

# National Approach to the Management of Ovine Johne's Disease

Implementation of Assurance-based OJD Management in Sheep

FIRST EDITION  
OCTOBER 11, 2004

## **TABLE OF CONTENTS**

### Introduction

- 1 Definitions
- 2 Assurance Based Credit Scheme (ABC) for movements of sheep between properties
- 3 Animal Health Statement (OJD)
- 4 Tracing and Surveillance
- 5 Determining Prevalence Areas
- 6 Requirements for Infected flocks and flocks suspected to be infected with OJD
- 7 Vaccination
- 8 Testing

### Appendices

- |            |                               |
|------------|-------------------------------|
| Appendix 1 | Prevalence Areas              |
| Appendix 2 | Animal Health Statement (OJD) |

## INTRODUCTION

This national approach comprises nationally accepted standards and practices upon which the States, Territories and Industry formulate disease management and control programs to suit their circumstances, and has been prepared by the Primary Industries Standing Committee (PISC) through the Animal Health Committee (AHC).

The national approach is designed to assist the management and control of ovine Johne's disease (OJD) in a nationally harmonious manner. It complements the Australian Sheep Johne's Disease Market Assurance Program (SheepMAP), which has been designed to provide a degree of assurance for the sale and movement of sheep from flocks which have a low risk of infection. State programs are designed to manage and control disease in known infected flocks. The national approach also describes the Assurance-Based Credit (ABC) Scheme for the facilitation of trade with regards to JD status.

The national approach refers to other authoritative documents including the Australia and New Zealand Standard Diagnostic Protocols (ANZSDPs) and the SheepMAP. The relevant definitions used in the SheepMAP have been incorporated. Detailed operating procedures developed for implementation of JD management and control programs are the responsibility of the animal health authorities in each State and Territory, who can provide advice as to the interpretation of this document.

This national approach will be progressively reviewed in light of anticipated progress with existing state Johne's disease (JD) control programs, the SheepMAP, and in response to improvements in scientific knowledge and understanding of the disease in the various susceptible species. From time to time Animal Health Committee will endorse modifications to the approach contained in this document. Jurisdictions conducting programs based on this national approach will reflect any necessary changes from the date of the Animal Health Committee resolution agreeing to the modifications. PISC endorsement of such modifications to the national approach in the form of a consolidated document will be sought out-of-session once or twice per year as necessary.

**Note: this approach supersedes the 5<sup>th</sup> edition of the *NJDP Standard Definitions and Rules for Sheep*.**

## 1. DEFINITIONS

**Assurance Based Credit Scheme (ABC Scheme)** - the nationally agreed scheme of Assurance Based Credit for measuring the risk of OJD infection at the flock or group level. Using a uniform scoring system, assurance credit points are allocated by the flock owner based on a combination of flock or group characteristics, including location risk (area prevalence), testing results and vaccination. The details of the ABC Scheme are set out in Part 2.

**ABC Score** – the number of credit points allocated to a flock or group of sheep under the ABC Scheme.

**Animal Health Statement (OJD)** – a declaration by the vendor of sheep, that sets out the ABC Score applying to those sheep, in the form of Appendix 2, or containing all the equivalent information.

**Approved Property Disease Management Program** – a program approved by the Chief Veterinary Officer, and conducted by the owner in conjunction with an approved veterinarian, to manage OJD in an infected flock and to underpin the assignment of an ABC Score to sheep.

**Approved Vaccinate flock** – a flock comprising entirely of approved vaccinates.

**Approved Vaccinate** – a sheep that is:

- vaccinated with an approved OJD vaccine by 16 weeks of age;
  - or
  - vaccinated with an approved OJD vaccine after 16 weeks of age where, in the written opinion of a SheepMAP approved veterinarian, vaccination occurred prior to exposure to OJD infection,
- and is identified by an Approved Vaccination Tag.

**Approved Vaccination Tag** – an eartag approved by the Registrar of Brands for the identification of sheep or goats, that is stamped with a property identification code that meets the requirements of the National Livestock Identification Scheme (Sheep), and the letter “V”.

