



Photo credit: Taryn Mokotupu

# **SHEEPMAP**

RULES AND GUIDELINES OF THE

## **Australian Johne's Disease Market Assurance Program For Sheep**

## ACKNOWLEDGEMENTS

The Australian Johne's Disease Market Assurance Program for Sheep has been progressively improved over recent years with the help of stakeholders from the sheep industries, stud associations, the veterinary profession and government services. Herd Health Pty Ltd, WoolProducers Australia and Sheep Producers Australia have been instrumental in assisting Animal Health Australia with this latest revised version.

Animal Health Australia also acknowledges the state Departments of Agriculture/Primary Industries for administering the program within each state.

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- Generate random lists for auditing, if required
- Mail out information materials related to the disease and the program.

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- Owner name
- Property name
- Postal address
- Phone number
- Email address
- Status
- Breed
- Expiry date
- Year entered the MAP

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Animal Health Australia  
95 Northbourne Ave, Turner, ACT 2612  
Postal address:  
PO Box 5116, Braddon, ACT, 2612  
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**State Market Assurance Program Contacts**

State MAP coordinator contact details are available at: [www.animalhealthaustralia.com.au/what-we-do/endemic-disease/maps/map-contacts/](http://www.animalhealthaustralia.com.au/what-we-do/endemic-disease/maps/map-contacts/)

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# INTRODUCTION

Welcome to the 2020 version of SheepMAP - the Australian Johne's Disease Market Assurance Program for Sheep. Whether you are a new participant or have been following SheepMAP systems for some time, your participation in the program is an important part of ongoing efforts to manage Johne's disease and to ensure the long term sustainability of the wool and sheep meat industries in Australia.

This introduction contains information that will give you useful background on SheepMAP, the assurance classification system, brief details of the testing regime that operates in the program, where SheepMAP 'fits' in the national effort to control Johne's disease and how and by whom the program is managed. It also outlines the review processes that are involved, the structure of the manual, definitions of some key terms and some specific information to assist those seeking accreditation to achieve it.

Taking the time to read this Introduction will allow you to use the manual more efficiently and begin to reap the benefits of having a SheepMAP flock more quickly.

## ABOUT SHEEPMAP

SheepMAP is an integral part of the management of Johne's disease in the Australian sheep flock. It complements the *Definitions and Guidelines for the Management of Johne's Disease in Sheep* which deals with the management of Johne's disease. Animal Health Australia considers market assurance to be a core component of national Johne's disease management.

The SheepMAP was developed in 1997 in response to calls from the Australian wool and sheep meat industries for a flock classification scheme to assure sheep breeders and their clients that participating flocks had been objectively assessed as having a low risk of being infected with ovine Johne's disease.

**Participation in SheepMAP does not guarantee that a flock is free of Johne's disease, but the higher the status a flock achieves the greater the assurance that it is not infected.**

Therefore, it will be most attractive to flock owners who wish to assure clients that their sheep have a low risk of being infected. It is also attractive to producers wishing to sell breeding sheep as there is recognition for the additional assurance from the testing required and biosecurity in SheepMAP. It is important to note that the program does not apply to infected flocks.

The SheepMAP is a voluntary program with the costs being borne by participating flock owners.

The original SheepMAP was reviewed in consultation with the sheep industries, sheep veterinarians and government during 1999. It was endorsed by the Veterinary Committee, now Animal Health Committee, in January 2000. The manual was completely revised in 2005 and minor amendments have been made subsequently to keep it in line with other Johne's disease programs. A full technical review of the program and manual was conducted in 2014-2015 and a consultative review completed in 2018 and the manual was subsequently updated in 2019-20.

## LEVELS OF ASSURANCE FOR JOHNE'S DISEASE

The SheepMAP aims to identify, protect and promote flocks that are at low risk of being infected with Johne's disease. It is based on a testing regime and on the adoption of property and management practices that minimise the risk of introducing Johne's disease into the flock. The assessment of these practices and the testing of stock is the responsibility of veterinarians who are trained and approved under the scheme.

Flock testing, used to assess the risk of infection being present in a flock, comprises a pooled faecal culture (PFC) with follow-up investigation of positive pools. The status allocated to a flock assessed as negative is 'Monitored Negative' (MN). Depending on how long a flock has participated in the program and the number of times flock testing has been undertaken, it is allocated MN1, MN2 or MN3 status. The terms 'accredited free' or 'confirmed free' have not been used as they imply there is no risk associated with purchase of sheep from MAP flocks.

The Johne's disease situation in 'Not Assessed' flocks is, as the name suggests, unknown.

ASSURANCE LEVEL	HOW ACHIEVED	RELATIVE MERIT
Monitored Negative 1 (MN1)	1 negative sample test of flock and a Flock Management Plan in place	Moderate assurance level
Monitored Negative 2 (MN2)	2 negative sample tests of flock level over a period of at least 2 years plus Flock Management Plan	High Johne's disease assurance
Monitored Negative 3 (MN3)	3 negative sample tests of flock over a period of at least 4 years plus Flock Management Plan	Highest assessed Johne's disease assurance level

## TESTING AND MANAGEMENT

### VETERINARY MANAGEMENT

Generally, only a sample of the flock is tested. As testing is not 100% sensitive, even testing all animals would not provide a guarantee of disease freedom. The MAP requires the testing of enough animals to provide a high level of assurance that sheep from a MAP assessed flock have a low risk of being infected with Johne's disease. In large flocks, Sample Testing to achieve a higher MAP status is undertaken to give at least 98% confidence of detecting infection if the disease is present in 2% of sheep in the sampled flock. In small flocks all adult animals are tested. Adult animals are classified as those aged two years and older.

Provided management factors preventing the introduction of disease are implemented, the more testing that occurs over time, the greater the level of confidence that a flock is not infected. In addition, any sheep which show signs suggestive of Johne's disease must be investigated. These animals must be autopsied with the required specimens submitted to a laboratory to exclude Johne's

disease. An Annual Veterinary Review is undertaken to check for infection and to ensure that the management of the flock complies with the program and the Flock Management Plan.

The specific responsibilities of the Approved Veterinarian in relation to veterinary management of the flock are outlined in the checklists that are in the Approved Veterinarian Checklists document.

In addition, the Approved Veterinarian should obtain a copy of the *Guidelines for Approved Veterinarians – SheepMAP* which provides further detail on these responsibilities.

## **FARM MANAGEMENT**

When you decide to participate in SheepMAP, you need to be prepared to comply with the requirements of the program. A number of on-farm requirements relating to the introduction of animals, husbandry and record keeping apply and are critical to the success of the program.

If you are a sheep trader or you regularly move sheep into your flock, you may find it very difficult to meet the flock management requirements to participate in the program.

## **REVIEWS AND AUDITING**

To provide national and international market confidence in the program, all aspects of the program are regularly reviewed. This ensures that MN flocks are recognised nationally and that the investment of time and money you are making is protected. You may be charged fees to cover some of the administrative costs of the program.

## **VACCINATION**

As a means of providing further assurance, you can also vaccinate the sheep in your SheepMAP flock using the registered Gudair® vaccine. When you vaccinate the sheep, as well as complying with the other requirements of SheepMAP, your flock will be assigned the relevant SheepMAP status with a V added to it (e.g. MN1-V, MN2-V) and the year in which the current MN level was first attained. For example, a vaccinated MN2 flock that attained that status in 2004 would be assigned MN2-V 2004. Further detail on vaccination is included in Element 7 of this manual.

## **THE PLACE OF THE SHEEPMAP IN JOHNE'S DISEASE CONTROL**

The SheepMAP is an essential component of Johne's disease management in Australia. The role of the MAP is to:

- provide a source of low risk replacement sheep for those flocks who want to avoid introducing infection
- provide a source of sheep suitable for restocking properties that have undertaken a Property Disease Management Plan (PDMP)
- allow flocks in endemic areas to demonstrate their status so that they can sell sheep as restockers
- maintain a reservoir of low risk sheep using management strategies that minimise the risk of introducing disease into MAP flocks
- reduce the risk of Johne's disease being spread at shows and sales.



## MANAGEMENT OF THE SHEEPMAP

The SheepMAP is one of four Market Assurance Programs that have been developed by the livestock industries, government and the veterinary profession (although CattleMAP ceased in 2016). They are formally endorsed by Animal Health Committee and peak industry bodies.

The SheepMAP is coordinated nationally by Animal Health Australia within the Sheep Health Project. Administration is managed by the Department of Agriculture or Primary Industries in each state.

Industry ownership and commitment to this program is essential for its success. Sheep Producers Australia and WoolProducers Australia provide policy oversight for the program. Stakeholders in the program undertake regular reviews to monitor progress, consider technical advances and endorse any changes necessary to improve the program.

## REVIEW AND AUDIT REQUIREMENTS

Because SheepMAP is a quality assurance program where a third party relies on the integrity of the system when purchasing goods, the system must include review processes. Reviews and external audits are important because they:

- ensure that purchasers can maintain confidence in the program
- provide participants in the SheepMAP with confidence in the system by demonstrating that all players are meeting their obligations
- provide a mechanism for evaluating the SheepMAP and identifying elements that require improvement or modification.

Reviewing occurs at two levels. As a flock manager you are expected to regularly review your systems and compliance with the procedures outlined in this manual and participate in an Annual Veterinary Review (internal reviews). In addition, the SheepMAP may require you to arrange a third-party audit every three years that focuses on the compliance with the requirements of SheepMAP of all the people and authorities who are involved (external audit). External audits were put on hold in 2015 but may be reinstated at some point.

One of the significant benefits of SheepMAP being a quality assurance program is that it has a focus on continuous improvement. The review and audit processes help you identify not only areas where there are problems and you need to take corrective action, but also ways that you can improve all your processes and activities so that complying with SheepMAP requirements is achieved more easily and efficiently.

Further details on the steps in the review process including examples of records and forms can be found in Element 8 of the manual.

# THE SHEEPMAP MANUAL

This manual outlines the activities you must undertake, the flock and property management practices you must use (including testing) and the records you need to keep in order to participate in the SheepMAP. It is designed to be a practical tool that you use to help you to meet SheepMAP requirements.

## STRUCTURE

As well as this introductory section, the manual contains eight Elements and two Appendices.

## THE ELEMENTS

Elements 1 to 7 focus on the activities and farm management practices that are required when you are part of SheepMAP. Element 8 outlines the quality system requirements of the program.

All the elements follow a similar format. Each one begins with an overview and purpose of the element and finishes with a checklist for you and where appropriate one for the Approved Veterinarian of the tasks you need to undertake. In between is some information on how to meet the requirements of the Element.

## APPENDICES

There are two appendices to SheepMAP:

- Appendix 1 contains detailed information for your Approved Veterinarian on the testing procedures for both Pooled Faecal Culture testing.
- Appendix 2 is a copy of the Guidelines for Shows, Sales and Exhibitions.

## SheepMAP Resources and Forms document

The accompanying document contains copies of all the forms that have been developed to ensure that you can meet the record keeping requirements of the program. They are of two types:

- Most of the forms are '*recommended record formats*'. You have a choice as to whether you use these formats or collect and store the required information in another way. If you already use a recording system on the farm which meets the SheepMAP requirements (for example forms used in the Livestock Production Assurance (LPA) program), you may prefer to integrate any new records required with that system.
- A small number of the forms are '*compulsory record formats*'. To comply with SheepMAP requirements you **must** use this precise format.

Blank copies are also available on the SheepMAP webpage:

[www.animalhealthaustralia.com.au/what-we-do/endemic-disease/maps/sheepmap/](http://www.animalhealthaustralia.com.au/what-we-do/endemic-disease/maps/sheepmap/).

Naming of forms should make it easy to identify them but does not need to be a specific format.

# DEFINITIONS

## ABATTOIR 500 STATUS

At least 500 sheep, over two years of age, have been submitted to an abattoir in the past 24 months, in one or more lots, have been examined and all found negative for Johne's disease. The sheep must have been on the property for at least two years.

## ANNUAL VETERINARY REVIEW

A review undertaken every year by your Approved Veterinarian to ensure that the flock has met the requirements of the program. It includes examination of records, individual identification of animals at testing, and records of movements on and off the property as well as any required testing.

