However if biosecurity measures are consistent with approved control programs and further testing proves negative then CVO approval may allow progression to RD2

#### *1.13.9.5 Restricted 2 (RD2)*

A herd with a history of infection which is undertaking an approved Test and Control Program (in accord with the relevant Appendix for that species) and which has achieved two negative herd tests two years apart with the first negative test at least 12 months after the last known infected animal was removed from the herd.

#### **1.13.10 Disbanded (DB)**

A herd that no longer exists but for which records are held.

## **PART 2 – RULES**

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### **2.1 Declaration of zones**

AHC, on the recommendation of a CVO, may declare a Residual, Control or Protected Zone if satisfied that all requirements for that zone status have been met. These zones are presented below in an order which represents a decreasing risk of Johne's disease infection being present within, or spreading from, a zone. To the maximum extent possible, zones should be declared and implemented in a nationally coordinated and orderly manner to ensure artificial and unnecessary barriers to trade are not imposed on industry.

#### **2.1.1 Residual Zone**

1. Johne's disease infection is endemic.
2. No or minimal regulatory measures are enforced.
3. No restrictions on movement into zone.
4. Vendor/owner declarations may be used for voluntary movement controls.
5. Vaccination may be approved by the CVO.
6. Numbers of IN herds are reported quarterly to NAHIS.
7. Reports of activities and outcomes are presented annually (or as otherwise agreed) to AHC.
8. An advisory program may be in place to advise industry about the disease and its prevention, and that there are movement requirements for cattle leaving the zone.

#### **2.1.2 Control Zone**

1. Johne's disease is notifiable and tracing of high-risk animals is undertaken.
2. An approved monitoring program is in operation.
3. Movements into the zone from zones of lower status must meet prescribed health standards for Johne's disease.
4. There are restrictions on movement into the zone from the Residual Zone.
5. All IN and RD beef herds are subject to official control measures to minimise spread of infection within and between herds, including movement restrictions of IN beef herds and traceforward and traceback investigations.
6. Vendor/owner declarations are encouraged for voluntary movement controls within the zone.
7. Vaccination may be approved by the CVO.
8. Reports of activities and outcomes are presented as requested to AHC.
9. Numbers of IN and RD herds are reported quarterly to NAHIS.
10. An advisory program should be in place to advise industry about the disease and its prevention, and that there are movement requirements for cattle leaving the zone and for introducing cattle into the zone from the Residual Zone.

#### **2.1.3 Protected Zone**

1. A Protected Zone may contain a small number of known IN and RD herds that are subject to official control measures, up to a maximum of 1 per cent of total herds in the zone. In addition, sufficient monitoring must have been undertaken to provide 95 per cent confidence that not more than 1 per cent of the remaining herds could be infected. That is, the total number of IN and RD herds, both known (already under restrictions) and estimated, must not exceed 2 per cent of the total number of herds in the zone.

2. The proposed zone meets the test of equivalence as agreed by AHC at the time of application based on definition of the extent of Johne's disease in the zone as indicated in [section 2.13.1](#).
3. Johne's disease is notifiable.
4. An approved monitoring program (see [section 2.13](#)) is developed for approval by AHC and is subsequently implemented.
5. An approved compliance program (see [section 2.17](#)) is developed for approval by AHC and is subsequently implemented.
6. An advisory program (see [section 2.18](#)) is implemented.
7. Numbers of IN and RD herds are reported quarterly to NAHIS and the National Johne's Disease Information System.
8. The disease is managed in each IN herd under an approved control program, Test and Control Program or PDEP including movement controls (see [Appendix 1, section 7](#)).
9. Thorough tracing and investigation of all IN herds is undertaken.
10. Vaccination is not permitted unless with CVO approval.
11. Reports of activities and outcomes are presented as required to AHC.

Elements 1 and 3–5 above apply only to cattle and to goats and camelids if those species are to attain and maintain Protected Zone status. Elements 2 and 6–10 above apply to all susceptible species.

Discovery of infection in a Protected Zone will not initially affect its classification.

#### **2.1.4 Free Zone**

A Free Zone may be declared by PISC on the recommendation of AHC when:

1. no herds are IN, RD or SU and the population of susceptible species in the zone has been assessed epidemiologically for the absence of Johne's disease to the satisfaction of AHC
2. Johne's disease is notifiable
3. an approved monitoring program is in operation
4. there is ongoing evidence to justify the zone's status
5. numbers of IN and RD herds are reported quarterly to NAHIS
6. reports of activities and outcomes are presented annually (or as otherwise agreed) to AHC
7. thorough tracing and investigation of all known or suspected infection is undertaken
8. all breakdowns and SU herds are placed in quarantine. Eradication measures are enforced in IN and RD herds, and SU herds are actively investigated to determine whether infection is present
9. movement from zones of lower status must meet prescribed health standards for Johne's disease
10. an ongoing advisory program is in place to advise producers about recognising and reporting the disease, and that there are movement requirements for introducing cattle into the zone.
11. there are no vaccinated animals and vaccination is not permitted.

Discovery of infection in a Free Zone will not initially affect its classification.

## **2.2 Testing for Johne's disease**

### **2.2.1 Performance of tests**

Laboratory testing must be performed at an approved laboratory.

An approved laboratory is required to keep the records of all testing carried out for Johne's disease for a minimum period of five years and to provide information to an authorised officer as required by the audit process.

### 2.2.2 Reporting of tests

Interpretation and reporting of tests will be done according to the [ANZSDPs](#).

All testing for Johne's disease must be reported to the CVO of the state or territory in which the herd is located.

### 2.2.3 Retesting of reactors

Retesting of reactors with the same immunological test is **only** permitted

1. when the laboratory reports inconclusive results, or
2. when a further sample is specifically requested by the laboratory, or
3. when conducted in association with follow-up definitive testing of the reactor, or
4. to clarify the identity of reactors, or
5. as part of a test validation or quality assurance program.

### 2.2.4 Initial diagnosis

When an animal is being slaughtered to establish a diagnosis in a herd in which Johne's disease has not been previously confirmed, attempts should be made, in addition to histopathology, to culture the causative organism from tissues and undertake strain typing.

## 2.3 Fate of reactors

The fate of reactors depends on:

1. conditions set for Johne's disease control in that species and the zone
2. whether or not the herd is actively undertaking a MAP
3. the previous history of infection in the herd.

Failure to meet the conditions for follow-up of reactors may affect the status of the herd or the action taken in the herd and may affect the status of the zone.

The appropriate Appendix for each species provides specific details.

## 2.4 Equivalence of status

### Herd status

Herds of the same assessed status will be regarded as equivalent.

Beef herds in a Control or Residual Zone that have no history of Johne's disease infection and that are declared in writing to meet the requirements of the *Beef Only* scheme (see [Appendix 1, section 12](#)) are considered to be equivalent to MN1 for the purposes of movement to other herds or zones. These herds are not enrolled in the CattleMAP and are not entitled to use the MAP statuses MN or MAP logo to describe their herd status. Progression beyond this status requires formal entry into the CattleMAP (or other relevant MAP for the species concerned) and compliance with the rules and guidelines for herd status progression under that program.

Herds in a Protected Zone that have no history of Johne's disease infection have a status equivalent to MN1 for the purposes of movement to other herds or zones.

In a Protected Zone, herds already assessed or becoming assessed under a MAP, will be granted one status credit (i.e. accelerated progression in the MAP) for the zoning of their region as Protected (i.e. a herd in a Protected Zone will enter the MAP at a status of MN2, not MN1).

Herds in a Free Zone will have status equivalent to the highest status in the CattleMAP (i.e. MN3). However these herds are not enrolled in the CattleMAP and are not entitled to use the MAP statuses MN or MAP logo to describe their herd status.

### **2.4.2 Establishing a new herd**

Where a new herd is assembled from other herds, it shall adopt the status of the originating herd which has the lowest status.

A new herd may be allocated an assessed status in line with the minimum status of contributing assessed herds, provided all the requirements for establishment of a new herd under the relevant MAP are met.

## **2.5 Movement of susceptible species**

Certification and/or Animal Health Statements should indicate the zone and/or herd status.

### **2.5.1 For the purposes of movement**

Where movement of animals is based on a history of no knowledge or suspicion of Johne's disease, the certifying authority must consider all properties on which the animal(s) have resided or grazed whilst at a susceptible age. Due recognition must be given to properties which have completed an approved PDEP when the history of properties is required to be certified.

## **2.6 Movement within zones**

### **2.6.1 Free or Protected Zone**

The movement of susceptible species from an IN or SU herd will be restricted by movement restrictions and all such animals will be moved for slaughter only.

### **2.6.2 Control Zones**

Movements of animals from IN herds will be subject to control as determined by the CVO. High-risk animals from IN herds will be moved for slaughter only (see [section 2.8](#)).

### **2.6.3 Residual Zones**

Regulated movements within a Residual Zone may be imposed under the direction of the CVO.

### **2.6.4 Movement from IN herds**

High-risk animals shall not be moved from IN herds except for

1. direct consignment for slaughter at an abattoir, slaughterhouse or knackery, or
2. consignment to approved slaughter-only sales, or
3. movement under permit in circumstances determined by the CVO to present a very low risk of spreading infection.

Animals showing clinical signs consistent with Johne's disease should not be slaughtered for human consumption.

In Protected and Free Zones, quarantine shall be imposed on IN herds and no animals shall be moved from such herds except for slaughter.

### **2.6.5 Movement from SU herds**

Movement controls over animals from SU herds in Residual or Control Zones may be applied at the discretion of the CVO. Movements may be allowed as per section 2.6 or by permit to other SU herds or in other circumstances determined by the CVO which present a very low risk of spreading infection.

In Protected and Free Zones, quarantine shall be imposed on SU herds.