**Certified low-risk sheep** – sheep which are sourced from an infected flock and which are certified in writing as low-risk by a SheepMAP approved veterinarian on the basis of:

- risk assessment, and
- an approved Property Disease Management Program that includes profiling and strategic culling, being implemented in the flock. Other strategies such as vaccination of sheep which are unlikely to have been heavily exposed, may also be appropriate.

**Credit points** - points allotted to sheep in accordance with the ABC Scheme.

**Eligible for Abattoir 700 status** - 700 representative sheep over 2 years of age have been submitted to an abattoir in the past 24 months with at least 500 sheep, in 1 or more lots, being examined and found negative for OJD.

**Eligible for Abattoir 200 status** - 200 representative sheep over 2 years of age have been submitted to an abattoir in the past 12 months with at least 150 sheep, in 1 or more lots, being examined and found negative for OJD.

**Free Zone** – an area declared to be a Free Zone in accordance with ‘Criteria for a Free Zone’ prepared by the Primary Industries Standing Committee through the Animal Health Committee.

**Flock of origin** – flock from which sheep are being consigned.

**Infected flock-** a flock in which:

- infection by the sheep strain of *M. paratuberculosis* has been identified, and there is evidence of, or likely potential for, transmission of infection within the flock;
- or
- infection by cattle strains of *M. paratuberculosis* has been identified and there is evidence of spread of such infection from sheep to sheep in the flock, and the flock has not met the requirements for resolution of infection (refer 6.3).

**Nil assurance (NA) flock** – A Nil Assurance flock is one which:

- has no official history of Johne’s disease,
- or
- any suspicion of infection has been resolved to the satisfaction of the CVO, and which has not been assigned any other status.

**Ovine Johne’s disease** – unless otherwise indicated, infection with sheep strain(s) of the organism *Mycobacterium paratuberculosis*.

**Owner** – includes the manager or the person in charge.

**PFC 350 test** – test of 350 representative sheep over 2 years of age (or all sheep over 2 years of age in small flocks) by Pooled Faecal Culture in pools of up to 50 sheep.

**Prevalence Area** – a defined geographic area with allocated assurance credit points for the purpose of the ABC Scheme and classified as either a High Prevalence Area, a Medium Prevalence Area, a Low Prevalence Area or a Very Low Prevalence Area as determined by Animal Health Committee in accordance with Appendix 1.

**Sample Test** – test of a sample of a flock, in accordance with the Sheep Market Assurance Program (SheepMAP) guidelines, which is undertaken within the flock’s current SheepMAP program.

**Second Generation Approved Vaccinate Flock** – a flock comprising entirely approved vaccinates which were born when the whole flock were approved vaccinates.

**Sheep MAP** – the Australian Johne’s Disease Market Assurance Program for Sheep conducted by Animal Health Australia.

**Suspected to be infected flock** - a flock is suspected to be infected with OJD if the owner has reasonable grounds to believe that it been exposed to OJD infection or that OJD may exist in the flock, based on

- Trace back or trace forward contact with an infected flock; or
- Contact with OJD contaminated land or facilities;
- Reactors in the flock to a Johne’s disease test;
- The flock neighbours an infected flock;
- The flock has introduced sheep with an ABC Score of 0;
- Clinical signs of OJD;
- Advice from the Chief Veterinary Officer based on a risk assessment that considers the above factors

and the flock has not has not met the requirements for resolution of suspicion (refer 6.4).

**Terminal lambs** – crossbred lambs which are to be slaughtered before they cut their first permanent teeth and are identified by an NLIS (sheep) ‘T’ tag.

**Tested Low Level Infected flock** – an infected flock which has a history supporting a low level of infection, an approved Property Disease Management Program in place, and the most recent flock profile demonstrating a detection rate of not more than 1 of 10 pools by Pooled Faecal Culture within the previous 2 years.