## APPROVED AUDITOR

A person approved by Animal Health Australia to conduct external audits of participants in the scheme.

## APPROVED LABORATORY

A veterinary laboratory approved by the Chief Veterinary Officer (CVO) of the state/territory to carry out diagnostic tests for Johne's disease.

## APPROVED TEST

A test approved by the Sub-Committee on Animal Health Laboratory Standards (SCAHLs) on behalf of Animal Health Committee.

## APPROVED VACCINATE

A sheep that is identified by an NLIS (sheep) 'V' tag and is:

- Vaccinated with an approved JD vaccine by 16 weeks of age, or
- Vaccinated with an approved JD vaccine after 16 weeks of age, when the flock:
  - was in the SheepMAP, or
  - had undertaken a negative Pooled Faecal Culture 350 test in the two (2) years preceding the vaccination, or
  - had a Negative Abattoir 500 status at the time of vaccination.

## APPROVED VETERINARIAN

A veterinarian who is accredited under the Accreditation Program for Australian Veterinarians (APAV) and who has demonstrated competency as required by the program and has been authorised in writing by the Chief Veterinary Officer of the state/territory to participate in the program. Only Approved Veterinarians can enter into an agreement with the flock owner.

## BARRIER

A physical separation which minimises the risk of environmental spread of infection. Suitable physical or spatial barriers may include unstocked land or land grazed by cattle or camelids, tree lots, contour banks and stone walls.

## **CHIEF VETERINARY OFFICER (CVO)**

The senior government veterinarian of a state or territory who is responsible for the administration of animal health legislation in that state or territory and includes his/her delegate.

## **CONTAMINATED LAND**

Land that has been contaminated by the faeces of infected animals or flocks, but which has not been decontaminated in accordance with a Property Disease Management Plan.

## **ELIGIBLE SPECIES**

This program is primarily intended for sheep -the eligible species. Cattle, goats and deer may become infected with Johne's disease. Where these species are run together on the same land as sheep, they should be of equivalent status for goats in GoatMAP or a score of 6 or higher for the Beef and Dairy Johne's Assurance Scores.

The risk posed to SheepMAP flocks which have feral goats and deer roaming onto the property must be considered in the flock risk assessment and documented in the Flock Management Plan. This risk may be assessed indirectly by testing of the property flock and by the status of any neighbouring flocks that have been tested (if known).

## **FAECAL AND TISSUE CULTURE EXAMINATION**

A bacteriological examination of faeces or body tissues in accordance with the Australian and New Zealand Standard Diagnostic Procedures (ANZSDPs) for Johne's disease or as determined by the SCAHLS.

## **FLOCK**

A group of all sheep which have grazed the same land during a 12-month period and/or which have shared the same facilities such as yards or a shearing shed. A flock may be run on separate blocks of land, however the movement of eligible animals between these blocks must be undertaken to comply with SheepMAP requirements.

Where a new flock is established it may enter the SheepMAP when it satisfies the requirements outlined in Element 1.

## **FLOCK STATUS CERTIFICATE**

This is a certificate issued to the flock owner by the Approved Veterinarian. It describes the status of the flock following its most recent assessment and is valid for up to 12 months or until it is revoked.

## **HISTOPATHOLOGICAL EXAMINATION**

An examination of a range of tissues in accordance with the ANZSDPs for Johne's disease or as determined by the SCAHLS in the meantime using procedures recommended and documented by the SCAHLS. Element 6 lists the specimens to be submitted.

**INFECTED ANIMAL**

An animal which has had Johne's disease confirmed by histopathology, tissue culture or by any other examination approved for this purpose by Animal Health Committee through the ANZSDPs.

**LAND**

The area of land including yards and other facilities on which the flock is run.

**MAINTENANCE TEST**

A test undertaken on a biased sample of animals in the flock to maintain its current status (see Element 6).

**MOB**

A discrete group of sheep, often of similar age or the same sex, within a flock.

**NEIGHBOURING PROPERTY**

Any other landholding adjoining the land on which an assessed flock is run.

**POOLED FAECAL CULTURE (PFC) SAMPLE TEST**

The Sample Test consists of Pooled Faecal Culture screening of a statistically significant sample of sheep over two years of age in the flock. This may be followed by a PFC follow-up test if required to determine the flock status.

**PROPERTY DISEASE MANAGEMENT PLAN/PROGRAM (PDMP)**

A program to manage Johne's disease in an infected flock, with the purpose of reducing within-flock prevalence and minimising the risk of spread to other flocks and is in accordance with the guidelines detailed in Appendix one of the *Johne's Disease in Sheep Definitions and Guidelines*. A PDMP is developed and monitored in consultation with an approved veterinarian, who may refer to the state Johne's Disease coordinator for technical assistance.

**SAMPLE TEST**

Screening of a sample of a flock by a Pooled Faecal Culture with follow up investigation of positive individual animals or groups. The sheep to be tested are selected from the flock in accordance with Element 6. A Sample Test is positive only if infection is found in the flock.

# GETTING STARTED

## BEFORE YOU START (FOR NEW ENTRANTS)

This section is specifically aimed at flock managers/owners who are considering participating in SheepMAP. It outlines some steps you need to take to be sure that your property, your flock and your management systems are ready to participate in the program.

### GETTING STARTED

- Read through each Element of the SheepMAP manual. You will probably find the accompanying Checklists document gives you the best information on what you will need to do to be part of the program. If you are Livestock Production Assurance (LPA) accredited, then you should already be implementing many of biosecurity measures for this program.
- Next contact a veterinarian who is, or is prepared to be, trained and approved under the MAP. A list of Approved Veterinarians is available on the Animal Health Australia website. As well as probably being able to answer any questions you might have about how SheepMAP operates, you need to work with them to complete the risk assessments and testing that are the first stages of the program. Part of being in SheepMAP is having a formal written agreement with an Approved Veterinarian who will support you to participate and monitor the Johne's disease status of your flock.
- Look at your record keeping and other management systems and see how much you will need to modify them to meet the requirements of SheepMAP. You may well already be recording some or all the information required (e.g. for Livestock Production Assurance). Once you are enrolled in SheepMAP there is no need to duplicate this, although you need to ensure your records are easily accessible for reviewing purposes, as well as for your own farm management.

If you decide to continue, you will need to sign the agreement mentioned above with the Approved Veterinarian and arrange to complete the flock and property risk assessment outlined in Element 1 and initial flock testing.

Note the below icons will help you identify the important sections of the SheepMAP manual.



This section is important for veterinarians



Handy tip



This section is important for Flock Managers



## STARTING EFFICIENTLY

There is a good deal of work involved in getting started in SheepMAP. By being well prepared, you will reduce the amount of time you and the Approved Veterinarian spend doing the important initial risk assessments and testing.

### GATHER INFORMATION BEFORE THE VET VISITS

Make sure you have all the following information together before the Approved Veterinarian comes to do the initial risk assessments. Some vets will ask you to send them the information; others will prefer you to have it available on the day they visit. Either way, the information you will need includes:

- Identifying details of the property (name, address, owner's name, your Property Identification Code).
- The details of the property that you will need to complete the property risk assessment:
  - the specific areas to which the flock will be confined and the whole property on which it is located
  - details of any separate blocks
  - a plan clearly showing the land, subdivision into paddocks, watering points, yards, buildings, effluent ponds and boundaries (name the boundaries)
  - the type and construction of fences and an evaluation of their security (this will be re-evaluated by your Approved Vet)
  - details of neighbouring properties and animals that run on that land
  - the extent of feral animal activity on the property and how you deal with it
  - any sites where contaminated water or faeces may potentially enter the land.
- Details of the flock
  - how long it has been established
  - the number of animals
  - how they are divided into mobs
  - the ages of animals – particularly those over two years of age
  - your current flock status (has Johne's disease ever been diagnosed in the flock?)
  - Johne's disease vaccination status.
- How you manage the flock
  - how animals are identified and the records that you keep of the identifiers
  - management of lambs born on the property
  - how introduced animals are managed
  - how you manage selling, culling and introducing new animals
  - whether you move mobs between different blocks of land and if you do,
  - how you manage the movement.

### BE READY FOR TESTING

Well ahead of the date you have agreed for testing:

- Ensure your yards are adequate for conducting the required tests
- Arrange the initial test requirements with your Approved Veterinarian - date, time, number of mobs to be sampled, and number of animals within each mob to be sampled.

On the day(s) the samples are to be collected, ensure your sheep are yarded in time and ready for sampling.

# ELEMENT 1 – FLOCK ENTRY REQUIREMENTS AND FLOCK/PROPERTY RISK ASSESSMENT

The eligibility of a flock to participate in and remain in the SheepMAP must be established and reviewed regularly to ensure the appropriate SheepMAP status is maintained.

Procedures must be implemented and reviewed to ensure the risk of infection of the SheepMAP flock from introduced or neighbouring stock or contaminated water or faeces is minimised.

## 1. GETTING STARTED

To participate in the SheepMAP you must make a written agreement with a veterinarian who is approved to participate in the program. You must use the Agreement between Flock Owner and Approved Veterinarian to record the agreement. A copy of the agreement must be retained by both the Approved Veterinarian and the flock manager. There is a copy in the *Resources and Forms* document.

Once the agreement is signed, you and your Approved Veterinarian work together to ensure that the flock is eligible for inclusion in the SheepMAP. This requires a property risk assessment, a flock risk assessment and the development of a plan and procedures to minimise the risk of Johne's disease entering the flock.

An approved LPA biosecurity plan may meet the requirements for SheepMAP, if there is enough detail documented under both the *property risk assessment* and *biosecurity* components.

The *property risk assessment* reviews the land involved. The review includes:

- boundary fences and barriers
- sheep handling facilities
- the feral animal population
- the enterprises conducted on neighbouring properties
- identifying sites where potentially contaminated water or faeces could enter.

The *biosecurity* assessment reviews preventive measures to minimise risk of introduction of disease into and the spread of disease within a property. The review includes ensuring:

- the property has a sufficiently detailed and documented Farm Biosecurity Plan
- all livestock movements onto the property have a known health status (e.g. from a Sheep Health Declaration or equivalent)
- all introduced livestock are inspected for signs of ill health or disease on arrival at the property and kept in isolation for a period (e.g. 21 days)
- livestock are inspected regularly for ill health and disease and appropriate action undertaken where necessary

- the risk of livestock straying onto or from the property is minimised
- there are systems in place to notify a veterinary practitioner, or animal health officer, if unusual disease, illness or mortality is observed
- where reasonable and practical, the movement of people, vehicles and equipment entering the property are controlled and, where possible, movements recorded
- any other procedures or practices that contribute to minimising the risk or spread of disease.

The flock risk assessment reviews the history of the flock, the source of recently introduced sheep and the suitability of the livestock identification system and records. A representative sample of sheep is tested to ensure that the flock is unlikely to be infected with Johne's disease. Information on testing strategies is provided in Element L6 of this manual.

A Flock Management Plan is developed as an outcome of the risk assessment. The plan focuses on maintaining the assurance status of the flock and on ensuring that prompt action can be taken if required. This includes ensuring that basic LPA requirements for biosecurity and stock movement are met along with specific details on:

- OJD vaccination and testing records.
- Integrity of barriers to prevent the incursion of contaminated water and faeces.

You and the veterinarian sign the plan and you must both comply with its management requirements on an ongoing basis to remain in the SheepMAP.

## **INITIAL RISK ASSESSMENT**

To be sure that you comply with this Element of the SheepMAP, you and the Approved Veterinarian must undertake each of the following tasks:

- Identify the land to which the SheepMAP flock will be confined (called the land in this manual) and the whole property on which it is located.
- Check whether the land comprises of any separate blocks.
- Ensure the property biosecurity plan map (e.g. one developed for LPA purposes) shows the following details:
  - the land
  - its subdivision into paddocks
  - water flows
  - stock handling facilities
  - any parts of the property that will not be included in the land on which the
- flock is run
  - all neighbouring properties
  - sites where potentially contaminated water or faeces could enter the land.