## 2.7 Movement between zones

Movement of animals between zones is permitted according to the following schedule:

STATUS OF ZONE OF ORIGIN	STATUS OF ZONE OF DESTINATION			
	Residual	Control	Protected	Free
<b>Residual</b>	Voluntary Animal Health Statement	Compulsory Animal Health Statement	Compulsory Animal Health Statement or Health certificate	Health certificate
<b>Control</b>	Voluntary Animal Health Statement	Voluntary Animal Health Statement or Compulsory Animal Health Statement*	Compulsory Animal Health Statement or Health certificate	Health certificate
<b>Protected</b>	Voluntary Animal Health Statement	Voluntary Animal Health Statement	Voluntary Animal Health Statement or Health certificate	Compulsory Animal Health Statement or Health certificate
<b>Free</b>	Voluntary Animal Health Statement	Voluntary Animal Health Statement	Voluntary Animal Health Statement or Health certificate	Voluntary Animal Health Statement

\*denotes use of a Compulsory Animal Health Statement only with the agreement of the CVOs of both Control Zones.

For movement into a Free Zone, a Vendor Declaration and health certificate is required in addition to the following:

1. from a Protected Zone, no knowledge of suspicion of Johne's disease (NA herd) plus an approved movement test; or
2. MN or other assessed status under the relevant MAP for that species.

For movement into a Control Zone from a Residual Zone or into a Protected Zone from a Control Zone the following requirements apply:

1. Check Tested herd, or
2. MN herd (Cattle MAP), or
3. TMS or T4YO within the past 24 months, or
4. Beef Only.

For movement from a Residual Zone into a Protected Zone, the minimum standard is:

1. MN1 herd, or
2. Beef Only, or
3. TMS, or

4. T4YO, or
5. Dairy Score 7 (see [Appendix 1, section 13](#)).

The CVO in the state/territory of destination of a proposed movement not otherwise permitted under these rules may specify conditions to allow the classes of movements in [section 2.8](#).

## **2.8 Risk-based exemptions to movement restrictions**

The CVO in the state/territory of destination of a proposed movement may specify conditions to allow movements:

1. for immediate slaughter
2. to a feedlot for slaughter
3. to allow the entry of desexed cattle
4. for short-term grazing where there are no other susceptible species on the land (under review)
5. for routine movements between properties in common ownership where the movement is considered to present a low risk of spreading infection
6. for temporary relocation of animals under exceptional circumstances such as drought, flood or fire with appropriate restrictions placed on subsequent movements, or
7. for other movements considered by the CVO of the state/territory concerned to present a low risk of spreading infection (examples are listed in [section 2.8.1](#)).

### **2.8.1 Specific exemptions apply as follows:**

#### *2.8.1.1 Non-breeding cattle*

Cattle that have been desexed may move into and from herds of any status in Protected, Control or Residual Zones provided they are to be slaughtered before 24 months of age AND are accompanied by an Animal Health Statement if originating from IN or SU herds.

#### *2.8.1.2 Heifers*

Heifers (6–24 months of age) from any herd, including dairy heifers from herds of any status, may move to any property in a Protected Zone provided they return to their property of origin to calve, or before two years of age, whichever occurs first.

In the case of animals from IN herds and SU herds, they are to be accompanied by an Animal Health Statement.

#### *2.8.1.3 Feedlots*

Cattle from herds of any status may move to any approved feedlot for finishing for slaughter, other than a feedlot in a Free Zone. Feedlots must keep auditable records documenting the movement of animals to slaughter.

#### *2.8.1.4 Approved Bull-beef Enterprise*

Young dairy bulls from herds of any status may move to an Approved Bull-beef Enterprise (as per [Appendix 1, section 9](#)), other than in a Free Zone.

#### *2.8.1.5 Agistment*

Cattle may be moved for the purposes of agistment in accordance with [Appendix 1, section 10](#).

#### *2.8.1.6 Beef Only herds*

Cattle from herds that meet the requirements of the *Beef Only* scheme may move into a Protected Zone from a Control or Residual Zone or into a Control Zone from a Residual Zone.

## **2.9 Destocking, decontamination and restocking land**

### **2.9.1 Destocking**

All susceptible species in an IN herd must be removed from the land before the decontamination period begins unless the CVO specifically approves the retention of specified low-risk animals that are considered not to be at risk of shedding infection as described in [Appendix 1, section 8](#).

### **2.9.2 Decontamination of land**

Land will be deemed to be no longer contaminated if it remains destocked of all susceptible species for a minimum of 12 months, or any alternative period determined by AHC.

Where a small number of animals cannot be removed with the majority of the animals before the planned start of a decontamination period, their infection status may be determined by thorough post-mortem examination and testing as described for reactors in an IN herd in [Appendix 1, section 4.2.2](#). If all of these animals are tested with negative results, the decontamination period will be deemed to have started when the untested majority of animals were removed from the land. If any of the animals are found to be infected, the decontamination period will commence from the date of their removal.

The CVO may, however, allow grazing of susceptible species which are not regarded as shedding infection during the decontamination period.

Land may also be decontaminated by one or more of the following procedures:

1. physical or chemical treatment to the satisfaction of the CVO, and/or
2. completion, to the satisfaction of the CVO, of an approved PDEP based on herd management and testing.

### **2.9.3 Restocking**

Restocking for unrestricted grazing with a new herd of susceptible species may occur once the land has been decontaminated. The new herd shall assume a status of the originating herd that has the lowest status. A new herd may be allocated an assessed status in line with the minimum status of contributing herds, provided all the requirements for establishment of a new herd under the CattleMAP or other MAP for that species are met.

## **2.10 Register of herd status**

In zones where Johne's disease is notifiable, the CVO will ensure that a register of IN, RD and SU herd statuses and changes in those statuses is maintained.

## **2.11 Disease notification and tracing**

### **2.11.1 Suspicion of infection**

Suspicion or knowledge of infection must be notified to the CVO in accord with the statutory disease notification requirements in force for that state or territory.

### **2.11.2 Interstate notification**

Where, on the basis of tracing, Johne's disease is suspected to occur in, or may have spread to, another state or territory, the CVO of that state/territory must be notified in writing within 30 days of its being known.

### **2.11.3 Notification to owner in Control, Protected and Free Zones**

Where a herd has been determined to have a status of IN, RD or SU, the CVO will ensure that the owner is notified in writing of the herd status and of changes in the herd status within 30 days of that determination.

## **2.12 Animal identification**

### **2.12.1 Herds in approved Test and Control Programs**

All animals in a herd in an approved Test and Control Program must be permanently and uniquely identifiable in such a manner that their identity can be easily verified by an official or approved veterinarian. The identification system is to be approved by the CVO.

### **2.12.2 Tested animals**

Any animal subject to a test for Johne's disease must be individually identified at the time of sample collection, and until all testing is completed.

### **2.12.3 Infected animals**

Infected animals must be permanently identified in such a manner that their identity can be easily verified by animal health officials or approved veterinarians at all times prior to their disposal.

### **2.12.4 Vaccinated animals**

Vaccinated animals must be permanently identified in a manner approved by AHC.

## **2.13 Approved monitoring program**

An approved monitoring program is one agreed to by AHC based on the recommendations of the CVO. It is used to detect new or additional IN herds in a zone and to show that the overall level of infection in the zone is low. The methods and intensity of monitoring may vary between zones.

In designing an approved monitoring program, consideration must be given to the current prevalence and incidence of Johne's disease in the zone, the history of the disease in the zone, past and current patterns of stock movements into the zone, the nature and intensity of livestock production, and other relevant risk factors.

An approved monitoring program must include:

1. investigation of suspect clinical cases and SU herds using recognised diagnostic procedures (see [Appendix 1, sections 1-3](#)) to confirm or exclude Johne's disease
2. tracing to and from IN herds to identify the source and possible further spread of infection, with investigation of the traced animals and herds (see [Appendix 1, sections 1-3](#)) to confirm or exclude Johne's disease
3. collation of passive monitoring data from laboratories, movement tests, maps and official and private veterinary investigations
4. some level of non-voluntary active monitoring such as:
  - a. identification and investigation of high-risk herds
  - b. abattoir and/or knackery monitoring
  - c. targeted or random serological monitoring in accord with [Appendix 1, section 15](#) for northern reactor cattle
  - d. use of pooled faecal culture to assess herds or groups of animals
  - e. use of the Herd Environmental Culture to assess dairy herds
5. random analysis of cattle movements into the Protected Zone to ensure compliance, using the NLIS database.

Also an approved monitoring program should include promotion and use of a standard Adult Bovine Scour Diagnostic Package (see [Appendix 1, section 11](#)).

An annual summary of IN herds (if any) of other susceptible species (including goats in Protected Zones that are not zoned for goats) and the outcome of tracing should be provided to demonstrate that the IN herds do not reflect an undetected focus of infection in cattle and do not present an ongoing risk to cattle.

### **2.13.1 Monitoring to support maintenance of a Protected Zone**

A monitoring program should be tailored for each Protected Zone, following minimum standards based on the elements outlined above. AHC should approve each state or territory's monitoring program, either at the time that progression to a Protected Zone is first applied for or for the next year at the time of annual reporting.

Where it is practical, feasible and agreed by the jurisdictions involved and AHC, a monitoring program covering several Protected Zones may be developed.

A Protected Zone may implement reduced monitoring if, prior to zoning, it has demonstrated that Johne's disease is present in less than 1 per cent of the unknown population with 95 per cent confidence and it can demonstrate that it is maintaining effective movement controls from any known IN herds within and into the zone.

If the conditions outlined above do not apply, then an annual program of active monitoring should be implemented for a minimum of five years. Monitoring may then be reduced if it has been demonstrated over the five years that the prevalence of Johne's disease has been consistent or decreasing.

The implementation of an approved monitoring program in a Protected Zone for five years with no IN herds being detected or any infection being traced to a source outside the zone and contained and eradicated, may be one element of an application for Free Zone status.

## **2.14 Breakdowns in a Free Zone**

### **2.14.1 Reporting of breakdowns**

All breakdowns in Free Zones are to be reported formally to AHC within 7 days of being confirmed.

### **2.14.2 Infection found in a Free Zone**

Detection of infection in a Free Zone will not initially affect its classification. The CVO should notify and consult with AHC on action being taken to eradicate the infection.

In a Free Zone, a herd will be quarantined if the herd status is IN, RD or SU.

Movement restrictions will be removed when the herd status is no longer IN, RD or SU.

The IN herd shall be subjected to an approved PDEP.

Zone classification will be re-assessed by AHC if the number of IN or SU herds remains unacceptable.