## **2. ASSURANCE BASED CREDIT (ABC) SCHEME FOR MOVEMENTS OF SHEEP BETWEEN PROPERTIES**

- 2.1 Sheep for sale or other movement between properties will be assigned a credit score by the owner in accordance with the ABC Scheme as detailed in TABLE 1. Credit points are assigned based on the estimated prevalence of OJD in the area of origin and on management measures undertaken to reduce disease risk. TABLE 2 provides examples of how ABC credit points are attained for different activities in various Prevalence Areas.
- 2.2 Movement of sheep into flocks of the same or lower ABC score is permitted.
- 2.3 Introductions of sheep with a lower ABC score than the flock is not recommended and may affect the flock’s ABC score. Jurisdictions will conduct a communication/awareness program promoting this recommendation.
- 2.4 When infection is identified or known to occur in a flock, an ABC Score of 0 credit points will be allotted by the owner to the flock under the ABC Scheme unless or until such time as additional credit points are accrued in accordance with the scheme.
- 2.5 For flocks that are suspected to be infected with OJD, an ABC score of 0 credit points will be allotted by the owner unless or until such time as

additional credit points are accrued in accordance with the ABC Scheme, or suspicion has been removed to the satisfaction of the Chief Veterinary Officer.

- 2.6 Pathways for improving the ABC Score of flocks that are known or suspected to be infected with OJD will be in accordance with the ABC Scheme (TABLE 1).
- 2.7 Terminal lambs identified with an approved NLIS “T” Tag may be moved/traded into any flock other than a flock in the Free Zone, irrespective of the ABC Score of the flock of origin. Terminal lambs must be slaughtered before cutting adult teeth.
- 2.8 Where Terminal Lambs have been introduced to a flock and are removed before cutting any adult teeth the flock’s credit rating (ABC Score) remains unchanged.
- 2.9 Jurisdictions may impose regulatory controls on the movement of sheep using the ABC Scheme. Those regulatory requirements should be the same for flocks with a particular ABC Score; ie both for movements into the jurisdiction and for movements within the jurisdiction.

**TABLE 1**

*OJD Assurance Based Credit (ABC) Scheme : calculation of credit score.*

<b><i>OJD ASSURANCE ACTIVITY OR CRITERIA</i></b>	<b><i>CREDIT POINTS</i></b>
<i>Select one line from each category if applicable then add for total credit rating</i>	
<b><i>CATEGORY A: Flock of origin – location and description</i></b>	
<i>The flock is located in</i>	
<i>a Very Low Prevalence Area and is not suspected/known to be infected</i>	<i>5</i>
<i>a Low Prevalence Area and is not suspected/known to be infected</i>	<i>3</i>
<i>a Medium Prevalence Area and is not suspected/known to be infected</i>	<i>1</i>
<i>a High Prevalence Area</i>	<i>0</i>
<i>any area and is suspected or known to be infected</i>	<i>0</i>
<b><i>CATEGORY B: Testing</i></b>	
<i>The flock is</i>	
<i>in the SheepMAP and has had 3 negative sample tests (*See Note)</i>	<i>4</i>
<i>in the SheepMAP and has had 2 negative sample tests *</i>	<i>3</i>
<i>in the Sheep MAP and has had 1 negative sample test *</i>	<i>2</i>
<i>not in the SheepMAP but has had a negative PFC 350 test in the last 12 months</i>	<i>2</i>
<i>not in the SheepMAP but is eligible for Abattoir 700 status</i>	<i>2</i>
<i>not in the SheepMAP but is eligible for Abattoir 200 status</i>	<i>1</i>
<i>a tested low level infected flock</i>	<i>1</i>
<b><i>CATEGORY C: Vaccination</i></b>	
<i>The flock is a second generation approved vaccinate flock</i>	<i>4</i>
<i>The consignment sheep are approved vaccinates and were born when the whole flock were approved vaccinates</i>	<i>3</i>
<i>The whole flock are approved vaccinates</i>	<i>2</i>
<i>The consignment sheep are approved vaccinates</i>	<i>1</i>
<b><i>CATEGORY D: Risk Assessment</i></b>	
<i>The sheep are sourced from an infected flock but are certified low-risk by a SheepMAP approved veterinarian</i>	<i>1</i>

**\* MAP FLOCKS**

*The number of Sample Tests applies to the actual number of negative Sample Tests that contributed to attaining the current flock status. For most flocks this will be one for MN1, two for MN2 and three for MN3.*