Ensure the Flock and Property Risk Assessment in the Flock Management Plan (see Element 5), and:

- Record the type of construction of boundary fences and barriers and evaluate their security.
- Agree where the upgrading of fences and barriers is necessary.
- Find out whether neighbouring properties run sheep or other 'eligible species' (e.g. goats and deer (other than fallow deer), etc.).
- Assess barriers to the entry of potentially contaminated water or faeces.

- Find out what feral animals run on the land, the risk they present (including risks to boundary fence integrity) and whether increased control or eradication may be needed.
- Ensure that yards, races, etc are adequate for sample collection and are not used by sheep or other eligible species of lower status except in accordance with SheepMAP.

You must keep records of the outcomes from the property risk assessment. Examples of two forms you can use are included at the end of this section and on the AHA SheepMAP webpage.

- Property/Flock Risk Assessment Form
- Boundary Inspection Record Form

You can use another format to keep the records if you wish, but remember the records must:

- be signed by the Approved Veterinarian
- contain all the required information.

## ONGOING RISK ASSESSMENT

It is important to remember that the flock and property risk assessment is not a 'one-off' event - for either ongoing SheepMAP or LPA accreditation. You are responsible for carrying out all the management tasks detailed in the Flock Management Plan such as regular (three monthly) boundary inspections and repairs when required, monitoring for strays and recording sheep introductions, movements, vaccinations and testing.

You must also consult with your veterinarian as required. You must organise ongoing testing (in the form of Maintenance or Sample Tests) and an Annual Veterinary Review to meet the requirements of the Flock Management Plan.

The tasks that you and the Approved Veterinarian need to undertake are listed in Checklist 2 at the end of this section.

## 2. DETERMINING FLOCK STATUS



When your flock is enrolled in the SheepMAP it will be given an initial flock status by the Approved Veterinarian.

How this happens depends on whether the flock is:

- new to SheepMAP
- assembled from existing SheepMAP flocks
- re-entering SheepMAP.

The Approved Veterinarian will issue you with a Flock Status Certificate. This is valid for up to 12 months or until it is revoked.

### ALLOCATING THE INITIAL STATUS OF NEW SHEEPMAP FLOCKS

Most new SheepMAP flocks are given a Not Assessed (or NA) status until the flock and property risk assessment has been done (including Sample Testing of the flock), and you and the Approved Veterinarian have developed a Flock Management Plan. Completion of a negative Sample Test should then allow the flock to progress to MN1 (Monitored Negative 1) status.

When your flock first enters the SheepMAP you and the Approved Veterinarian must record the initial status as advised by the MAP Administrator on the Property/Flock Risk Assessment Form. Most flocks begin with the status of Not Assessed (NA) unless the flock.

- In the past, approval may have been sought from the CVO to allow entry into the SheepMAP. However, this is no longer possible in many states.
- If the new flock is established on **previously contaminated land**, you and the Approved Veterinarian must ensure that the likelihood of infection is resolved before the flock enters SheepMAP.
- If the flock has been **previously infected**, you must complete a Property Disease Management Plan, and a Sample Test must return a negative result to allow the flock to progress to MN1 status.

### ALLOCATING THE INITIAL STATUS OF NEW SHEEPMAP FLOCKS ASSEMBLED FROM EXISTING SHEEPMAP FLOCKS

Before you introduce any sheep onto the land, you and the Approved Veterinarian must carry out a flock and property risk assessment as detailed earlier in this section. The Approved Veterinarian will determine the initial flock status based on the following:

- If all the sheep come from SheepMAP flocks, and they all have a status of MN2 or MN3, your flock will be allocated a status one level lower, i.e. MN1 or MN2 respectively.
- If all the sheep come from SheepMAP flocks, but any of those flocks have an MN status of MN1, your flock will be allocated the status of the contributing flock with the lowest status, as long as the identity and status of all contributing flocks is known.
- If any sheep come from flocks that are not SheepMAP flocks, your flock cannot enter SheepMAP until at least 12 months has elapsed since the flock was established. The initial status of the flock will be NA as long as all the flock is not infected.
- If the new flock is established on **previously contaminated land**, you and the Approved Veterinarian must ensure that suspicion of infection is resolved before the flock enters SheepMAP.

The table below summarises this information.

CONTRIBUTING FLOCKS	INITIAL STATUS OF NEW FLOCK	SPECIAL CONDITIONS
All SheepMAP flocks with MN2 or MN3	MN1 (if source flocks are MN2) MN2 (if source flocks are MN3)	
All SheepMAP flocks including sheep with an MN1 status	MN1	Identity and status of all contributing flocks must be known
Some flocks are not in SheepMAP	NA	The flock must be established for at least 12 months before it can enter SheepMAP

## ALLOCATING THE STATUS OF FLOCKS RE-ENTERING THE SHEEPMAP



SheepMAP flocks may lose their status if:

- they are exposed to sheep of lower status
- sheep of lower status are introduced
- they are exposed to contaminated or non-assessed land.

These flocks may subsequently re-enter the program if the following conditions are met:

- If the flock's status was removed because of introduction(s) from a flock of lower status you must ensure that at least 12 months has elapsed since the introduction(s) occurred or the youngest introduced animals are at least 2 years of age, whichever is the later.
- If the flock's status was removed because sheep were exposed to contaminated or non-assessed land or to flocks of a lower status, you must resolve any suspicion of infection. Additionally, the youngest exposed sheep must be at least 2 years of age when the flock re-enters the program.

Depending on the reasons for which the flock lost its status, a re-entering flock will be regarded as Not Assessed.

## REINSTATEMENT OF STATUS

Two possibilities exist for reinstatement of previous status:

- If your SheepMAP flock has had its previous status downgraded because you introduced sheep of lower status and you can demonstrate that the flock from which these sheep originated has now achieved a higher status, the original status of your flock may be reinstated.
- If your flock's status was downgraded because either the Approved Veterinarian or the CVO suspected infection, but it is now determined that this suspicion was not correct, the original status should be reinstated.

If your flock has its status reinstated, you and the Approved Veterinarian should record and maintain all appropriate supporting documentation.

## REDUCING OR WITHHOLDING SHEEPMAP STATUS

There are some cases where the Approved Veterinarian may reduce or withhold the status of your flock. They are:

- If there is a serious breach of any condition contained in the agreement you made with the Approved Veterinarian, the flock status must be changed to NA.
- If the Approved Veterinarian suspects your flock is infected, the flock status must be changed to suspect, and the State Department must be notified (as JD is notifiable).
- If you notify the Approved Veterinarian that the CVO suspects the flock to be infected, the flock status must be changed to Suspect.
- If you introduce animals from a flock of lower status, other than introductions allowed under Element 2, the whole flock must revert to the status of the introduced sheep.
- If you fail to maintain documentation to verify the status of any introduced sheep, the flock status will revert to NA (or lower) from the time of introduction of the sheep.



- If you do not arrange and complete an Annual Veterinary Review, Sample or Maintenance Test within two months of the due date, the flock status will revert to the next lowest status (i.e. MN1 would revert to NA, MN2 to MN1, etc). This will also apply to flocks granted 'Extended' status (as detailed below) if they do not undergo a negative Sample or Maintenance Test within 12 months of the issuing of the extended status.

In these circumstances, reversion to MN1 or MN2 will only occur if the Approved Veterinarian is satisfied that all other requirements of the program have been met and a satisfactory Annual Veterinary Review is completed before the new Flock Status Certificate (valid for 12 months) is issued. In the absence of this assessment the flock status must revert to NA.

If your flock has lapsed to MN1 or MN2 status, it cannot progress to MN2 or MN3 or maintain its current status unless it returns a negative Sample or Maintenance Test and has complied with all other requirements of the program. If the flock is not Sample or Maintenance Tested within the 12-month period covered by the new Flock Status Certificate, the flock will revert to NA.

### **EXTENDED STATUS**

An Extended status may be assigned to a flock for a maximum of 12 months from the expiry date of the previous Flock Status Certificate due to operational or exceptional circumstances (for example, where you are unable to test at the appropriate time) provided that:

- State Department approval is given, and
- The flock continues to comply with all other requirements of the program, and
- A new Flock Status Certificate is issued with the status noted as being "extended" (for example, MN1 2004 - Extended).

### **FLOCK STATUS FOLLOWING A TRACE**

If you or the Approved Veterinarian become aware of movement of sheep from or to an infected flock (a trace back or trace forward), the Approved Veterinarian must advise the State Department. An investigation should be undertaken by the Approved Veterinarian using technical advice from the Department, where necessary.

Your flock will maintain its current MN status until the investigation is completed. You may continue to sell sheep direct to slaughter and for restocking (with full disclosure to prospective restocker purchasers) unless you are told otherwise by the Approved Veterinarian.

It is not advisable to remove animals that are under suspicion from the flock as this may interfere with the investigation and significantly delay resolution of the suspicion.

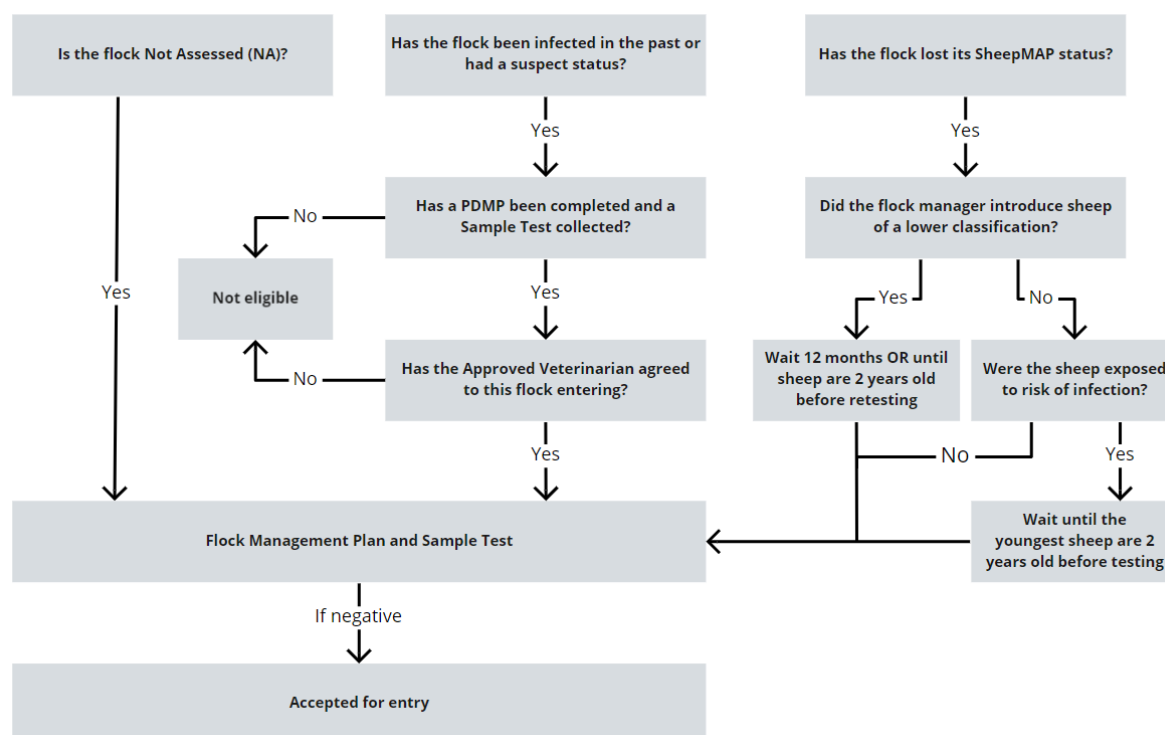


Figure 1: Entering SheepMAP with an existing flock

### 3. REMAINING IN SHEEPMAP

#### ANNUAL VETERINARY REVIEW

In order to remain in the SheepMAP you must have an Annual Veterinary Review. This is carried out by the Approved Veterinarian. This review will ensure that you have met the management requirements of the program. It will include examination of records, individual identification of animals at testing and records of movement of animals onto and off the property.

**It is important that all documents are sent to the state MAP Coordinator as soon as possible after completion of the Annual Veterinary Review.**

You must keep records of the findings of the Annual Veterinary Review. You can use the form provided in the *Resources and Forms* document or on the [SheepMAP webpage](#), or another format providing it records all the necessary information.