## **2.15 Breakdowns in a Protected Zone**

### **2.15.1 Reporting of breakdowns**

Breakdowns in Protected Zones are to be reported quarterly to the NAHIS and biannually to AHC.

### **2.15.2 Infection found in a Protected Zone**

Detection of infection in a Protected Zone will not initially affect its classification.

In a Protected Zone, a herd will be quarantined if the herd status is IN, RD or SU.

Movement restrictions will be removed when the herd status is no longer IN, RD or SU.

The IN herd shall be subjected to an approved property disease control or eradication program.

Zone classification will be re-assessed by AHC if the number of IN or SU herds remains unacceptable.

## **2.16 Procedure for investigating breakdowns in Protected and Free Zones**

The initial investigation should aim to:

1. determine the source(s) of infection

2. determine whether infection has spread to other animals in the herd or remains only in introduced animals.

Full traceback and traceforward are to be carried out.

Where it is determined that the suspect or infected animals were born or reared on another property, further tracing shall occur to determine, if possible, the other properties on which the animal(s) had been depastured. Appropriate action should then be taken to determine the status of these herds.

To identify the direct contacts of all infected animals, tracing may have to go back for the full lifetime of the infected animal(s). If unable to identify the source of the infection, tracing should go back 10 years if possible.

Herds which have received animals from the breakdown herd since the infected animals were introduced to it are to be initially classed as SU.

Traceback herds may be classified as SU until their status, or the source of the breakdown infection, is established.

Where a herd is classified as SU, the initial investigation should aim to confirm whether or not infection exists on the property.

IN and RD herds in Free Zones must be subject to an approved PDEP based either on destocking or an approved Test and Control Program. The latter program will be pursued as outlined in [Appendix 1, section 7](#) (for cattle) or in accordance with the relevant Appendix for that species until the herd achieves a status equivalent to MN1 status.

### **2.17 Approved compliance program**

An approved compliance program is used to enforce movement controls into and within a zone and to demonstrate that these controls are effective. The methods and intensity of compliance in a particular zone are determined by AHC based on the recommendations of the CVO.

In designing an approved compliance program, consideration must be given to the nature, volume and pattern of livestock movements into and within the zone, the nature of the zone's boundaries, the number and location of quarantined herds within the zone, the prevalence and incidence of Johne's disease in areas adjoining the zone, and other relevant risk factors.

An approved compliance program must include:

1. quarantine of all IN, RD, TLP, TMP, THP and SU herds, with movement from the herd only in accord with [section 2.6](#).
2. legally prescribed movement restrictions into the zone consistent with [sections 2.7](#) and [2.8](#)
3. enforcement or monitoring of movement controls
4. investigation by an inspector of any alleged breach of movement restrictions with a view of prosecution.

Enforcement or monitoring of movement controls might include:

1. permit, health certification, declaration or waybill systems
2. permanent border controls or checkpoints
3. random or targeted checkpoints
4. random or targeted compliance checks at saleyards
5. random or targeted compliance checks on properties.

### **2.18 Advisory program**

An advisory program is designed and implemented to promote disease prevention, recognition and reporting, and to promote awareness of and compliance with movement controls into the zone. An advisory

program must commence before a zone progresses and must be ongoing, although the nature of the message and the targeted audiences may vary.

An advisory program might include:

1. publication and distribution of advisory brochures, newsletters and the like
2. field days and public meetings
3. media releases and reports
4. advertisements.

## PART 3 – IMPORTATION OF ANIMALS INTO AUSTRALIA

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The negotiation and development of animal importation protocols is the responsibility of the Australian Government through Biosecurity Australia. The principles detailed below are considered necessary to recognise and support the National Johne's Disease Program, consistent with these SD&Rs. The significant national investment into the National Johne's Disease Program, which is based on a scientific approach, justifies import measures which minimise the risk of importation of infected animals into Australia. Import requirements need to reflect this approach.

### 3.1 Considerations

Epidemiologically different strains of *M. paratuberculosis* exist in other countries. Introduction of these strains into Australia may seriously hinder the control of ovine Johne's disease and bovine Johne's disease under the current National Johne's Disease Program. Cattle and other susceptible species must be subjected to appropriate importation requirements so as to minimise the risk of introducing new strains of *M. paratuberculosis*.

All susceptible species imported into Australia should be derived from populations or herds where the status of Johne's disease has been objectively assessed.

Serological, cell-mediated immune assays and other approved diagnostic procedures alone should not be presumed to accurately define the Johne's disease status of an individual animal. Herd and regional status should be used as an indicator of risk.

Importation of animals vaccinated against Johne's disease shall not be permitted.

Australia has international obligations under the SPS Agreement for the setting of technical import requirements for animals. Import protocols, however, do not override these SD&Rs for entry requirements into particular zones once animals are released from import quarantine.

# APPENDIX 1: CATTLE

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## 1. Interpretation of tests

Decisions on the Johne's disease status of an individual animal or of a herd require consideration of the herd history and local conditions. The results of diagnostic procedures will be reported as described by the [ANZSDPs](#).

Where Johne's disease is suspected in any cattle in direct or indirect contact with another species that is known to be infected, the case(s) should be carefully investigated and typing undertaken to determine the strain of *M. paratuberculosis* causing the infection.

## 2. Approved tests for Johne's disease in cattle

The approved laboratory tests for Johne's disease in cattle are immunology, histology and bacteriology.

### 2.1 Approved immunological test

The approved immunological test for Johne's disease in cattle is the absorbed ELISA.

Note: This does not constitute approval for all manufacturers' or distributors' ELISA tests. Each particular proprietary test must be approved by SCAHLS in writing and meet the requirements of the [ANZSDPs](#) and Australian National Quality Assurance Program.

### 2.2 Pooled faecal culture

The culture of faeces in pools of 5 cattle each with a test protocol approved by SCAHLS.

For population and herd assessment, pooled faecal culture testing of sufficient samples (in pools of 5 cattle each) is required to achieve 95% confidence of detecting 2% prevalence in large herds, assuming test sensitivity of 45% and specificity of 100% (at the individual animal level).

In interpreting pooled faecal culture test results, the diagnosis of Johne's disease in herds with no prior or current evidence of infection should be based on a laboratory finding of "culture positive for *M. paratuberculosis*". In such herds, diagnostic procedures on suspect mycobacterial growth should include subculture to demonstrate mycobactin dependency as per the [ANZSDPs](#). When a finding of "DNA consistent with *M. paratuberculosis*" (i.e. a positive PCR on liquid culture) is made in such herds it should be considered inconclusive pending demonstration of mycobactin dependency through a follow-up test.

Herds that should be considered as having "no prior or current evidence of infection" would include:

1. Non-Assessed herds in a Free or Protected Zone
2. herds that have a MN1 or higher status in a MAP, or an equivalent status in a Johne's disease assurance scheme e.g. Dairy Score 8 or higher or *Beef Only*.

Finding "DNA consistent with *M. paratuberculosis*" (i.e. a positive PCR on liquid culture) alone will be considered a positive test in:

1. herds with a SU status
2. herds with past or current clinical disease indicative of Johne's disease
3. Non-Assessed herds in livestock sectors or regions in which BJD is endemic (i.e. lower score dairy herds, and Control and Residual Zones).

### 2.3 Herd Environmental Culture

A test of a dairy cattle herd involving culture of an aggregated sample of faecal slurry from the highest proportion of the herd practicable, which is collected from a solid floored yard (for example the milking yard) after either milking or a reasonable period of confinement (not less than 2 hours).

Collection Protocol

The aim is to collect a sample that is representative of the whole herd – i.e. most cows in the herd are represented in the sample.

- The yard must be clean prior to bringing the cattle in for milking on the day of sampling.
- After milking has been completed, 500ml of faecal material should be collected from the concrete yard / standing area in front of the milking shed before any wash down is started.
- The faecal material should be pushed together using a shovel or a shed scraper following a “W” or “X” scraping pattern across the full length and breadth of the area being sampled.
- Thoroughly mix the faecal material in the pile.
- Collect 500ml of faecal slurry into two large (250ml) clearly labelled containers.
- The containers should be put into a plastic bag, placed in an esky and couriered to the laboratory for culture accompanied by a laboratory submission form.

Application

- Can be used in dairy herds as a Check Test (in herds that meet eligibility described in [Appendix 1: 3.3](#)) or for maintaining current status e.g. MAP status, Tested 4 Year Olds, Tested to MAP Standard, RD1 or RD2.
- To use as a Check Test or to maintain herd status the sample must be collected and submitted by a MAP approved veterinarian or an inspector.
- Can be used in infected herds to assess progress with an eradication program but not to progress status.

### **3. Herd test criteria**

#### **3.1 Age eligibility for testing**

For the purposes of these definitions, eligible animals for immunological testing are cattle over 24 months of age. There is no age restriction on animals subject to other tests.

#### **3.2 Assessed herd status**

Assessed herd statuses are those described in the Rules and Guidelines of the CattleMAP.

#### **3.3 Check Test**

The Check Tested level for cattle

1. only applies to herds with no suspicion of infection
2. is based on negative testing of a biased sample of adult animals that are most likely to be infected and react to the test
3. has no mandatory management requirements (although all herds are encouraged to manage their risk of becoming infected)
4. is current for 12 months from the date of testing
5. only applies to animals bred in that herd (‘home-bred’) and to animals introduced with a valid Animal Health Statement as originating from a Check Tested or higher status herd.

The sample for Check Testing will be selected as follows:

1. all cattle two years old and over are to be considered in the sampling frame, but preference should be given to cattle four years old and over
2. where there are more than 50 animals in the sampling frame, only 50 animals will be selected for testing

3. if previous Check Tests have been undertaken on the herd and not all were tested, cattle not previously tested should be included in the sample
4. the 50 animals will be selected so as to increase the herd level sensitivity of the Check Test by maximising the probability of including animals most likely to be infected and most likely to react to the test.

This will include:

- a. animals in poor condition
- b. animals between 4–8 years of age, and
- c. introduced animals

taking into consideration the herd status and zone/region from which introductions originate, other contact with potentially infected herds and any other relevant information.

Where a Check Tested level is sought for cattle and other eligible species running together, separate Check Tests will be undertaken on each species.