*However, an MN2 flock that has taken a status upgrade for being located in a former Protected Zone would have had only 1 Sample Test. Similarly an MN3 flock would only have had 2 Sample Tests. Credit points for being in a low prevalence area or very low prevalence area are now gained under Category A above.*

*If the flock has re-entered the SheepMAP having previously had its status lapse or removed, only sample tests directly contributing to its current status will be eligible for credit points.*

**TABLE 2**

*Illustration of Actual Rating a Flock /mob would achieve in various regions depending on type of activity taken within the flock.*

<i>Activity</i>	<i>Credit for activity</i>	<i>Area prevalence or flock status</i>				
		<i>suspected/infected flock</i>	<i>High Prev. Area</i>	<i>Medium Prev. area</i>	<i>Low Prev. area</i>	<i>Very Low Prev. area</i>
<i>Nil Assurance</i>		0	0	1	3	5
<i>Approved Vaccinates</i>	+1	1	1	2	4	6
<i>Approved vaccinates from a certified low risk group within an infected flock</i>	+2	2	2	2	2	2
<i>Approved vaccinates from a certified low risk mob in Tested Low Level Infected flock</i>	+3	3	3	3	3	3
<i>Abattoir 200</i>	+1	1	1	2	4	6
<i>Approved Vaccinates plus Abattoir 200</i>	+2	2	2	3	5	7
<i>PFC 350 Test</i>	+2	2	2	3	5	7
<i>Tested to MAP standard (TMS); Abattoir 700</i>	+2	2	2	3	5	7
<i>MN1 (1 sample test)</i>	+2	N/A	2	3	5	7
<i>MN2 (2 sample tests)</i>	+3	N/A	3	4	6	8
<i>MN3 (3 sample tests)</i>	+4	N/A	4	5	7	9
<i>From an Approved Vaccinate Flock</i>	+2	2	2	3	5	7
<i>Approved vaccinates born into a flock consisting entirely of approved vaccinates</i>	+3	3	3	4	6	8
<i>Second Generation Approved Vaccinate Flock with negative PFC 350 Test</i>	+6	6 [Note:flock is thereby no longer suspected or infected]	6	7	9	10

### **3. ANIMAL HEALTH STATEMENT (OJD)**

- 3.1 National industry bodies, and industry and government organisations within jurisdictions will encourage the use of the Animal Health Statement (OJD) for sheep movements based on the ABC Scheme.
- 3.2 National industry bodies, and industry and government organisations within jurisdictions will encourage receivers of sheep to request an Animal Health Statement (OJD) for all sheep they are considering purchasing or receiving onto their property.
- 3.3 Jurisdictions will audit and report compliance of Animal Health Statement (OJD) usage for sheep transactions.
- 3.4 An Animal Health Statement (OJD) completed by the vendor of sheep will include the score for the sheep under the ABC Scheme and how the score was comprised.
- 3.5 The Animal Health Statement (OJD) will be underpinned by legislation making it an offence, with penalties, to make a false declaration.
- 3.6 The approved national Animal Health Statement (OJD) is at Appendix 2.

### **4. TRACING AND SURVEILLANCE**

- 4.1 Sufficient surveillance will be undertaken by jurisdictions, in accordance with Appendix 1, to permit estimation of flock prevalence for the purposes of the ABC Scheme, and to detect infection in Very Low and Low Prevalence Areas. Annual summary reporting will be provided to Animal Health Australia which will be responsible for analysis and estimation of flock prevalence.
- 4.2 Where the owner of a flock associated with an abattoir detection of OJD can be identified the owner of the flock will be advised in writing.
- 4.3 Other tracing and surveillance activities additional to abattoir surveillance may be carried out at the discretion of the Chief Veterinary Officer. Animal Health Committee may approve other methods of surveillance for the purposes of estimating flock prevalence.

### **5. DETERMINING PREVALENCE AREAS**

- 5.1 A Free Zone will meet the requirements as set out in “Criteria for a Free Zone” established by Primary Industries Standing Committee through the Animal Health Committee.
- 5.2 Prevalence Areas will be determined by Animal Health Committee in accordance with Appendix 1.