If there are sheep that are displaying signs of Johne's disease, there is a requirement for a veterinary investigation to occur with collection of appropriate specimens for laboratory examination. This may be faeces for a faecal culture test or appropriate samples from a post-mortem, if the sheep is thin and in poor condition.

## **PROGRESSING FLOCK STATUS**

In order for your flock to progress its status in the SheepMAP (e.g. from MN1 to MN2) it must successfully complete its Annual Veterinary Reviews and a Sample Test must be undertaken 22-26 months after the previous negative Sample or Maintenance Test on which the flock's status was allocated. A negative Sample Test result will allow the flock to progress to the next level e.g. from MN1 to MN2 or from MN2 to MN3.

If you have implemented a vaccination program as detailed in Element 7 (MNN-V flocks) and the flock contains vaccinated sheep two years of age or older the Sample Test must be carried out using the Pooled Faecal Culture or through an abattoir 500 status.

## **MAINTAINING FLOCK STATUS WITHOUT VACCINATION**

You may choose to maintain your flock status at its current level. To maintain MN1 or MN2 a Maintenance Test must be undertaken 22-26 months after the previous negative Sample or Maintenance Test on which the flock's status was allocated. To maintain MN3 or higher status, a Maintenance Test must be undertaken 34-38 months after the previous negative Sample or Maintenance Test. In addition, each Annual Veterinary Review must be successfully completed.

A flock can only maintain its status once using a Maintenance Test (i.e. for a maximum of two years prior to reaching MN3). If you wish to retain MN1 or MN2 status having already undertaken one Maintenance Test, you need to have satisfactory Annual Veterinary Reviews and complete a negative Sample Test every two years. To maintain MN3 flock status a Maintenance Test must be undertaken every three years. However, the date of the last test should be recorded on the Sheep Health Declaration when selling sheep.

## **MAINTAINING FLOCK STATUS WITH VACCINATION**

You can maintain the status of your SheepMAP flock by vaccinating all sheep in the flock with the killed Johne's disease vaccine, Gudair®. This initial whole flock vaccination must be followed by Annual Veterinary Reviews and annual vaccination of lambs at less than 16 weeks of age, plus all introduced sheep. The SheepMAP status of vaccinated flocks will have a V added to it (e.g. MN1-V, MN2-V) followed by the year in which the MN level was originally attained (e.g. MN1-V 2003). Vaccination in this manner removes the requirement for Maintenance Testing to maintain flock status.

## **EVENTS AFFECTING STATUS**

If you become aware of any matter that may affect the status of your SheepMAP flock, such as the entry of strays from infected neighbours or movement of sheep from or to a flock that subsequently tests positive for Johne's disease, you must immediately advise the Approved Veterinarian. The veterinarian must initiate an appropriate investigation into the potential effect on the flock's status.

## FLOCK STATUS PROGRESSION AND MAINTENANCE

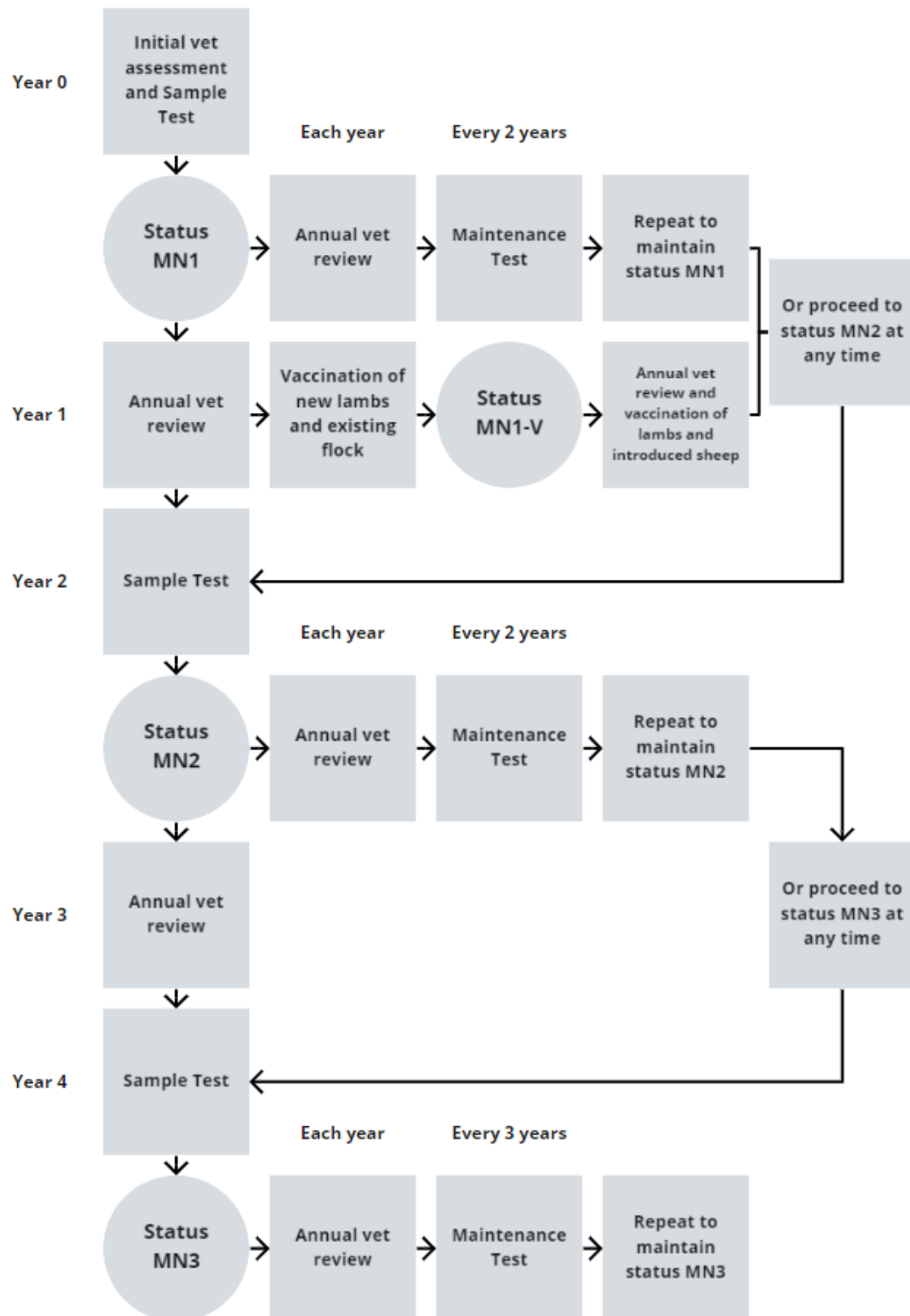


Figure 2: Flock Status Progression and Maintenance in SheepMAP

## ELEMENT 2 – INTRODUCED LIVESTOCK (INCLUDING STRAYS)

Animals must only be introduced into assessed flocks in compliance with the SheepMAP. All introductions must be appropriately identified and recorded, and the records maintained to ensure traceability.

### 1. BACKGROUND INFORMATION

Before you introduce sheep into your SheepMAP flock you must do the following:

- Consult your Approved Veterinarian to determine the risk of infection from the animals you propose to introduce
- Ascertain and record the MN status of the flock of origin. Additional testing of introduced animals may be required.

### 2. WHICH ANIMALS CAN BE INTRODUCED?

#### SHEEP

Generally, sheep can only be introduced onto a SheepMAP property if they originate from a flock of the same or higher status in the SheepMAP. Two special circumstances are described below for introducing sheep to MN2 or higher status flocks and MN1 flocks.

**Note:** For the purposes of introductions into SheepMAP flocks and movements from SheepMAP flocks, a vaccinated flock with an MNn-V status is equivalent to a flock with MNn status (for example, MN1-V is the same as MN1; MN2-V is the same as MN2).

#### INTRODUCTIONS TO MN2 OR HIGHER STATUS FLOCKS

You can introduce small numbers of rams and ewes (up to 5% of the total flock number per annum) into an MN2 or higher status flock from flocks that are MN1 in the SheepMAP and have a current PFC350 or AB500 test or are MN1-V. However, you must observe the following conditions:

- Introduced sheep are to be permanently identified, and
- Introduced sheep and progeny born to introduced ewes retain the status of the flock of origin for subsequent sale or movement unless the flock of origin has reached the same status, or until two years after introduction, and
- Introduced sheep are tested at the next annual veterinary audit or Sample or Maintenance Test (in addition to the usual sample), whichever falls 12 months or more after the introduction.

If the sheep you introduce are less than 24 months of age, they must be tested at 24 - 30 months of age and then retested at the next annual veterinary audit or Sample or Maintenance Test as detailed above (in addition to the usual sample).

## INTRODUCTIONS TO MN1 FLOCKS

You can introduce small numbers of rams and ewes (up to 5% of the total flock number per annum) to MN1 flocks from flocks that are not in the SheepMAP if the introduced sheep are from Not Assessed flocks in an area with a regional biosecurity plan or from flocks that have been closed for the past 5 years and have a current PFC350 or AB500 test, with the following conditions:

- Introduced sheep must be permanently identified, and
- Introduced sheep must be tested at the next annual veterinary audit or Sample or Maintenance Test (in addition to the usual sample), whichever falls 12 months or more after the introduction.

If sheep which you introduce are less than 24 months of age, they must be tested at 24 - 30 months of age and then retested at the next annual veterinary audit or Sample or Maintenance Test as detailed above (in addition to the usual sample).

## OTHER ANIMALS

There are no restrictions on the introduction of cattle or camelids onto a SheepMAP property but introduced goats must have an equivalent MN status under the Market Assurance Program for that species. It would still be prudent to only accept cattle and camelids with Animal Health Declarations that provides information on their Johne's disease status.

## 3. RECORD KEEPING

You must record the following details for all introduced/purchased livestock when they arrive:

- introduction date
- vendor's name and address or the Property Identification Code on the vendor's tags
- a description of the livestock including number, sex/age, brands, ear marks or tags
- the name of the selling agent and sale (if purchased at auction)
- the SheepMAP status of the flock from which the animals originated.

You must also obtain and retain a declaration of Johne's disease status (for example, a national Sheep Health Declaration). Where this declaration is not obtained, the animals will be considered to be Not Assessed, or possibly lower status, thus jeopardising the flock status. The National Vendor Declaration (NVD) should also be obtained and retained for LPA purposes.

An example of a form you can use to record introductions and purchases is included in the *Resources and Forms* document to assist your record keeping.

### **YOUR OWN FLOCK RECORDING SYSTEMS MAY PROVIDE THIS INFORMATION**



## TESTING RECORDS

You must maintain testing records for introduced animals. An example is provided at the end of this section and a blank copy is available in the *Resources and Forms* document and in electronic format at [www.animalhealthaustralia.com.au/what-we-do/endemic-disease/maps/sheepmap/](http://www.animalhealthaustralia.com.au/what-we-do/endemic-disease/maps/sheepmap/). It is not compulsory to use this form and you may wish to maintain your testing records in a different format.



## 4. STRAYING ANIMALS

If any sheep that are not part of the SheepMAP flock or any goats or deer (other than fallow deer) enter the land (e.g. strays or neighbours' stock) you must take the following action:

- remove the animal(s) as soon as possible after the incursion is discovered
- record the date of the incursion, its likely duration, the description of the animals involved including age, and the identity of the sheep in the MAP flock which were grazing the area on which the animal(s) entered,
- notify your Approved Veterinarian and work with him/her to assess the impact of the incursion on the flock status and any actions required,
- identify breaks in boundary security and repair them immediately
- carry out all actions you have agreed with the Approved Veterinarian.

# ELEMENT 3 – MOVEMENT OF ASSESSED ANIMALS



Livestock movement and transportation procedures must be implemented to minimise the risk of infection in sheep from SheepMAP flocks when they are moved from or to the property, if the MN status of the animals is to be retained.

## 1. INTRODUCTION

Johne's disease infection is most commonly spread by consumption of feed or water contaminated by the faeces of infected animals. It is therefore essential that the animals in your SheepMAP flock are not allowed to eat or drink from potentially infected sources. You must observe the following procedures when moving sheep on to or off your land.