The test used for Check Testing can be either the approved immunological test (serology), faecal culture or pooled faecal culture. In lieu of these tests, the Herd Environmental Culture may be used as outlined below.

#### *3.3.1 Check Test using serology*

A negative Check Test using serology will comprise testing the selected cattle by the absorbed ELISA and by investigating all reactors as outlined in [Appendix 1, sections 4.1 and 4.2](#).

#### *3.3.2 Check Test using faecal culture*

A negative Check Test using faecal culture will comprise testing the selected cattle by faecal culture with all samples returning negative results. Where one or more faecal culture samples are contaminated or overgrown an ELISA test or repeat faecal culture may be undertaken to clarify the status of that animal(s). A positive ELISA test result must be followed up as outlined in [Appendix 1, sections 4.1 and 4.2](#).

#### *3.3.3 Check Test using pooled faecal culture*

A negative Check Test using pooled faecal culture will comprise testing the selected cattle in pools of 5 animals each with all samples returning negative results. Where one or more faecal culture samples are contaminated or overgrown, ELISA tests or repeat faecal cultures may be undertaken on all individuals in the pool to clarify the status of those animals. A positive ELISA test result must be followed up as outlined in [Appendix 1, sections 4.1 and 4.2](#).

#### *3.3.4 Check Test using Herd Environmental Culture Test*

A negative Check Test using Herd Environmental Culture Test will comprise culture of an aggregated sample of faecal slurry (collected according to [Appendix 1, section 2.3](#)) that returns no growth, or, in cultures with growth, in which *M. paratuberculosis* DNA is not detected. Where one or more herd environmental culture samples are contaminated or overgrown, ELISA tests or repeat faecal cultures may be undertaken on all individuals in the pool to clarify the status of those animals. A positive ELISA test result must be followed up as outlined in [Appendix 1, sections 4.1 and 4.2](#).

## **4. Fate of reactors and effect on herd status**

All reactors to Johne's disease approved immunological tests are to be investigated according to the following protocol.

### **4.1 Fate of reactors in Protected or Free Zones**

The history of the herd should be taken, including any clinical signs suggestive of Johne's disease and the previous movement history of animals into the herd, in particular the reactors and introductions from

Control or Residual Zones. Further investigation may be unwarranted in some circumstances. Northern Australia export cattle reactors are assessed in accord with Appendix 1, section 15.

#### *4.1.1 Herds with no history*

In herds with a history suggestive that the herd is unlikely to be infected with Johne's disease

1. reactors must be investigated by faecal culture twice at an interval of three to six months or by post-mortem and histopathological investigation
2. the herd's status will not change pending the outcome of the investigation of reactors. However, if the reactors are not investigated within one month, the herd will be subject to movement restrictions.

#### *4.1.2 Herds with a history suggestive of infection or exposure*

In herds with a history that suggests they may be infected with Johne's disease (for example, a clinical case suggestive of Johne's disease, tracing information suggesting Johne's disease may have been introduced or, according to recognised statistical methods, the proportion of the herd reacting to a Herd or Sample Test suggests that infection is likely) all reactors should be examined by faecal culture or post-mortem examination and tissue examination as follows:

1. faecal cultured twice at an interval of three to six months, or
2. slaughtered with full post-mortem examination and culture and histopathological examination of tissues.

The herd will be subject to movement restrictions until the status of reactors is resolved.

#### *4.1.3 Herds with a history of infection*

A herd with a history of past infection that has not been resolved will be subject to movement restrictions until the reactors' statuses are resolved.

Reactors in such a herd are assumed to be infected unless full post-mortem examination with histopathological and culture examination of tissues is conducted with negative results.

## **4.2 Fate of reactors in Residual or Control Zones**

The following points relate to establishing the status of a herd.

#### *4.2.1 Herds with no history*

##### **(a) Herds not in CattleMAP**

Where reactors are detected in a herd with no history or suspicion of infection and that is not undertaking regular Herd or Sample Testing as part of the CattleMAP, the following applies:

1. All reactors should be examined by faecal culture or post-mortem examination and tissue examination as follows:
  - a. faecal cultured twice at an interval of three to six months, or
  - b. slaughtered within three months with full post-mortem examination and culture and histopathological examination of tissues.
2. The status of the herd will be SU until the infection status of the reactors is clarified.

##### **(b) Herds in CattleMAP**

In the CattleMAP, because the whole herd is being regularly assessed, reactors may be dealt with differently. Refer to the CattleMAP for procedures for investigating reactors which are detected in a herd which is entering the CattleMAP from NA status or has a MN status.

These principles may also be applied at the discretion of the CVO where reactors are detected at whole Herd tests and the epidemiological assessment indicates that infection is unlikely.

#### 4.2.2 *Herds with unresolved or history of suspicion of infection*

In a herd with a history or unresolved suspicion of infection, faecal culture is not sufficient to determine the status of reactors. Full post-mortem examination with histopathology and culture of tissues must be undertaken on all reactors in such herds.

### **5. Disposal of reactors**

Provided that the necessary samples can be obtained for follow-up testing, reactors may be disposed of by slaughter through:

1. destruction on the property under supervision, or
2. consignment direct to an abattoir for supervised slaughter, or
3. consignment to other places approved by the CVO (e.g. knackery).

### **6. Managing SU herds in Protected and Control Zones**

#### **6.1 Epidemiological assessment**

When a herd is deemed to be SU, an epidemiological assessment will be undertaken to determine

1. the possible source(s) of the infection
2. how long it may have been infected if it is infected
3. which animals or groups of animals are at high-risk of being infected.

This assessment may include a herd test of all eligible animals in the herd, including goats, alpacas and deer.

#### **6.2 Approved control programs**

A control program, approved by the CVO, may be developed with the owner to minimise the spread of infection, should it be present, within the herd and to other herds. As a minimum, approved control programs should be based on the implementation by the herd owner/manager of herd management procedures addressing all of the following issues:

1. preventing spread of infection to other farms
2. identification of animals at high-risk for preferential culling for slaughter
3. calf husbandry and herd management to prevent infection of replacement and introduced stock
4. control of dairy effluent discharges (where applicable)
5. maintenance of accurate breeding records and permanent cattle identification.

#### **6.3 Progression of status for SU herds**

SU status can be resolved by the CVO obtaining evidence to remove the suspicion of infection from the herd. One or more herd tests may be a necessary component of the process to remove suspicion.

### **7. Managing IN herds in Protected and Control Zones**

#### **7.1 Epidemiological assessment**

When a herd is found to be IN, an epidemiological assessment will be undertaken to determine:

1. the source of the infection
2. how long it may have been infected
3. which animals or groups of animals are infected
4. which animals or groups of animals are at high-risk of being infected
5. what spread may have occurred to other herds.

This assessment may include a herd test of all eligible animals in the herd, including goats, alpacas and deer.

Where the infected animal(s) have a history of running with infected sheep, investigations must be capable of detecting and differentiating infection with sheep strains of *M. paratuberculosis*.

## **7.2 Approved control programs**

A control program, approved by the CVO, will be developed with the owner to minimise the spread of infection within the herd and to other herds. As a minimum, approved control programs must be based on the implementation by the herd owner/manager of herd management procedures addressing all of the following issues:

1. preventing spread of infection to other farms
2. identification of animals at high-risk for preferential culling for slaughter
3. calf husbandry and herd management to prevent infection of replacement and introduced stock
4. control of dairy effluent discharges (where applicable)
5. maintenance of accurate breeding records and permanent cattle identification.

Management-based control programs may include one or more herd tests conducted to assist with the identification of infected or high-risk animals and/or groups of animals.

Animals and groups of animals identified as infected and at high-risk of being infected will be preferentially culled from the herd for slaughter as agreed under the control program.

## **7.3 Approved Test and Control Programs**

Test and Control Programs for IN herds incorporate all the elements of an approved control program as detailed in [Appendix 1, section 7.2](#), with the addition of a regular whole herd testing and culling program and controls over introducing cattle. This type of program provides a means to progress the status of participating herds provided the program is under official control and audit. An approved Test and Control Program may form the basis of an approved PDEP for Johne's disease.

## **7.4 Progression of status for IN herds**

An IN herd must undertake an approved Test and Control Program and achieve three negative herd tests at two-year intervals after the last known infected animal is removed from the herd before progression to an assessed status or to TMS status (if the herd does not enter the CattleMAP) will be considered by the CVO for approval. The CVO may require that there be an extended control program if there is insufficient confidence that Johne's disease has been eradicated from the herd.

IN herds undertaking approved Test and Control Programs may progress to RD status after at least one negative herd test of all eligible animals in the herd, which will be undertaken not sooner than 12 months after the last known infected animal is removed from the herd.

The chart in [Appendix 1, section 16](#) summarises the minimum requirements for IN herds to progress through RD status to an assessed status under the CattleMAP or to TMS status if the herd does not enter the CattleMAP.

## **8. Decontamination of land—stocking strategies**

This section should be read with [section 2.9](#) of the SD&Rs.

The following programs (alone or in combination) may be appropriate for cattle:

### **8.1 Short-term grazing with young stock**

Cattle less than 12 months of age must not be grazed for longer than 12 months (or with CVO approval in low contamination situations, up to 18 months) and then must be consigned directly for slaughter at the completion of the grazing period.

## **8.2 Retention of non-susceptible cattle introduced during the decontamination period**

Cattle considered not susceptible to infection that are introduced to the land during the decontamination period may reside permanently on the land at the completion of the decontamination period if the following conditions are met:

1. the IN herd had a low within-herd prevalence (<1.5% reactors and clinical cases as determined at a herd test in the 12 months prior to destocking)
2. the introduced cattle were more than 12 months of age (and preferably more than 18 months of age) when introduced onto the land
3. the cattle were introduced from a low-risk source (*Beef Only* or higher status)
4. any calves born on the land prior to the end of the decontamination period must be consigned directly to slaughter before they reach 18 months of age.

The land and stock will achieve a NA status at that date, 12 months or more after the last of the high-risk cattle have left the land, when all cattle which were less than 12 months of age during the decontamination period have been removed from the land. Progression to a more favourable status (e.g. *Beef Only* or MN1) will be subject to a case by case review and CVO approval.