## **6. INFECTED FLOCKS AND FLOCKS SUSPECTED TO BE INFECTED WITH OJD**

- 6.1 To sell sheep (other than Terminal Lambs or sheep directly to slaughter), the owner of an infected flock should enter into an Approved Property Disease Management Program and will give an Animal Health Statement (OJD) to the purchaser or prospective purchaser.
- 6.2 Jurisdictions will encourage the owners of infected flocks to manage the perimeter of their properties to minimise the risk of spread of infection to neighbouring flocks.
- 6.3 Flocks that are infected with OJD are no longer considered to be infected when:
- the whole flock consists of Approved Vaccinates and has been submitted to a PFC 350 Test with negative results, at a minimum of 2 years after the last detected infected animal has been destocked; or
  - the whole flock is a Second Generation Approved Vaccinate Flock which has been submitted to a PFC 350 Test with negative results; or
  - the property has completed a full property destocking /decontamination program which is approved by the Chief Veterinary Officer of the jurisdiction.
- 6.4 Flocks that are suspected to be infected with OJD are no longer suspected when
- suspicion has been removed to the satisfaction of the Chief Veterinary Officer; or
  - the whole flock consists of Approved Vaccinates and has been submitted to a PFC 350 Test with negative results, at a minimum of 2 years after the last detected infected animal has been destocked; or
  - the whole flock is a Second Generation Approved Vaccinate Flock which has been submitted to a PFC 350 Test with negative results; or
  - the property has completed a full property destocking /decontamination program which is approved by the Chief Veterinary Officer of the jurisdiction.

## **7. VACCINATION**

- 7.1 An OJD vaccine is a registered vaccine for Johne's disease that is approved by Animal Health Committee.
- 7.2 The use of vaccine in any jurisdiction will be subject to approval by the CVO.
- 7.3 Any restrictions on access to vaccine are at the discretion of the Chief Veterinary Officer, in accordance with any registration or label requirements of the vaccine.

7.4 Any sheep vaccinated with an OJD vaccine may be identified with an Approved Vaccination Tag.

**8. TESTING**

8.1 Any tests used to confirm the presence of OJD infection in a flock, to remove an infection classification (as per 6.3), or to resolve suspicion of OJD infection (as per 6.4), will be approved by the Subcommittee on Animal Health Laboratory Standards (SCAHLs).

8.2 Animal Health Committee may approve additional tests for the purpose of assigning an ABC score.

## APPENDIX 1 - PREVALENCE AREAS

In areas other than a Free zone, a Prevalence Area (PA) status for the purposes of the ABC Scheme will be determined by Animal Health Committee based on the estimated disease prevalence.

There will be four categories of Prevalence Area:

- High Prevalence Area (HPA)
- Medium Prevalence Area (MPA)
- Low Prevalence Area (LPA)
- Very Low Prevalence Area (VLPA).

Prevalence areas will be assessed based on the upper 95% confidence limits for estimated flock prevalence in the area. The maximum estimated prevalence for each Prevalence Area is shown in TABLE 3.

The base credit points assigned for a Nil Assurance flock will be determined by the Prevalence Area in which the flock is located. These credit points are shown in TABLE 3.

**TABLE 3**  
*Prevalence Areas*

<i>Prevalence Area</i>	<i>Upper 95% confidence limit of estimated prevalence</i>	<i>Credit points for Nil-Assurance flock in the area</i>
<i>High Prevalence Area</i>	<i>Over 32%</i>	<i>0</i>
<i>Medium Prevalence Area</i>	<i>32%</i>	<i>1</i>
<i>Low Prevalence Area</i>	<i>8%</i>	<i>3</i>
<i>Very Low Prevalence Area</i>	<i>0.5%</i>	<i>5</i>

### 1.1 INITIAL ALLOCATION OF PREVALENCE AREA STATUS UP TO 30 JUNE 2006

Prevalence Areas will become operational on 1 July 2004.

Prior to 1 July 2004, Animal Health Committee may endorse a defined geographical area as a Prevalence Area following application from the CVO(s) with jurisdictional responsibility for that Area. Areas may apply for classification as a Prevalence Area using the estimated flock prevalence based on abattoir surveillance data to December 2003, as outlined in section 2.2 below.