## 2. WALKING

Sheep of any age from a SheepMAP flock can be moved short distances across any land (e.g. across a road) if they are closely supervised to prevent grazing or drinking.

If sheep are to be walked on land where there is potential for grazing or drinking, you must:

- Get approval for this movement from your Approved Veterinarian, before the sheep are moved. You will only gain his/her approval if he/she has assessed the risk of infection to the animals as either *low* or *minimal*.
- Ensure that eligible species (i.e. sheep, goats or deer other than fallow deer) from flocks of lower MN status have not run on, or otherwise contaminated, the land during the previous 12 months. If the land to be crossed is privately managed, you must obtain a written declaration to this effect from the person in charge of the land.

While the sheep from the SheepMAP flock are being moved, you must ensure that their access to grazing and drinking is minimised.

## 3. SHOW/SALES/ARTIFICIAL BREEDING CENTRES

If you are moving assessed sheep from a SheepMAP flock to a show, an exhibition, a sale or to a breeding centre it is important that they maintain their MN status. To ensure this, use the following procedures.

### SHOW / SALE / EXHIBITION STOCK

Before you unload sheep at a show or sale (or preferably before you dispatch them) you must either:

- Sight the Certificate of Compliance with the Venue Audit for the particular show, sale or exhibition, or
- Evaluate the housing and hygiene standards applied at the venue. In this case you must gain the approval of your Approved Veterinarian to dispatch the sheep to the venue.

While organisers of shows, sales and exhibitions are encouraged to implement a high level of hygiene management and appropriate entry requirements it is your ultimate responsibility to ensure that the status of animals from your assessed flock is not compromised at the event. The Guidelines for Shows, Sales and Exhibitions in Appendix 2 will give you further information.

## ARTIFICIAL BREEDING CENTRES

When transporting sheep to and from artificial breeding centres, they must be identified, housed and moved according to the Guidelines for Shows, Sales and Exhibitions.

## 4. AGISTMENT/SHORT-TERM MOVEMENT TO OTHER LAND

You can move sheep to other land for purposes such as agistment and still retain their MAP status if the following conditions are satisfied:

- You carry out a risk assessment of the lease/agistment land in consultation with the Approved Veterinarian (follow the procedures you used to assess your own land) **before** the sheep are dispatched.
- The lease/agistment land complies with the following:
  - For **MN1 flocks**, the land:
    - is on a property already in the SheepMAP; or
    - has been previously grazed by sheep from a closed flock with a current negative PFC 350 or AB 500; or
    - has not been grazed by susceptible species (i.e. sheep, goats and deer other than fallow deer) for the preceding 15 months (including two summers); or
    - has only been grazed during the preceding 15 months by susceptible species with an assessed status or
    - has only been grazed during the preceding 15 months by animals that had been assessed to SheepMAP standard with negative results within 12 months prior to the MN1 sheep moving to the land.
  - For **MN2 & MN3** flocks the land:
    - is on a property already in the SheepMAP with the same status (i.e. MN2 or MN3), or
    - has not have been grazed by susceptible species (i.e. sheep, goats and deer other than fallow deer) for the preceding 15 months (including two summers).

If sheep are exposed to animals or land of a lower status, there is a higher risk that they will become infected. You and the Approved Veterinarian must undertake a risk assessment and determine if these sheep can return to the flock. If you determine that they can return you must take the following actions:

- Document the reasons for allowing the sheep to return to the flock and any risk management procedures implemented in the Flock Management Plan
- Permanently identify the animals as being of lower status than the remainder of the flock
- Remove the animals from the flock within six months of the date of first exposure to the animals or land of lower status.

## 5. MOVEMENT TO LAND OF LOWER STATUS

If your assessed flock is moved to land that has carried Not Assessed animals in the preceding 15 months (including two summers) other than as allowed in the previous section, it need not lapse from the program.

If the Approved Veterinarian undertakes a satisfactory flock/property risk assessment before the flock is moved, it may be assigned an MN1 status once it is moved. To maintain the MN1 status you must conduct a Maintenance or Sample Test two years after the last flock test.

## 6. ASSESSED ANIMALS THAT STRAY

If an animal from your assessed flock strays from the land (e.g. onto a neighbour's property), you must:

- Document the incident, recording the age of the animal(s) involved, their identity and how long they were away from the land, and
- Discourage your neighbour from returning stray sheep back onto your land, and
- Distinctly identify the animal(s), and
- Notify the Approved Veterinarian and carry out any agreed actions, and
- Determine the cause of the straying and rectify the problem immediately.

Use the procedures above for agistment as a guide for your actions.

## 7. TRANSPORT

So that your assessed sheep can maintain their SheepMAP status after they have been transported, you must ensure that the driver or person in charge during transportation understands the need to keep the sheep separated from animals from non-assessed flocks and to minimise their exposure to faecal contamination from non-assessed sheep, goats and deer.

Sheep from assessed flocks may be transported in a well cleaned truck with non-assessed sheep. However, there must be a solid barrier between the assessed and non-assessed animals so that assessed sheep are not exposed to faeces of non-assessed animals. If possible, sheep from assessed flocks should be loaded on the top deck.

You, or your representative, must inspect trucks or other transport before the sheep are loaded to check that the:

- truck/transport has been thoroughly cleaned (i.e. scraped and hosed out) since it last carried any animals
- upper decks are constructed so that soiling of any animals from SheepMAP flocks on lower decks is avoided if assessed and non-assessed animals are transported in the same truck.

If you find any deficiencies at the inspection you, or your representative, must either:

- ensure the deficiency is corrected prior to loading and lodge a complaint with the transport operator, or
- refuse to load the consignment.

If animals are to maintain their MN status, you must assess communal loading yards and property loading yards not on the land on a case-by-case basis. Consider:

- the age of the animals
- accessibility of feed and water in the yards
- the time animals are to be held in the yards.

Animals less than 12 months of age must not be held in unsuitable yards. Animals older than 12 months of age should spend minimal time in unsuitable yards.

## 8. RECORD KEEPING

You must keep records for all livestock dispatched from the flock (i.e. for sale, slaughter or subsequent return to the flock). The records must include:

- A description of the livestock including number, sex, age and individual or mob identification
- The transaction date
- The name of the purchaser and/or selling agent
- The name of the livestock transport provider and the vehicle registration number.

Examples of two forms you can use are included in the *Resources and Forms* document to assist your record keeping:

- Livestock Movement Record for sheep whose MAP status is NOT to be maintained
- Livestock Movement Record for sheep whose MAP status is to be maintained.

You can use another format to keep the records if you wish, but remember:

- The records for sheep whose MAP status is to be maintained **must be signed by the Approved Veterinarian**
- The records must contain all the required information within these Rules and Guidelines.

## ELEMENT 4 – LIVESTOCK IDENTIFICATION



Livestock identification and recording systems must be implemented in SheepMAP flocks to enable maintenance of management records and ensure traceability of stock both within the flock and following dispatch from the flock.

### 1. GETTING STARTED

In order to ensure compliance with this Element of the SheepMAP you must:

- Establish a stock identification system that ensures permanent individual or mob identification of all animals in the SheepMAP flock, which is also a requirement for National Livestock Identification System (NLIS). This will enable traceability of stock and accurate record management. Mob identification of animals is acceptable except where individual animals are tested at Sample or Maintenance Tests. Where individual animals are tested each animal must be able to be identified.
- Maintain records that identify all sheep on the property.
- Ensure that all introduced animals are appropriately identified within seven days of arriving on your property.
- Identify any animals that have been tested in any way for the purposes of SheepMAP.
- Identify any animals that are suspect of being infected.
- Identify vaccinated animals with an Approved Vaccination Tag. This is an ear tag approved by the Registrar of Brands for the identification of sheep or goats. It is stamped with a property identification code that meets the requirements of the NLIS (Sheep) and the letter 'V'.
- Attach details of your flock identification system to your Flock Management Plan (as detailed in Element 5).

### 2. RECORD KEEPING

You must keep records that identify all sheep on the property. Two sample Livestock Identification Record Forms – one for sheep born and reared on the property and one for introduced or purchased stock – are included in the *Resources and Forms* document and on the [SheepMAP webpage](#).

It is not compulsory to use these forms. Remember if you choose to use an alternative format from other programs such as LPA, that all the required information must be recorded.



## ELEMENT 5 – FLOCK MANAGEMENT PLAN



An appropriate Flock Management Plan must be prepared for each flock enrolled in the SheepMAP. The plan must consider the outcomes from Elements 1, 2, 3, 4 and 6 of this manual and vaccinating (MNV) flocks must also consider Element 7.

A Flock Management Plan is required to ensure that the status of the flock can be maintained, and that prompt and remedial action can be taken, if required.

### 1. GETTING STARTED

You and the Approved Veterinarian need to work together to develop a written Flock Management Plan. The plan should be prepared after the Approved Veterinarian has conducted the property and flock risk assessment. The plan will detail the procedures you are going to follow to minimise the risk of Johne's disease entering your flock.

### 2. PREPARING THE FLOCK MANAGEMENT PLAN

When you are preparing a Flock Management Plan, you need to gather and include the following information:

- The origin of the flock and how long it has been established
- Identification details of all animals not bred on the property and their district and property of origin
- Flock details listing each mob including number, sex and age of sheep in each paddock
- details of all other eligible species (goats and deer other than fallow deer) run on the land
- The general management system used in the flock such as joining, marking, weaning, selling and culling procedures, policies and timing
- All outcomes from the initial property and flock risk assessment which you and your Approved Veterinarian conducted (as detailed in Element 1). This includes items that require supervision, upgrading or ongoing maintenance such as barriers, fencing, flood gates, effluent disposal etc.
- How you will manage introductions of sheep into the flock (as detailed in Element 2) including identification, testing and management of introduced animals and your strategy for dealing with stray animals which may enter the land
- How you will manage movements of assessed animals (as detailed in Element 3) including movements to shows or sales, movements between adjoining blocks, agistment and the strategy for dealing with assessed animals that stray from the land
- Any changes you need to make to the livestock identification system you use in the flock, so that you can manage it in a way that will maintain its status (as detailed in Element 4)
- The testing strategy you will implement in the flock including testing dates and mobs to be tested (as detailed in Element 6)
- For flocks that vaccinate against Johne's disease (MNV flocks), the vaccination strategy that you will implement in the flock

- The skills of the people you employ on the property to manage and/or operate your systems and procedures and your ability to comply with SheepMAP.

The Flock Management Plan must be agreed by both you and the Approved Veterinarian and each of you must sign the Flock Management Plan and keep a copy.

An example of a Flock Management Plan format you can use is included in the Resources and Forms section at the end of this manual. You can use another format for your plan if you wish, but remember:

- the plan must be signed by you and your Approved Veterinarian and a copy retained by both the flock manager and the Approved Veterinarian
- the plan must contain all the required information.

### 3. WHAT ELSE MUST YOU DO?

#### CONTACT YOUR NEIGHBOURS

You should write to the owners of all neighbouring properties that carry ruminants (sheep, cattle, goats and deer) informing them that your flock is enrolled in the SheepMAP and request that they:

- contact you before returning any stray animals, and
- notify you of any change to **their** status for Johne's disease.

An example of a letter to neighbours is provided at the end of this section. A blank version is included in the *Resources and Forms* document and on the [SheepMAP webpage](#). You do not need to use this letter, so long as you cover the required information.

#### RECORD DETAILS OF NEIGHBOURING PROPERTIES

You should try and keep a record of all neighbouring properties that run sheep, cattle or deer (other than fallow deer) together with their Johne's disease infection status (if they are prepared to release this information to you) and the date that you notified them of your flock's enrolment in the SheepMAP.

An example of a way to keep Details of Neighbouring Properties is provided in the *Resources and Forms* document. You may use another format, so long as you include the required information.

#### CHANGED DISEASE RISK

If you take action or become aware of any event that may result in a significant change to the flock's disease risk situation (such as being advised that a neighbouring flock is infected or suspect) you must notify the Approved Veterinarian **immediately**. You and the Approved Veterinarian must then review the property and flock risk assessment (as detailed in Element 1) and ensure that adequate steps are taken to minimise any risk the event has on your flock (e.g., that an appropriate barrier exists between the two flocks).