## **8.3 Retention of cattle from the herd that are considered not to have been infected**

In herds with accurate records and a high level of management, cattle that are part of the IN herd may remain and graze the land during the decontamination period and reside permanently on the land at the completion of decontamination, provided that the original source of infection has been established to the satisfaction of the CVO and

1. the cattle were over 12 months of age when the source of infection was introduced into the herd, or
2. the cattle were introduced onto the land before decontamination commenced but were 12 months of age (and preferably more than 18 months of age) at the time of introduction and were from a low-risk source (i.e. *Beef Only* or higher status).

The decontamination period, in this case, would be deemed to commence when all high-risk cattle have been culled to slaughter.

The land and stock would achieve a NA status at the date, 12 months or more after the last of the high-risk cattle have left the land, when all cattle which were less than 12 months of age during the decontamination period have been removed from the land. Progression to a more favourable status (e.g. *Beef Only* or MN1) will be subject to a case by case review and CVO approval.

Under any of these three programs the following conditions must also be met:

1. all cattle on the land are identified by the NLIS
2. accurate records are maintained of all cattle introduced to, and removed from, the land during the decontamination period
3. auditing of the herd is undertaken during and at the end of the decontamination period to ensure that all the above conditions have been met.

## **9. Approved bull-beef enterprise**

An approved Bull-beef Enterprise is an enterprise approved by the CVO to source calves from herds of any status.

An approved Bull-beef Enterprise shall

1. purchase calves with a Johne's disease Vendor Declaration
2. use milk for the bull beef calves from a low-risk source. If milk is sourced from an IN herd it shall not include milk from known high-risk animals

3. ensure that any other susceptible livestock on the property during the conduct of the bull-beef enterprise have no access to the bull-beef cattle or area grazed by the bull-beef cattle. The bull-beef area should be a defined, isolated and securely fenced area
4. observe a period of at least 12 months from the cessation of the period of use of land for bull-beef purposes, in which there is no grazing of the defined bull-beef raising area by susceptible stock (i.e. cattle under 12 months of age, goats, deer or camelids). Adult cattle can graze the land during that period
5. slaughter or remove from the land all bull-beef cattle before 24 months of age
6. ensure that any contract grower(s) comply as above and are advised of the Johne's disease risk posed by the cattle should these conditions not be adhered to
7. maintain documentation of adherence to these requirements.

## **10. Guidelines for reducing Johne's disease risk when agisting cattle**

In these guidelines, agistment means the temporary depasturing of livestock on a property that is not owned by the owner of the livestock.

Agistment of cattle can be safely carried out with minimal risk of transmission of Johne's disease, provided some simple precautions are taken.

By using epidemiological principles, notably the low or no-risk of infection of adult cattle (i.e. 12 months of age or older) and the very low rate of shedding of bacteria by young animals (i.e. less than two years of age), simple strategies can be used by farmers to reduce the risk of Johne's disease infection, even in circumstances where the originating cattle are from an IN herd or the agisting land is potentially contaminated.

These guidelines incorporate principles for the conduct of agistment for cattle of all ages in ways that are of acceptable risk for the agistor and the agistee, particularly when either involves an IN herd or contaminated land.

### **10.1 General requirements**

Any cattle moved in accord with these guidelines are to be identified by NLIS devices.

Johne's disease status must be disclosed and understood by both parties.

Prior permission from the CVO in the state or territory of origin and/or the state or territory of agistment may be required where the originating or agisting herd or property is known or likely to be infected or contaminated (IN or SU herds) or where movement is between zones of differing Johne's disease status.

Procedures should be thoroughly documented as evidence of compliance with these guidelines.

### **10.2 Mitigating risk to the originating property/herd**

Agisted cattle pose a risk to the originating herd when they return to the property of origin if they have had the potential to become infected on the agistment property.

This risk may be reduced to an acceptable level by

1. agisting cattle resistant to infection. Adult cattle are unlikely to become infected during agistment, irrespective of the Johne's disease status of the land or herd on the agistment property. Even if the agistment land is known or likely to be contaminated, the returning adult cattle should not pose an unacceptable risk to the originating property. If the cattle calve on an agistment property of lower Johne's disease status, their calves may pose an unacceptable risk<sup>1</sup> and should not be moved when the adult cattle return to their property of origin, or
2. ensuring that the agistment property is of low or acceptable risk through:

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<sup>1</sup> Unless the calves are managed to reduce the risk of exposure, for example, by being raised in accord with an approved calf rearing program such as the JDCAP.

- a. consideration of the official Johne's disease status of the agistment property/herd (i.e. equivalent or higher status) as declared in writing by the owner, or
- b. agistment on land in a zone of equal or higher status (e.g. agisting cattle from a Control Zone herd on a property in the Protected Zone), or
- c. agistment on land that has not been grazed by susceptible species for at least 12 months.

### 10.3 Mitigating risk to the property of agistment

Agisted cattle may pose a risk to the agistment property if they are known or likely to be infected with Johne's disease, but only if they are permitted to graze with susceptible animals or to contaminate land that is subsequently grazed by susceptible animals in the following 12-month period.

The risk may be reduced to an acceptable level by:

1. sourcing agisted cattle from herds known to be of low or lower risk (i.e. the originating herd is of equivalent or higher<sup>2</sup> official Johne's disease status than the agistment property), or
2. if originating cattle come from a SU or IN herd, or from a NA dairy herd in a high prevalence area (such as a Control Zone or Residual Zone):
  - a. agisting young cattle only and for a period in which significant shedding of bacteria is unlikely (i.e. removal of the agisted cattle before two years of age), or
  - b. grazing agisted cattle in a secure, defined area that is isolated from possible contact with other susceptible animals on the property and ensuring that at the completion of the agistment period, no susceptible livestock (e.g. cattle under 12 months of age) are allowed to graze on the defined area for a period of at least 12 months.

## 11. Adult Bovine Scour Diagnostic Package

An Adult Bovine Scour Diagnostic Package includes diagnostic tests offered to private and government veterinarians to encourage submission of more samples for Johne's disease exclusion. It is of particular value in Protected and Free Zones where Johne's disease might not normally be considered as part of the differential diagnosis.

### 11.1 Eligible cases are:

1. adult cattle (i.e. greater than two years old) where the primary presenting sign is chronic scouring (i.e. greater than 1 week duration), which have a normal body temperature and for which a full history is provided with the submission.

### 11.2 Specimens required for each animal are:

1. faeces
2. serum and blood clot
3. tissues (as per the *Testing strategies* section of CattleMAP) if animal is examined post-mortem.

Specimens may be submitted from up to three animals per herd per calendar year.

### 11.3 The tests performed for Johne's disease (as per [ANZSDPs](#)) are:

1. ELISA
2. faecal culture
3. pooled faecal culture
4. tissue culture
5. histopathology
6. strain typing (C or S strain)

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<sup>2</sup> Market Assurance Program rules may preclude participation by MAP herds.

#### **11.4 The tests performed for differential diagnosis are:**

1. culture for Salmonella and Yersina spp.
2. faecal egg count
3. pestivirus antigen capture ELISA.

### **12. Beef Only Scheme**

#### **12.1 Eligible herds**

Eligible herds

1. are from a beef herd which has not grazed with dairy cattle\* at any time during the previous five years, unless those cattle were from a herd enrolled in the CattleMAP
2. are those that have not, at any time in the past, grazed on land that had been grazed by adult dairy cattle (i.e. greater than two years old) during the 12 months before the arrival of the beef herd, unless those dairy cattle were part of a CattleMAP herd
3. are those where any animals introduced into the herd or onto the property(s) have come from herds that are of the same (i.e. Beef Only) or higher status. Evidence to support this claim is necessary
4. do not include animals that have been part of a herd that is classified as IN, SU or RD in accord with these SD&Rs, [section 1.13](#).

\*Note: For the purposes of a *Beef Only* declaration, dairy cattle are defined as:

1. any cattle of a dairy breed, or
2. any cattle that are first generation dairy-cross breeds, or
3. any other cattle that have been born, reared, or run on a property that was part of a milk-producing dairy enterprise at the time those cattle were present.

#### **12.2 Testing**

There is no testing requirement.

#### **12.3 Declaring *Beef Only* status**

*Beef Only* herds must use an Animal Health Statement when providing evidence of their status.

An Animal Health Statement for Johne's Disease Status of Beef cattle is required for all transactions and copies must be retained for audit purposes.

#### **12.4 Auditing**

Consistent with current policy agreements, auditing will be undertaken by state and territory departments of primary industries (or equivalent), funded by the Cattle Council of Australia through the National Bovine Johne's Disease Strategic Plan.