If a CVO does not apply for an area to be classified as a PA from July 2004, it will be classified according to its Zone status at 31 December 2003 as follows:

- Residual Zones or Management Areas as a High Prevalence Area.
- Control Zones as a Medium Prevalence Area.
- Protected Zones as a Low Prevalence Area.

## **1.2 APPLICATION FOR PREVALENCE AREA CLASSIFICATION.**

Prevalence Area status will be determined by Animal Health Committee based on the upper 95% confidence limit of the prevalence estimate calculated from abattoir surveillance data for the most recent calendar year. The upper 95% confidence limit of the estimated flock prevalence must not exceed the cut-off prevalence for a Prevalence Area. Animal Health Committee should also take into account events that may bias the prevalence estimate so that it may not be a true representation of the Area prevalence (eg destocking from large infected properties resulting in a number of positive lines going through abattoir).

The known prevalence in an area must also not exceed the cut-off prevalence for a Prevalence Area.

Area flock prevalence will be estimated by Animal Health Australia using data submitted by each jurisdiction and by a standardised analysis endorsed by Animal Health Committee.

Animal Health Committee may endorse an area to be upgraded to a lower risk prevalence area. Application for such an upgrade will require surveillance data in support of the decreased prevalence plus an indication of the plan for the target level for future surveillance activity. A Prevalence Area will not be upgraded until it has satisfied the prevalence criteria for two years.

Jurisdictions may apply to downgrade an area to a higher risk prevalence area at any time.

## **1.3 MAINTENANCE OF PREVALENCE AREA CLASSIFICATION**

The maintenance of Prevalence Areas will involve review of the abattoir surveillance data and any other data approved for the purpose by Animal Health Committee on an annual basis. However, unless other data supports a downgrade, the prevalence area will not be downgraded to a higher risk Prevalence Area on the basis of these estimates unless the relevant prevalence cut-off has not been met for two consecutive years. This is to buffer random statistical variation.

CVOs will report annually on each Prevalence Area to Animal Health Committee. Where a Prevalence Area includes two or more jurisdictions a combined report will be submitted. Animal Health Committee should be satisfied that abattoir surveillance has been representative of the flocks in the Area and that there are no significant sheep producing areas within the Area that have not been sampled proportionately in the surveillance activity. If so, such sub-areas may not be included in the Prevalence Area or alternatively other methods based on flock sampling must be employed to achieve the required probability of detection.

TABLE 4 provides an indication of the level of abattoir surveillance necessary to ensure sufficient surveillance is undertaken to meet target prevalence estimates, based on hypothetical prior prevalence estimates.

For Prevalence Area verification, it is recommended that a minimum of 1,000 lines of sheep are examined by abattoir surveillance annually in each Prevalence Area, unless a specific case for sampling has been approved by Animal Health Committee.

For detection of disease for control purposes in the VLPA and LPA, a target sampling ratio of 50% (number of lines examined/number of flocks in the PA) is recommended, up to a maximum of 5,000 lines. This is inclusive of samples examined for verification of prevalence.

**TABLE 4**

*Maximum number of positive lines allowed to satisfy the 95% cut-off for different Prevalence Areas given various numbers of lines examined per year, based on hypothetical assumed prior flock-prevalence distributions.*

<i>Prevalence area</i>	<i>Assumed prior flock prevalence</i>		<i>Number of lines</i>	<i>Maximum number and % of positive lines at 95% confidence levels</i>	
	<i>Median</i>	<i>95%ile</i>		<i>Number</i>	<i>%</i>
<i>Very Low</i>	0.2%	1%	500	<i>N/A</i>	-
			1000	1	0.1%
			2000	5	0.3%
			3000	10	0.3%
			5000	20	0.4%
<i>Low</i>	4%	8%	500	28	5.6%
			1000	58	5.8%
			2000	120	6.0%
			3000	180	6.0%
			5000	295	5.9%
<i>Medium</i>	15%	25%	500	130	26.0%
			1000	260	26.0%
			2000	510	25.5%
			3000	790	26.3%
			5000	1380	27.6%

## **APPENDIX 2 - ANIMAL HEALTH STATEMENT (OJD)**

Version 2 - See separate attachment - Animal Health Statement.