#### TRACE FORWARD AND TRACE BACK

If you become aware that you have introduced sheep from a flock that is subsequently found to be infected (a "trace-forward") or that sheep in another flock which came from your SheepMAP flock

have been found or are suspected to be infected (a “trace-back”) you must advise the Approved Veterinarian as soon as possible.

You may continue to sell sheep direct to slaughter or for restocking, providing that you make a full disclosure to prospective restocker purchasers of the status of the animals, **unless** you are advised by your Approved Veterinarian.

## ELEMENT 6 – TESTING STRATEGIES



Procedures must be implemented to test a representative sample of the flock to ascertain the status of the flock prior to accreditation as a SheepMAP flock, and to provide regular ongoing monitoring of the status of the flock.

### 1. GETTING STARTED

It is your responsibility to arrange for the Approved Veterinarian to test a sample of sheep in the flock at appropriate times in compliance with the Flock Management Plan.

When your flock is first enrolled in SheepMAP a representative sample of the sheep in the flock is tested to establish the flock status prior to accreditation as a SheepMAP flock. Once the flock has been given a status it requires ongoing testing to maintain that SheepMAP flock status or to progress to a higher status.

There are two types of testing used in the SheepMAP:

- **Sample Test** – Sample Testing is undertaken when a flock enrolls in the SheepMAP. A Sample Test is also required for the flock to progress to a higher status (e.g. to move from MN1 to MN2 or from MN2 to MN3).
- **Maintenance Test** – Maintenance Testing is undertaken to monitor the ongoing disease status of a SheepMAP flock so that it can maintain its current status, unless the status is being maintained by approved vaccination as detailed in Element 7.

The table below summarises the testing program:

CURRENT STATUS	REASON FOR TEST	TYPE OF TEST
Not Assessed (NA)	Enrol in MAP	Sample Test
Other negative testing history	Enrol in MAP	Sample Test
MN1	Progress to MN2	Sample Test
MN2	Progress to MN3	Sample Test
MN1	Maintain MN1 status	Maintenance Test
MN2	Maintain MN2 status	Maintenance Test
MN3	Maintain MN3 status	Maintenance Test

It is your responsibility to ensure that adequate sheep handling facilities are available for flock testing and that a suitable livestock identification system is in place to present and record the identities of the sheep tested.

## 2. SAMPLE TESTING

Sample Testing is required when a flock enrolls in the SheepMAP. Sample Testing is also required to allow a flock to progress to a higher MAP status.

Sample Testing involves screening a *statistically valid sample* (that is a sample large enough to accurately represent the whole flock) of sheep two years of age or older. The sample must be selected from the all sheep in the flock no matter how long they have been part of the flock. The Sample Test done when you first enroll in SheepMAP must include **all introduced rams** two years of age or older and all other introduced animals in addition to the sheep selected in the sample. If the Sample Test returns any positive results they are investigated further.

The Pooled Faecal Culture is currently approved for use as Sample Tests in SheepMAP flocks. Work is being currently being undertaken to include the high through put Johne's (HTJ) PCR test in the program.

### POOLED FAECAL CULTURE (PFC)

PFC testing involves pooling (putting together) faeces from groups of 50 sheep, representative of the adult flock, submitting and testing them. If you have a large flock, you must ensure that at least 350 sheep aged two years and over are tested using the PFC method in order to be 98% confident of detecting Johne's disease if it is present in at least 2% of the sheep. This means that at least 7 pools are submitted and tested.

If your flock is small (i.e. fewer than 350 sheep aged two years and over) you must ensure that **all** sheep over two years old are tested.

#### Selecting the sheep to be tested for PFC

An example of the PFC Testing – Sheep Selection Form is completed at the end of this section. A blank copy of the form is included in the Resources and Forms document and is also available on the webpage. It is not compulsory to use this form. Remember that, if you choose to use an alternative format, that all the required information must be recorded.

You should select the sheep to be tested by following your Approved Veterinarian's instructions. Appendix 1 describes a method you and he/she may agree to use.

**Note:** *You must be able to identify all the sheep that have contributed to a particular pool until the results of the tests are finalised. Sheep in any "positive pool" will be individually identified at follow-up testing.*

## 3. MAINTENANCE TESTING

Maintenance Testing is used to monitor the ongoing disease status of your SheepMAP flocks if you do not wish to progress to a higher MAP status. It can be done by a PFC test of a sample of 100 sheep in two pools, each containing faeces from 50 animals.

The Maintenance test is conducted on a biased sample of sheep from the flock. Sheep should be selected to maximise the chance of including animals most likely to be infected and thus be picked up by the test. This includes animals:

- in poor condition
- introduced before the flock entered the SheepMAP, taking into consideration the flock and area they came from, their contact with other potentially infected flocks and any other relevant information.

If your flock does not have any sheep in these high-risk groups, the sample should be selected systematically from all mobs in the flock.

You should select the sheep to be tested according to the requirements that your Approved Veterinarian agrees with you. Appendix 1 contains details of a method you and he/she may agree to use.

## 4. TESTING INTRODUCED SHEEP

If you introduce sheep into your Sheep MAP flock as permitted in Element 2 from a flock with a lower MN status or from a flock not in SheepMAP you must test them in your flock as follows:

- all introduced sheep (in addition to the normal selected sample) to test at the next veterinary review, Sample Test or Maintenance Test whichever falls 12 months or more after the introduction
- if you introduce animals under 24 months of age, they should be initially tested when they reach 24-30 months of age and then should be tested in addition to the selected sample at the subsequent Sample or Maintenance Test, which falls 12 months or more after the initial test.

## 5. ANNUAL VETERINARY REVIEW TESTING

Your SheepMAP flock must undergo an Annual Veterinary Review each year to remain in the program. Sample or Maintenance testing is undertaken in conjunction with the annual veterinary audit in non-vaccinating flocks. In all flocks you should contact your veterinarian as soon as possible to investigate and test any animals that show signs of Johne's disease. Do not wait until the Annual Veterinary Review to do this.

## 6. TESTING OUTCOMES

**Note:** No tested sheep may be disposed of until test results are confirmed as negative, or follow-up investigations are completed. Where possible, sampled sheep should be run as a group separated from the rest of the flock until the test results are known.

### WHAT CONSTITUTES A NEGATIVE TEST?

A Sample or Maintenance Test conducted using PFC is deemed to be negative if:

- All pools are negative on culture (PFC negative), OR
- All pools which are PCR positive but negative on solid media subculture are negative on Follow-Up testing.

## WHAT MUST YOU DO IF YOU GET A POSITIVE SCREENING TEST RESULT?

If the PFC in a Sample or Maintenance Test yields a positive result, you must undertake the follow-up procedures your veterinarian requires within one month of being notified of the positive result. Provided this follow-up occurs, the status of the flock will not change until the follow-up investigation is completed. However, if these timeframes are not met, the flock status will become Suspect and you will no longer be able to participate in SheepMAP.

## EFFECTS OF TEST RESULTS ON FLOCK STATUS

The outcome of the combined results of the initial and follow-up faecal culture tests on flock status is presented in the following table, assuming no infected animals are detected in the other testing.

INITIAL FAECAL CULTURE	REPEAT FAECAL CULTURE	RESULT	FLOCK STATUS
Negative liquid culture (M7H9C)	Not required	Negative Sample Test	Progress status
Positive liquid culture (M7H9C) positive PCR; negative on solid media, i.e. 'DNA consistent with <i>M.ptb</i> '	Negative liquid culture (M7H9C)	Negative Sample Test	Maintain status
Positive liquid culture (M7H9C) positive PCR; negative on solid media, i.e. 'DNA consistent with <i>M.ptb</i> '	Positive liquid culture (M7H9C); positive PCR; negative on solid media i.e. 'DNA consistent with <i>M.ptb</i> '	Suspicious Sample Test (Suspect)	Suspect (further investigation required)
Positive liquid culture (M7H9C) positive PCR; negative on solid media, i.e. 'DNA consistent with <i>M.ptb</i> '	Positive liquid culture (M7H9C); <i>M.ptb</i> isolated on solid media subculture; positive PCR; (either liquid culture or subculture)	Positive Sample Test (Infected)	Infected
Positive liquid culture (M7H9C) <i>M.ptb</i> isolated on solid media subculture; positive PCR (either liquid media or subculture)	Not required	Positive Sample Test (Infected)	Infected

If an infected animal is detected at any stage of the testing process, the flock status will become 'Infected' and the flock must be withdrawn from the SheepMAP.



If a flock is withdrawn from the SheepMAP, all animals which were test positive animals must be permanently identified. You and your Approved Veterinarian must notify the CVO (as John's disease is notifiable) and investigate all reactors if you wish to try and re-enter SheepMAP at some future stage. A PDMP would need to be undertaken.

## 7. SHEEP SELECTED FOR PFC TESTING

### INSTRUCTIONS

1. List all mobs present which are 2 years of age and older in the table below.
2. List the number of sheep in each mob in column A.
3. Calculate total number of sheep 2 years and older in the flock: \_\_\_\_\_(B)
4. Calculate the **proportion** of sheep required from each mob ( $350/B$ ) \_\_\_\_\_(C)
5. Calculate the number of sheep required from each mob ( $A \times C$ ) \_\_\_\_\_(D)
6. Fill in Column D, indicating the number of sheep which must be tested from each mob.
7. Select sheep for testing in each mob by drafting every "nth" sheep that comes up race ( $n = 1/C$ ). In this example, every 7th sheep.
8. Complete columns E and F on actual numbers selected from each mob, and numbers tested.

SAMPLE SHEET							
MOB ID	AGE	COLOUR/ OTHER ID	Paddock	A. NUMBER IN MOB	D NUMBER REQUIRED	E* NUMBER SELECTED	F NUMBER TESTED
1	2y	Blue	Smiths	550	78	80	78
2	3-4yo	Red	One-oak	960	137	140	138
3	5-6yo	Green	Creek	740	106	110	107
4	6+yo	Mixed	Hill	200	29	33	30
5							
6							
7							
8							
<b>TOTALS</b>				2,450	350	363	353

\*Extra sheep may be selected to ensure sufficient sheep are tested (i.e. if a faecal sample cannot be collected from some selected animals).

## 8. SEROLOGY TESTING

Serology should not be used for testing in SheepMAP.

Occasionally sheep are tested using serology due to pre-export protocols requiring it for some countries. It is usually performed on young sheep (< two years of age) and occasionally positive reactors do occur, due to the lower specificity of the test. When this occurs, the Approved Veterinarian should be consulted, and a risk assessment performed. If there have been no changes made to the flock, then it may not be necessary to investigate further. However, it is important to note that state departments record occurrences of Johne's disease for a property and it may be necessary to do further investigation or testing for this reason.

## 9. ABATTOIR INSPECTION

The 2015 technical review of the program led to the SheepMAP Reference Group recommendation that an abattoir monitoring 500 (Ab500) status may be used as an alternative to PFC350 as a Sample Test in SheepMAP. The sheep to be tested are to be representative of the flock being certified.

Johne's disease inspection is now only carried out on request by the producer sending sheep to an abattoir participating in the National Sheep Health Monitoring Project. This should be arranged well in advance of sheep being consigned to the plant. For more information go to:

[www.animalhealthaustralia.com.au/nshmp/ojd/](http://www.animalhealthaustralia.com.au/nshmp/ojd/).

Any positive results with abattoir inspection should be followed up in a similar fashion to other positive screening tests, with Approved Veterinarian investigation of the situation and PFC follow up testing of appropriate sheep (e.g. from the same and related cohorts if any remain on the property).

# ELEMENT 7 – VACCINATION



Vaccination may be used in two ways in a SheepMAP flock. In each case all lambs born on the property must be vaccinated against JD annually.

Flocks in which all sheep are Approved vaccinates may opt to maintain their MNn-V status by ongoing vaccination of all lambs and introduced sheep and Annual Veterinary Reviews.

## 1. BACKGROUND INFORMATION

If your SheepMAP flock is located in a Johne's disease endemic region, you are encouraged to seriously consider the added protection provided by vaccination with the killed Johne's disease vaccine for sheep, Gudair®.