### **13. National Dairy Bovine Johne's Disease Assurance Score**

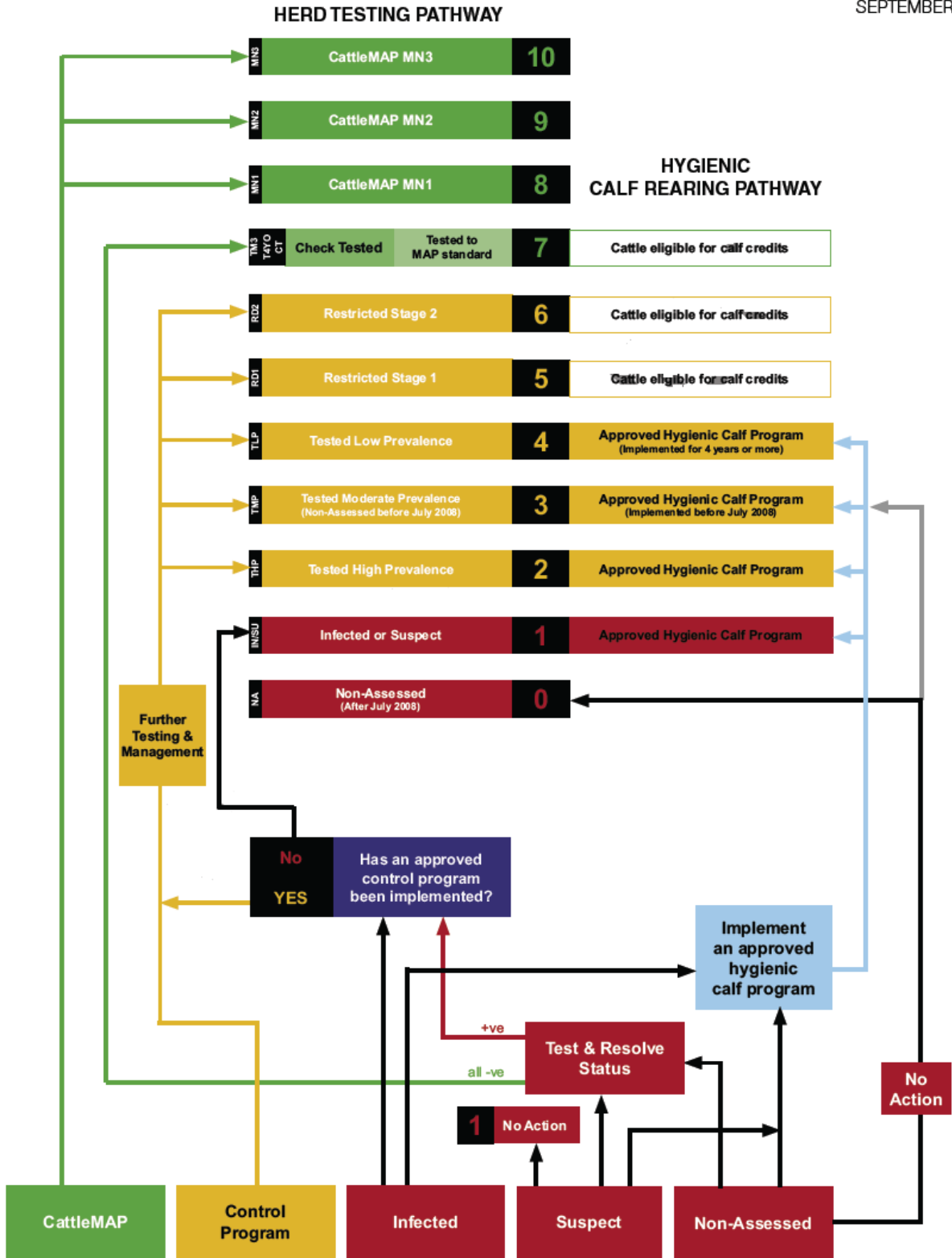
The Australian dairy industry has implemented the National Dairy Bovine Johne's Disease Assurance Score which is a risk management tool to facilitate risk-based trading and to provide guidance to farmers about the measures they can take to improve the Johne's disease status of their cattle.

Farmers are encouraged to declare the National Dairy Bovine Johne's Disease Assurance Score for their cattle on the National Vendor Declaration form.

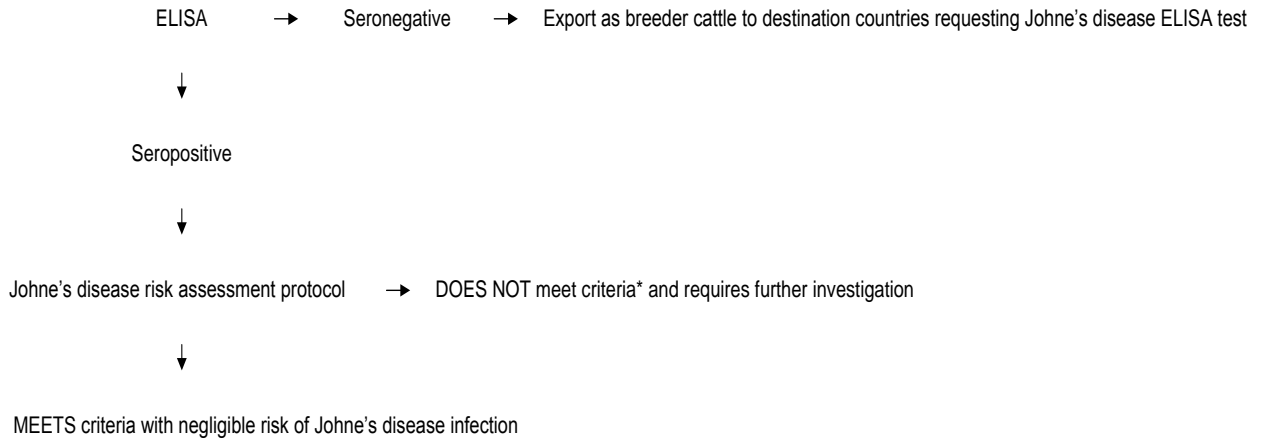
Details of the National Dairy Bovine Johne's Disease Assurance Score have been widely distributed in extension materials and are also available on the [Farm Biosecurity website](#).

# 14. Herd testing pathway

SEPTEMBER 2006



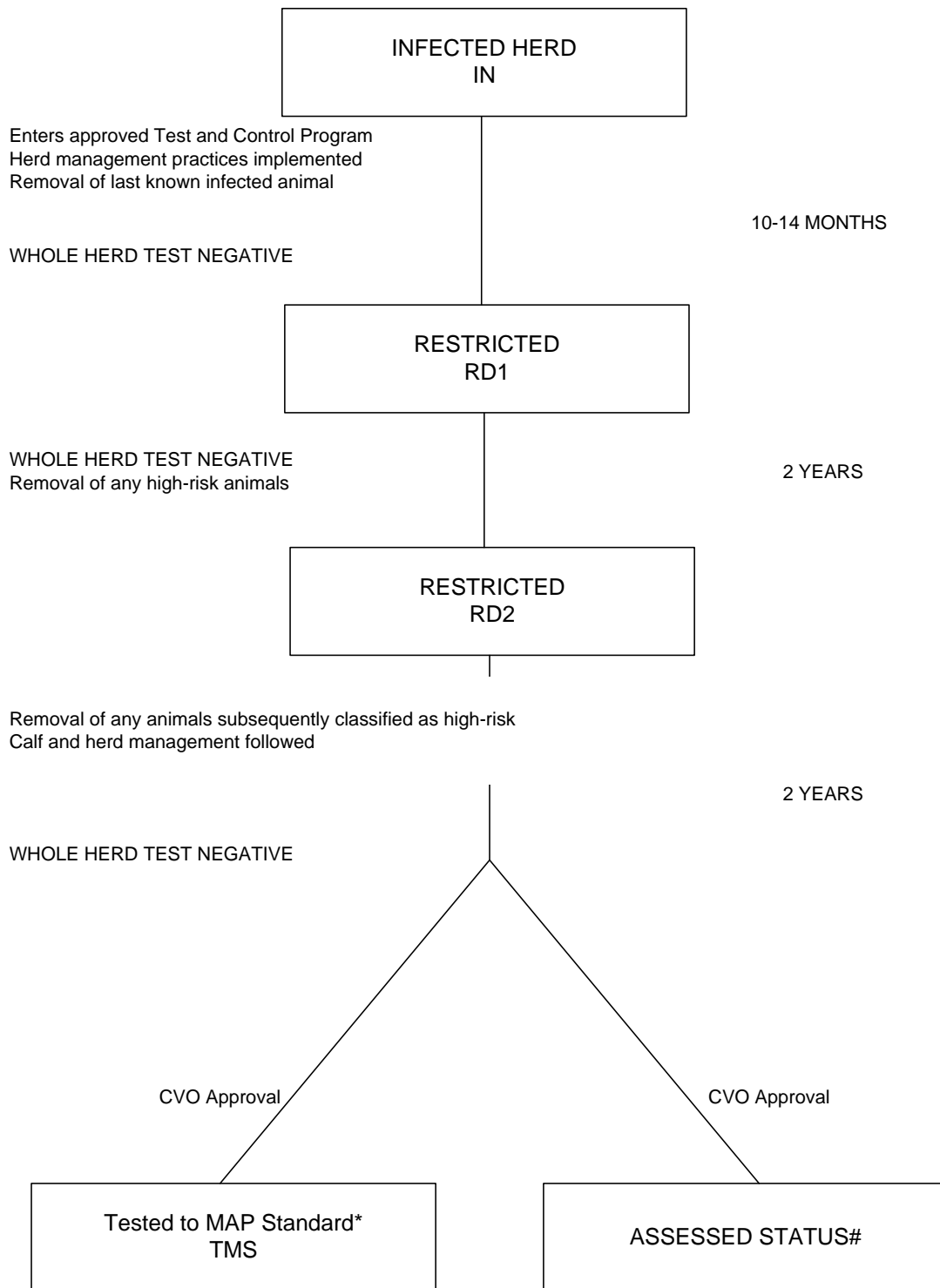
## 15. Risk assessment protocol for Johne's disease reactors from northern Australian beef herds tested for live export to overseas destinations as breeder cattle



\*Criteria for the Johne's disease risk assessment protocol are:

1. Breed: beef cattle only.
2. Age: less than 24 months.
3. Herd history:
  - a. no history of Johne's disease infection
  - b. herd has not been on land in the past 5 years that was previously grazed by dairy cattle
  - c. herd has no introductions from Johne's disease Control or Residual Zones that did not meet the jurisdiction's Johne's disease import policy.
4. Property of origin: located in extensive pastoral area of Johne's disease Protected or Free Zone above 26° N latitude.
5. Proportion of seropositive cattle in consignment is less than 3 per cent.

## 16. Herd status progression for IN cattle herds



\* If no on-going disease risk management is in place, for the purposes of Animal Health Statements, a TMS status applies for 24 months, after which status reverts to NA if no further testing is carried out and there is no evidence or suspicion of Johne's disease infection.

# If enterprise enters the CattleMAP, the initial status will be MN1

## APPENDIX 2: DEER

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### 1. Approved tests for Johne's disease in deer

The approved laboratory tests for Johne's disease in deer are histopathology, bacteriology, and DNA detection.

#### 1.1 Animals eligible for Johne's disease testing

For the purposes of these SD&Rs, animals eligible for testing are all deer over four months\* of age, except for post-mortem examination, bacteriology and histopathological examination, where no age restrictions on testing are imposed.

\*Note: This minimum age is only a suggestion.

The tests for detecting disease in deer are one or more of the following:

#### 1.2 Immunological tests

There are no immunological tests approved for the immunological diagnosis of Johne's disease in deer. The AGID test and the complement fixation test have been used in the past but have not been evaluated for sensitivity and specificity in Australian deer.

#### 1.3 Histology and bacteriology

Culture of faeces or post-mortem examination with histological examination and culture of tissues in accordance with the [ANZSDPs](#) are approved definitive tests for Johne's disease in deer.

#### 1.4 Herd test

Herd tests of deer consist of bacteriological examination of faeces at minimum intervals of six months.

### 2. Movement between zones

Deer from NA herds (for ovine Johne's disease and bovine Johne's disease) are permitted to move between zones without restriction, except for movement into a Free Zone, in which case a single faecal culture movement test or annual Check Test using faecal culture is required.

## APPENDIX 3: GOATS

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**Note:** Most occurrences of Johne’s disease in goats in Australia have been due to the cattle strain of *M. paratuberculosis*, however goats have also been infected with sheep strains of *M. paratuberculosis*.

Where Johne’s disease is suspected in any animal species in direct or indirect contact with another species that is known to be infected, the case(s) should be carefully investigated and typing undertaken to determine the strain of *M. paratuberculosis* causing the infection.

### 1. Infected animals

An animal confirmed as infected by histopathological and/or bacteriological examination.

### 2. Approved immunological tests

The AGID test and the absorbed ELISA test, adapted and specifically approved for goats.

### 3. Histology and bacteriology

Culture of faeces, including pooled faecal culture, and post-mortem examination with histological examination and culture of tissues in accord with the [ANZSDPs](#). These are approved definitive tests for Johne’s disease in goats.

### 4. Pooled faecal culture

A Sample Test using pooled faecal culture for goats requires testing of 18 pools, each from up to 25 goats over 12 months of age. In herds with less than 450 goats over 12 months of age, all such goats will be included in pools of 25. In larger herds, a sample is selected and tested. The pooled faecal culture test must provide a 95% confidence of detecting a 2% prevalence of disease in goats aged 12 months and over.

A Check Test requires testing of two pools, each of 25 goats.

In interpreting pooled faecal culture test results, the diagnosis of Johne’s disease in herds with no prior or current evidence of infection should be based on a laboratory finding of “culture positive for *M. paratuberculosis*”. In such herds, diagnostic procedures on suspect mycobacterial growth should include subculture to demonstrate mycobactin dependency as per the [ANZSDPs](#). When a finding of “DNA consistent with *M. paratuberculosis*” (i.e. a positive PCR on liquid culture) is made in such herds it should be considered inconclusive pending demonstration of mycobactin dependency through a follow-up test.

Herds that should be considered as having “no prior or current evidence of infection” would include:

3. Non-Assessed herds in a Free or Protected Zone
4. herds that have a MN1 or higher status in a MAP, or an equivalent status in a Johne’s disease assurance scheme such as *Beef Only*, *Q-Alpaca*, and Dairy Score 8.

Finding “DNA consistent with *M. paratuberculosis*” (i.e. a positive PCR on liquid culture) alone will be considered a positive test in:

4. herds with a SU status
5. herds with past or current clinical disease indicative of Johne’s disease

Non-Assessed herds in livestock sectors or regions in which BJD is endemic (i.e. lower score dairy herds, and Control and Residual Zones).

## **5. Eligible animals for testing**

For the purposes of these SD&Rs, animals eligible for testing are all goats over 12 months of age, except for post-mortem examination, bacteriology and histopathological examination, where no age restrictions on testing are imposed.

## **6. Pathways for change in herd status**

Pathways for change in herd status are detailed in the Australian Johne's Disease Market Assurance Program for Goats (GoatMAP).

## **7. Progression of status for IN herds**

An IN herd must undertake an approved Test and Control Program and achieve three negative herd tests at two year intervals after the last known infected animal is removed from the herd before progression to an assessed status or to TMS status (if the herd does not enter the GoatMAP) will be considered by the CVO for approval.

IN herds undertaking approved Test and Control Programs may progress to RD status after at least one negative herd test of all eligible animals in the herd that is undertaken not sooner than 12 months after the last known infected animal is removed from the herd. Where a herd has been using an approved vaccine in an approved control program, the appropriate herd test is pooled faecal cultures followed by individual faecal cultures of reactor pools.

The chart in Appendix 3, section 11 summarises the requirements for IN herds to progress through RD status to an assessed status under the GoatMAP or to a TMS status if the herd does not enter the GoatMAP.

## **8. Check Test**

The conditions for the Check Test for goats are the same as for cattle (see [Appendix 1, section 3.3](#)), except that the selected goats may only be tested by:

1. faecal culture, or
2. absorbed ELISA, as adapted for goats, or
3. AGID test, or
4. pooled faecal culture.

Note the minimum age for serological testing of goats is 12 months.

## **9. Movement between zones**

For the purposes of movement, the zone status of relevance for goats is the bovine Johne's disease zone status\*.

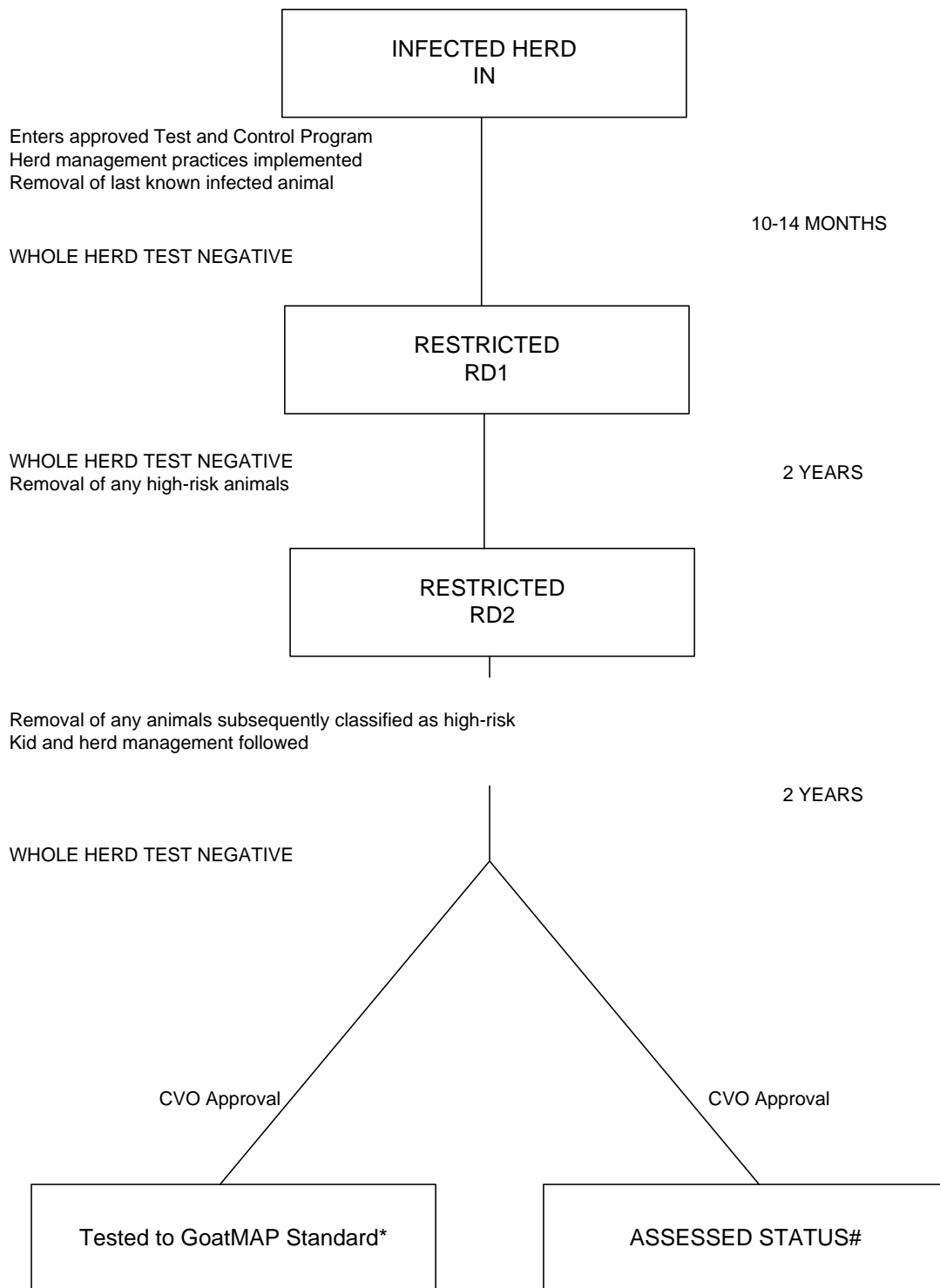
\*Note: a Johne's Disease Protected Zone for Goats status or a Johne's Disease Free Zone for Goats status requires specific endorsement by AHC based on surveillance in goats.

## **10. Approved vaccinated goat**

An approved vaccinated goat is one that is identified by an approved vaccination tag and

1. vaccinated with an approved Johne's disease vaccine by 16 weeks of age, or
2. vaccinated with an approved Johne's disease vaccine after 16 weeks of age where, in the written opinion of a GoatMAP approved veterinarian, vaccination occurred prior to exposure to Johne's disease infection.

## 11. Herd status progression for IN goat herds



\* If no on-going disease risk management is in place, for the purposes of Vendor Declarations, a TMS status applies for 12 months, after which status reverts to NA if no further testing is carried out and there is no evidence or suspicion of Johne's disease infection.

# If enterprise enters the GoatMAP.

## APPENDIX 4: SOUTH AMERICAN CAMELIDS

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Note: The only known outbreak of Johne's disease in South American camelids in Australia was associated with infection with cattle strains of *M. paratuberculosis*. Infection of camelids with sheep strains has not been recorded and the susceptibility of these species to sheep strains is unknown. When camelids are run in contact with an infected sheep flock, they should be subject to investigation and surveillance in order to determine their infection status and to improve understanding of their role in the epidemiology of ovine Johne's disease.