If you vaccinate lambs annually and all introduced sheep, in addition to complying with the other conditions of the SheepMAP your flock will be assigned the relevant SheepMAP status with a 'V' added to it (e.g. MN1-V, MN2-V), followed by the year in which the current MN level was initially obtained (for example, MN2-V 2003 indicates a Monitored Negative 2 flock where all sheep were initially vaccinated and that vaccinates lambs annually, which first obtained its vaccinated status in 2003).

You can maintain the MNn-V status of your flock by:

- initial vaccination of all sheep and
- Annual Veterinary Reviews, and
- annual vaccination of all lambs, and
- vaccination of all introduced sheep.

You do not need to undertake a Maintenance Test to maintain flock status with vaccination. However, you should report the date of the last test on the national Sheep Health Declaration when selling sheep. This was a recommendation from the SheepMAP Reference Group.

## 2. VACCINATION REQUIREMENTS

If you choose to vaccinate your flock, you must carry out the following steps to comply with the program:

- **Vaccinate all sheep** in the flock **initially** if you intend to maintain the MN status of the flock by annual veterinary audits and vaccination.
- **Vaccinate all lambs** born on the property **each year** before the oldest lambs are 16 weeks of age. These lambs will qualify as "Approved vaccinates".
- **Vaccinate all introduced sheep** if not already vaccinated at the time of purchase.

- **Tag all vaccinated animals** with an Approved Vaccination Tag. This tag must be approved by the Registrar of Brands for identification of sheep or goats and stamped with a property identification code that meets the requirements of the National Livestock Identification System (Sheep) and the letter “V”.
- **Maintain vaccination records** detailing the number and type of sheep vaccinated and the method of identification. A sample Vaccination Record form is included at the end of this section. Blank copies are available in the *Resources and Forms* section at the end of this Manual and or on the SheepMAP webpage. It is not compulsory to use this form. Remember if you choose to use an alternative format that all the required information must be recorded.
- **Retain copies of all Vendor Declarations** that state sheep sold or moved from the flock have been vaccinated.

**Note:** *MNV flocks can progress their status by Sample Testing using Pooled Faecal Culture (PFC).*

## ELEMENT 8 – MAINTAINING YOUR SHEEPMAP SYSTEMS



Periodic internal audits are required to verify ongoing compliance with the SheepMAP. Records of internal reviews shall be kept. Corrective and preventative actions are required for any non-compliances identified, or for deficiencies identified which are not able to be immediately rectified.

Records shall be kept that provide documentary evidence of compliance with the SheepMAP. These records shall provide a mechanism to assist in independent auditing of your SheepMAP quality assurance system.

A list of all documents shall be maintained, and procedures put in place to ensure out of date documents are replaced by new versions.

### 1. THE IMPORTANCE OF MAINTAINING THE SYSTEM

The status and reputation of SheepMAP as a quality assurance program and its effectiveness in contributing to the management of ovine Johne's disease in Australia depend to a very large extent on how well you and other flock managers and owners who participate in the program discharge the responsibilities that you took on when you first enrolled.

Therefore, it is important that you ensure three things are being managed well on your property:

- record keeping
- document control
- the conduct of internal and external reviews.

### 2. RECORD KEEPING

Maintaining up-to-date, accurate and reliable records which contain all the required information is crucial to your participation in SheepMAP.

#### WHAT RECORDS MUST I KEEP?

The records that you need to keep are covered in detail in the Elements to which they relate.

In summary you need to keep records that:

- describe the MAP status of your flock (both currently and in the past)
- show how you are managing your flock and property to minimise the risk of Johne's disease infection (for example, the boundary inspection records covered in Element 1)
- provide evidence of the testing that has been carried out on your flock and the results of the tests
- show that you are complying with the review requirements of SheepMAP (for example, completed copies of corrective action reports that show how you have acted to correct non-compliances).

## ARE THERE SPECIFIC FORMS I HAVE TO USE?

With only a few exceptions, you can keep your MAP records in the way that best suits you and that fits in best with the other record keeping systems that are operating on your property (e.g. for LPA purposes).

The records that must be kept in a specific format are:

- your Flock Status Certificate
- copies of the Sheep Health Declaration
- your archive register
- notification of MAP Flock Details & Status/Expiry
- the agreement you make with the Approved Veterinarian to participate in SheepMAP.

For all other aspects of SheepMAP, recommended record formats have been developed.

They include all the information you must keep. Blank copies of sample forms are found in the *Resources and Forms* document as well as on the [SheepMAP webpage](#). You can use them as they are, or adapt them, or use a completely different format, provided you record and retain the information that is in them.

You may use other forms of record keeping such as apps and photographs, where applicable.

## WHO KEEPS THE RECORDS?

Both you and the Approved Veterinarian need to keep records. You must keep a copy of all documents that relate to SheepMAP on your property for at least the minimum period indicated on Archive Register. The Approved Veterinarian must keep a copy of:

- the agreement you and he/she have made
- the Flock Management Plan
- the Flock Status Certificate
- notification of MAP Herd/Flock Details & Status/Expiry
- test results.

## HOW LONG MUST RECORDS BE KEPT FOR?

You and/or the Approved Veterinarian must keep the records for at least the minimum period indicated on the archive register (generally 5 years). If you are keeping records electronically you will need to ensure that if you change or upgrade your computer systems, you can still access the records you have kept.

## 3. DOCUMENT CONTROL

Changes are made to the requirements of SheepMAP from time to time. These may require you to either:

- undertake different activities
- keep different records
- record information in a different format.

Therefore, you need to be able to identify quickly that you are meeting the current requirements.

An important aspect of this is document control – ensuring that you are basing your flock management and administration activities on the current requirements of SheepMAP.

You should:

- ensure that your SheepMAP manual is up to date. When Animal Health Australia notifies you of an amendment to the manual make sure that you make the changes that are required to your printed copy. A current SheepMAP manual is available on the Animal Health Australia website.
- regularly check that you are using the current version of any compulsory forms and that any forms you have modified from their recommended format are still compliant with SheepMAP requirements. Your Approved Veterinarian will be able to help you with this.
- maintain a document register that lists all documents and indicates their status (current/superseded).

## 4. CONDUCTING OR PARTICIPATING IN REVIEWS AND AUDITS

A crucial part of the whole SheepMAP system is the various review processes that everyone involved – from flock managers, Approved Veterinarians and state authorities – is expected to take part in.

Like most quality assurance systems, SheepMAP involves both internal reviews and external audits.

### INTERNAL REVIEWS

#### System monitoring reviews

The best way to ensure that you are continuing to comply with the requirements of SheepMAP is to regularly monitor your systems. This means that you make regular checks that you and your staff are using the correct procedures in all key SheepMAP activities and maintaining up-to-date, accurate and reliable records which contain all the required information. Internal reviews on all records, activities and procedures need to be carried out at least every twelve months.

#### Who does the review?

This is a review that you – or an appropriately trained and skilled member of your staff – do yourself. It is part of your preparation for the other internal review – the Annual Veterinary Review – and for an external audit.

#### How do I go about the review?

The Resources and Forms section of this manual contains a Review Checklist. You should use this to ensure that you cover all the things that need to be checked and confirmed. Once the review is complete and any necessary corrective actions (see below) have been taken the signed checklist and corrective action reports should be held on file.

#### Taking corrective action

Despite your best efforts and intentions, problems in any process will occur from time to time.

For example, neighbours' animals may stray onto land on which the flock is run, or an animal may lose its identification.

These problems - known as non-compliance or a non-conformance - will be identified as part of routine on-farm activities by farm staff or by a reviewer.



Whenever these events occur, a Corrective Action Report should be completed, and preventive or corrective action taken and recorded. A Corrective Action Report is your record of the actions you have taken to fix problems. It reflects your actions and a useful basis for continuing improvement.

Generally, five steps can be taken to identify, control and correct a non-conformance:

1. What is the problem?
2. What caused the problem?
3. What can be done to fix the problem?
4. Has the problem really been corrected and is the action effective?
5. Can anything be done to prevent the problem from happening again?

Applying these five steps should ensure that the problem is appropriately identified, controlled and corrected and if possible, action taken to prevent the problem from happening again. You need to record these actions in a logical manner on a Corrective Action Report form, which you keep.

## **ANNUAL VETERINARY REVIEW**

The Annual Veterinary Review is another form of internal review, conducted by your Approved Veterinarian. As well as being critical to the ongoing MN status of your flock this review is the ideal opportunity for you and your Approved Veterinarian to identify ways to improve your systems and procedures.

**It is important that all documents are sent to the state MAP Coordinator as soon as possible after completion of the Annual Veterinary Review and any testing.**

## **EXTERNAL AUDITS**

These audits focus on compliance with the program by flock managers and veterinarians. The basis for the audit system is the flock audit which will verify the official flock status. Audits of other aspects of the system are also carried out and additional elements may be audited as issues are identified by flock reviews.

Audits, which have been on hold since 2015, are generally carried out on only a proportion of flocks in the program in any one year. There may be some circumstances where a flock requires additional auditing. Depending on the circumstances this may be at the owner's expense.

### **Audit at flock level**

External Audits will involve detailed examination of your procedures and documentation, including:

- Checking the Flock Management Plan and the agreement you have with your Approved Veterinarian
- Comparing your testing records against the flock status certificates
- Checking flock status certificates against the Departmental record
- Obtaining testing records from approved laboratories and checking these against your records
- Checking investigation of reactors against property, abattoir and laboratory records
- Checking records of movements onto and off the property
- Checking your compliance with the Flock Management Plan
- For flocks where status is maintained through vaccination, checking that annual vaccination of all lambs at an appropriate age has been carried out, and documented.

### Audits of Approved Veterinarians

Approved Veterinarians who are actively participating in the SheepMAP may be audited to ensure that both they and flocks under their supervision comply with the program.

The audit includes checks that:

- Prescribed testing procedures have been followed, including the selection of sheep for sampling and the follow-up of positive results
- Prescribed time intervals have been observed
- Flocks have satisfied the criteria for the status assigned by the veterinarian
- The annual assessments have been completed
- Adequate flock records are kept
- Adequate details are provided with laboratory submissions.

### MAINTENANCE OF LABORATORY STANDARDS

This will be monitored by SCAHLS through its Johne's Disease Quality Plan.

### ADDITIONAL FLOCK AUDITS

In some circumstances you may need to go through additional flock audits. They may include:

- If you change Approved Veterinarian, when your flock maybe subject to review during the following twelve months
- Where a major defect (see below) involves the actions of your Approved Veterinarian a further audit of your flock (even if it was not involved in the major defect will be conducted
- If an audit is requested by someone who intends to buy sheep from your flock.

All the costs (including yours and the Approved Veterinarians) will be met by the person making the request.

### APPROVED AUDITORS AND COST OF AUDITING

Only auditors approved by the Animal Health Australia program can be used to conduct SheepMAP audits. You will need to meet the costs of routine external audits. These audits may be conducted in conjunction with other quality audits such as for the LPA program.

### AUDIT RESULTS

An audit can have one of four outcomes. It will find that the systems and procedures being examined either:

- **Conform** to the requirements of the SheepMAP
- Have a **Minor Defect**
- Have a **Major Defect**
- Have a **Critical Defect**.

If the systems and procedures are found to conform, no further action is needed in relation to the review. However, any other result will need you to take further action (known as Corrective Action) to rectify the defect.

### **Minor Defect**

A minor defect is any deviation from good practice, but one which does not jeopardise the integrity of the program e.g. minor inaccuracies or omissions in record keeping.

If a minor defect is found, the auditor will discuss it with you or your Approved Veterinarian and offer advice on how to improve current practice. The auditor will check that the changes or improvements needed have been made within six months.

### **Major Defect**

A major defect is one where there is a major deficiency in record keeping or practice, but which is not a deliberate attempt to compromise the integrity of the SheepMAP. It needs immediate attention. Examples could include:

- Major inaccuracies or omissions in record keeping
- Failure to have an appropriate Flock Management Plan in place
- Unsatisfactory submission of samples for testing.