Where Johne's disease is suspected in any animal species in direct or indirect contact with another species that is known to be infected, the case(s) should be carefully investigated and typing undertaken to determine the strain of *M. paratuberculosis* causing the infection.

### 1. Infected animals

An animal confirmed as infected by histopathological and/or bacteriological examination.

A positive faecal culture, run in accord with the ANZSPDs, indicates that the tested animal and the herd from which it is derived is infected with Johne's disease. Such herds immediately come under the authority of the CVO who will determine what, if any, follow-up investigations are appropriate.

Pending the development by BJD TAG and endorsement by AHC of a standardised approach to investigation, CVOs will determine the appropriate investigations to be undertaken in live camelids when a positive faecal culture result occurs in groups of animals where there is no other reason to suspect infection.

### 2. Approved tests

Testing of all (or a statistically valid sample of all) eligible animals 12 months of age or older in the herd by faecal culture or other approved test, as described in the Rules and Guidelines of the AlpacaMAP.

For population and herd assessment, pooled faecal culture testing of sufficient samples (in pools of 5 alpacas each) is required, to achieve 95% confidence of detecting 2% prevalence in large herds, assuming test sensitivity of 45% and specificity of 100% (at the individual animal level). The radiometric culture should be run for a period of at least 10 weeks to detect low shedders.

As the test is considered to be 100% specific, a positive herd diagnosis can be based on detection of a single positive pool. It need not be mandatory to follow up the animals in a positive pool by individual testing unless this is needed for disease control purposes, such as tracing to other herds or high-risk groups within an IN herd.

In interpreting pooled faecal culture test results, the diagnosis of Johne's disease in herds with no prior or current evidence of infection should be based on a laboratory finding of "culture positive for *M. paratuberculosis*". In such herds, diagnostic procedures on suspect mycobacterial growth should include subculture to demonstrate mycobactin dependency as per the [ANZSDPs](#). When a finding of "DNA consistent with *M. paratuberculosis*" (i.e. a positive PCR on liquid culture) is made in such herds it should be considered inconclusive pending demonstration of mycobactin dependency through a follow-up test.

Herds that should be considered as having "no prior or current evidence of infection" would include:

5. Non-Assessed herds in a Free or Protected Zone
6. herds that have a MN1 or higher status in a MAP, or an equivalent status in a Johne's disease assurance scheme such as *Beef Only*, *Q-Alpaca*, and Dairy Score 8.

Finding “DNA consistent with *M. paratuberculosis*” (i.e. a positive PCR on liquid culture) alone will be considered a positive test in:

6. herds with a SU status
7. herds with past or current clinical disease indicative of Johne’s disease

Non-Assessed herds in livestock sectors or regions in which BJD is endemic (i.e. lower score dairy herds, and Control and Residual Zones).

Pooled faecal culture testing is not an approved method for individual animal assessment.

### **3. Eligible animals**

For the purposes of these definitions, no age restrictions on testing are imposed for post-mortem examination, bacteriology and histopathological examination.

### **4. Pathways for change in herd status**

Pathways for change in herd status are detailed in the Australian Johne’s Disease Market Assurance Program for Alpaca (AlpacaMAP).

### **5. Progression of status for IN herds**

An IN herd must undertake an approved Test and Control Program and achieve three negative herd tests at two year intervals after the last known infected animal is removed from the herd before progression to an assessed status or to TMS status (if the herd does not enter the AlpacaMAP) will be considered by the CVO for approval.

IN herds undertaking approved Test and Control Programs may progress to RD status after at least one negative herd test of all eligible animals in the herd that is undertaken not sooner than 12 months after the last known infected animal is removed from the herd.

The chart in [Appendix 4, section 9](#) summarises the requirements for IN herds to progress through RD status to an assessed status under the AlpacaMAP or to a TMS status if the herd does not enter the AlpacaMAP.

### **6. Check Test**

The Check Tested level for camelids

1. only applies to herds with no suspicion of infection
2. is based on negative testing of a biased sample of adult animals that are most likely to be infected and react to the test
3. has no mandatory management requirements (although all herds are encouraged to manage their risk of becoming infected)
4. is current for 12 months from the date of testing
5. only applies to animals in the herd at the time of the Check Test, to animals subsequently bred in that herd (‘home-bred’) and to animals introduced with a valid Vendor Declaration as originating from a Check Tested or higher status herd.

The sample for Check Testing for camelids will be selected as follows:

1. All animals of the particular species one year of age and over are to be considered in the sampling frame.
2. Where there are more than 50 animals in the sampling frame, only 50 animals will be selected for testing. Where there are fewer than 50, all animals one year of age and over will be tested.
3. The 50 animals will be selected so as to increase the herd level sensitivity of the Check Test by maximizing the probability of including animals most likely to be infected and most likely to react to the test. This will include
  - a. animals in poor condition

- b. older animals, and
  - c. introduced animals
- taking into consideration the herd status and zone/region from which introductions originate, other contact with potentially infected herds and any other relevant information.

A negative Check Test for camelids will comprise testing the selected animals by individual or pooled faecal culture with negative results.

Where a Check Tested level is sought for different species of camelids running together as one herd of camelids, the Check Test will include proportional representation of the appropriate camelid species.

A positive faecal culture indicates that the tested animal and the herd from which it originates is infected with Johne's disease, and the herd immediately comes under the authority of the CVO who will determine what, if any, follow-up investigations are appropriate.

Pending development by BJD TAG and endorsement by AHC of a standardised approach to investigation, CVOs will determine the appropriate investigations to be undertaken in live camelids when a positive faecal culture result occurs in groups of animals where there is no other reason to suspect infection.

## **7. Movement between zones**

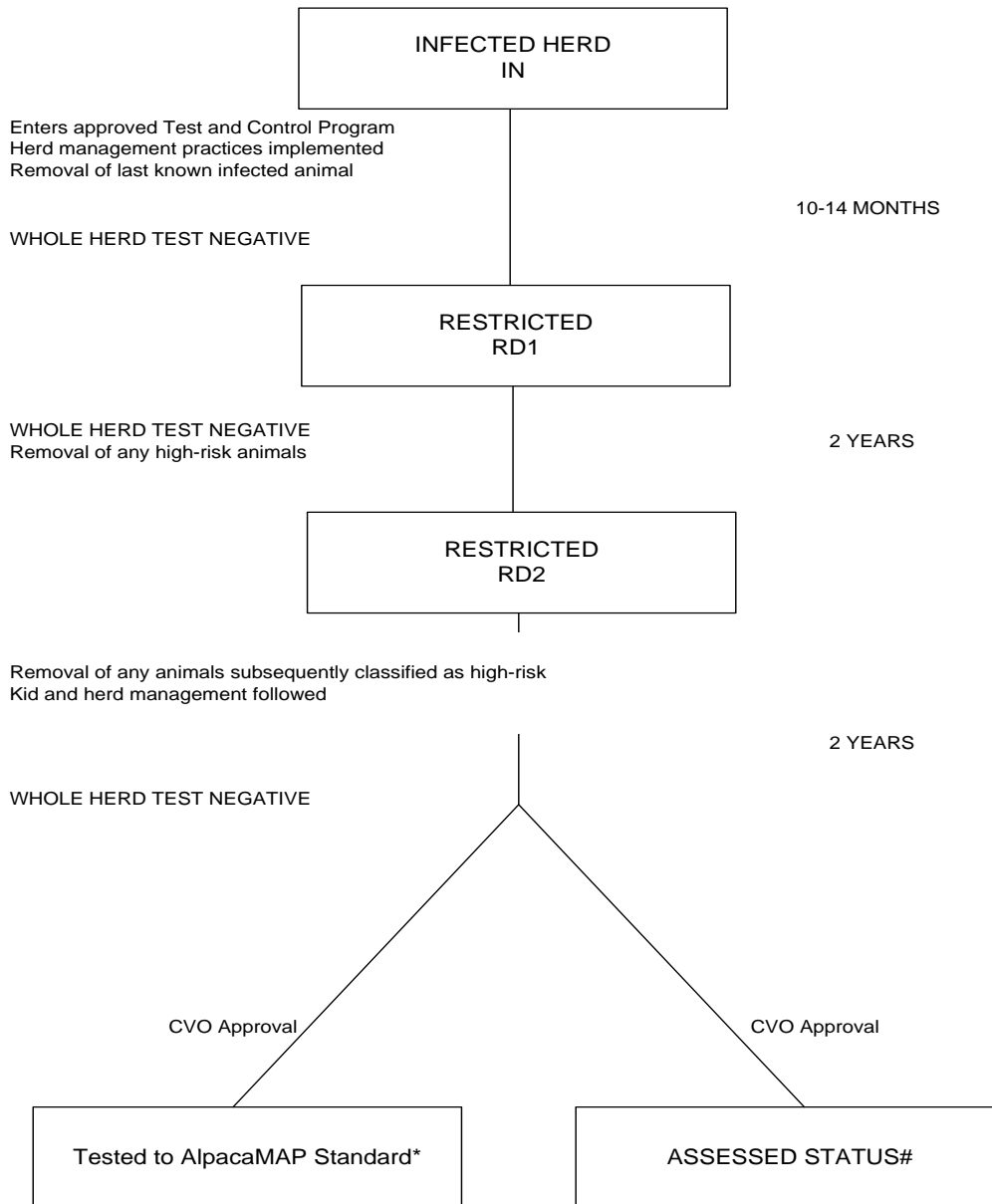
Alpacas and llamas from NA herds may be permitted to move between zones without restriction, except for movement into Free Zones and Protected Zones that have established a Protected status for those species to the satisfaction of AHC. For movement into these zones, the same requirements as set out for cattle in [section 2.7](#) of these SD&Rs apply.

## **8. Q-Alpaca**

Q-Alpaca is the Australian Alpaca Association's national animal health quality assurance program for alpaca herds.

The Q-Alpaca Scheme is administered by the Australian Alpaca Association Ltd and details can be found on the association [website](#).

## 9. Herd status progression for IN alpaca herds



\* If no on-going disease risk management is in place, for the purposes of Vendor Declarations, a TMS status applies for 12 months, after which status reverts to NA if no further testing is carried out and there is no evidence or suspicion of John's disease infection.

# If enterprise enters the AlpacaMAP.