A major defect is immediately and fully reported to all parties involved including your Approved Veterinarian and state MAP Coordinator. The auditor will issue a request for corrective action at the time of the review and will discuss the matter with you and/or the Approved Veterinarian to ensure that everyone understands the non-conformity. A deadline for rectifying the defect will be set and agreed. Everyone involved must be able to satisfy the auditor, by that deadline, that the defect has been rectified. This may involve a follow-up partial audit, which will be at your expense.

Continuing not to comply with the requirements of the SheepMAP will result in you and/or the Approved Veterinarian being excluded from the program. The approval or accreditation of the veterinarian for other official programs may also be suspended or cancelled.

### **Critical Defect**

A critical defect is one which, in the opinion of the auditor, has the potential to very seriously compromise the SheepMAP (or the Accreditation Program for Australian Veterinarians) and should be reported immediately to the state MAP Coordinator. This could include where there has been incompetence, malpractice, deceit or error resulting in, or with the potential to cause, breakdown of the program's integrity. For example:

- Not disclosing positive flock test results
- Substituting animals/samples
- Introducing animals from an infected flock
- Failing to keep essential records
- False certification
- Failing to investigate reactors
- Failing to rectify previous major defect/s found at review
- Selling sheep as MN while suspicious tracings are being investigated
- Selling sheep as MN while reactors remain unresolved.

A **critical defect** will result in you and/or the veterinarian being excluded from the program and an appropriate flock status set. It may also result in notification to the state or territory Veterinary Board. The status of other flocks in the program may have to be re-assessed.

# APPENDIX 1 – TESTING STRATEGIES



Procedures must be implemented to test a representative sample of the flock to ascertain the status of the flock prior to accreditation as a SheepMAP flock, and to provide regular ongoing monitoring of the status of the flock.

## FLOCK TESTING – INFORMATION FOR VETERINARIANS

### 1. SAMPLING TECHNIQUE FOR POOLED FAECAL CULTURE SUBMISSIONS

- One faecal pellet is required from each sheep selected for sampling. If no pellet can be collected, the animal should be identified, and collection attempted when the remaining sheep in that pool have been sampled. Alternatively, a substitute sample from an additionally selected sheep may need to be collected.
- Collect one pellet from each sheep into a sterile plastic jar with a maximum of 50 and a minimum of 20 pellets per jar. Keep count of the number of pellets per jar and do not exceed 50. In flocks with less than 350 adult sheep, ensure all pools have faecal material from a minimum of 20 sheep/pool (e.g. if there are 251 sheep to sample, submit 4 pools of 50, & 2 pools of 20-31).
- Change gloves for collection of faeces between each pool to prevent cross-contamination of pools.
- To avoid contamination of a pool from a sheep from which a sample cannot be collected (and which therefore will not be identified with the pool), change gloves after attempting to sample such animals.
- If a sheep has soft/watery faeces, collect an amount similar to a normal pellet.
- Ensure proper labelling of each pool to enable identification of sheep which have contributed to that pool. Record ear tag number/colour or brand details for each group of 50 sheep contributing to a pool.
- Keep samples cool in an esky with ice bricks. Send to the laboratory as soon as possible so that samples reach the laboratory within two days of collection. Keep samples at 4°C in a domestic refrigerator if there is likely to be a delay in transport.

A Sample Identification Form for PFC Testing is provided in the *Resources and Forms* document on the SheepMAP webpage. It is not compulsory to use this form and veterinarians may wish to use an alternative recording format.

### 2. DISPOSAL OF TESTED ANIMALS

No tested sheep may be disposed of until test results are confirmed as negative, or follow-up investigations are completed. Where possible, sampled sheep should be run as a group separated from the rest of the flock until the test results are known.

### 3. INVESTIGATION OF CULTURE POSITIVE POOLS

Sample or Maintenance Testing using PFC includes screening using culture and additional testing of any positive pools.

The status of all animals contributing to a positive pool must be clarified before a flock's status can progress. Pools are considered positive to the screening test if PCR positive growth is detected in liquid culture. Positive pools require additional testing using subculture onto solid media, and if necessary, additional PCR testing.

Pools which are confirmed positive on solid media and which are PCR positive on either the liquid culture or the solid media subculture are definitive for *M. paratuberculosis* and result in a positive sample test (i.e. infected).

If samples are positive on PCR but negative on subculture on solid media, sheep contributing to those pools must be identified and held in a secure area, preferably isolated, as soon as possible and must be subjected to a Faecal Culture Follow-up test, as set out below, within one month of the notification of a positive result, or within a timeframe agreed to by the Approved Veterinarian.

No tested sheep are to be disposed of or slaughtered unless it is done as part of a follow-up investigation by the Approved Veterinarian, or the Sample Test has been completed.

#### **4. FAECAL CULTURE FOLLOW-UP TEST**

**Note:** in the following sections, PCR refers to PCR testing undertaken on culture medium, NOT HT-J PCR undertaken directly on faecal samples

The Faecal Culture Follow-up Test must be carried out as follows:

##### **PCR +ve, Solid media –ve, All sheep present**

Where one or more pools are positive on liquid culture but negative on subculture on solid media and all sheep which contributed to the relevant PFC pools are present:

- Collect and pool faecal samples from all sheep in PCR positive/solid media subculture negative pool(s). Faecal samples must be submitted in pools of 50 (in the same groupings as occurred at the initial sampling). The samples should be submitted for PFC testing.
- If a sheep is confirmed as positive on histological examination OR the repeat faecal culture results in the confirmation of *M.ptb* on solid media subculture AND by PCR, the Sample Test will be considered positive.

##### **PCR +ve, Solid media –ve, All sheep NOT present**

Where one or more pools are positive on liquid culture but negative on subculture on solid media and all sheep which contributed to the relevant PFC pools are NOT present the Faecal Culture Follow-Up Test must be carried out as described above plus additional pools must be tested as detailed below:

- If one or two sheep in a pool are missing, one additional pool derived from the same mob(s) as the missing sheep must be tested as part of the Faecal Culture Follow-up Test.
- If between three and five animals in a pool are missing, two additional pools derived from the same mob(s) as the missing sheep must be tested as part of the Faecal Culture Follow-up Test.
- If the composition of the mob(s) which contributed to the PCR +ve, Solid Media –ve pool(s) containing missing sheep has changed, or if more than five animals in a pool are missing, a full Pooled Faecal Culture Sample Test (i.e. testing on seven pools of 50 sheep) must also be conducted as part of the Faecal Culture Follow-up Test.

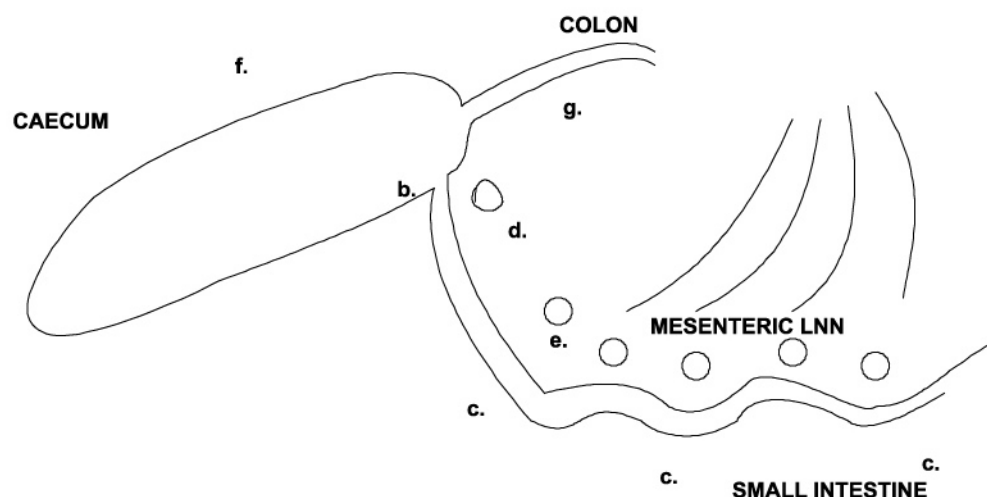
- The Approved Veterinarian must ensure that where possible any deaths of sampled animals prior to results being available or a Faecal Culture Follow-up Test being initiated are investigated. It is also important that adequate records are kept allowing further sampling of sheep from the appropriate mob if any animals are missing.

## 5. SPECIMEN SAMPLING & SUBMISSION

The following must be submitted to an approved laboratory for follow-up investigation of test positive animals and suspect cases, including sheep examined by post-mortem at the annual veterinary audit.

- Specimen advice form, with full details of the animal's history and post-mortem findings
- A blood sample
- A faecal sample for culture
- After thorough examination of the intestine and associated lymph nodes, chilled samples for tissue culture including terminal ileum and any tissues with gross lesions suggestive of JD.
- Preserved samples for histopathology of:
  - any tissues with gross lesions suggestive of JD, and
  - the entire ileo-caecal valve including the 5cm of ileum immediately adjacent to it
  - three additional 5cm pieces of small intestine taken at about 1 metre intervals
  - cranial to the ileo-caecal valve
  - ileo-caecal lymph nodes
  - ileal (also called terminal mesenteric or caudal jejunal) lymph node
  - piece of caecum
  - piece of proximal colon.

## SITES FOR TISSUE SAMPLING



## 6. TEST RESULTS

The following details must be retained by the Approved Veterinarian:

- The name of the testing laboratory
- Details of all samples submitted for laboratory testing
- The laboratory test results.

The Approved Veterinarian must provide the flock manager with a summary of the test results.

A Test Results Form is available in the *Resources and Forms* document and on the [SheepMAP](#) webpage. It is not compulsory to use this form. The Approved Veterinarian may use a different format to record results, provided that all the required information is included.

## **7. INVESTIGATION OF SHEEP WITH CLINICAL SIGNS**

If animals are showing clinical signs consistent with Johne's disease a thorough examination of the intestine and associated lymph nodes is required. The samples collected should be biased towards tissues with gross pathological changes consistent with JD. Full details of the animal's history and a complete description of any gross pathology observed must be included on the specimen advice form



## APPENDIX 2 - GUIDELINES FOR SHOWS, SALES AND EXHIBITIONS

These guidelines are designed to encourage flock managers of SheepMAP flocks to participate in shows, sales and exhibitions by minimising the risk of Johne's disease spreading between sheep in these situations.

They were originally revised in consultation with the Federal Council of Agricultural Shows (now part of Agricultural Shows Australia (ASA)).

They should be read in conjunction with Element 3 of the Manual - Movement of Assessed Animals.

### 1. FOR ORGANISERS

Reducing the risk of the spread of Johne's disease among animals at a show or sale and protection of the negative status of sheep from flocks assessed under the Market Assurance Program depends on:

- **Good hygiene** combined with some **separation** of assessed sheep from other sheep to prevent the ingestion of faeces or contaminated feed or water
- **Entry requirements** that reduce the risk of infected animals coming to the show or sale.

The table below sets out some of the risks that participating in a show, sale or exhibition could present for SheepMAP flocks and ways that organisers of these events can minimise those risks.

RISK	WAYS TO MINIMISE RISKS
Spread of Johne's disease when sheep from different sources are mixed.	<ul style="list-style-type: none"><li>• entry requirements (e.g. for sheep from NA or suspected of being infected flocks).</li><li>• separation of sheep from different sources.</li></ul>
The bacteria causing Johne's disease being present at the venue.	<ul style="list-style-type: none"><li>• thorough cleaning of the venue between events.</li><li>• sweeping show and judging rings between classes.</li></ul>
Animals from MN flocks ingesting material (including water) contaminated by the faeces of infected animals	<ul style="list-style-type: none"><li>• non-edible material on pen floors e.g. sawdust. Above floor water and feed containers.</li><li>• no grazing of grassed areas surrounding judging rings, pavilions etc.</li><li>• no watering at communal troughs.</li><li>• all stock being led by a responsible person when not penned.</li></ul>

#### Venue Audit

The ASA endorsed a Venue Audit procedure and the issuing of Compliance Certificates to assist show, sale and exhibition venues to comply with standards that minimise the risk of the spread of

Johne's disease. Venue audits are not compulsory. However, participating in the audit process has benefits to both show and sale organisers and to exhibitors.

The process involves the Chief Steward (or his or her representative) and an Approved Veterinarian completing the following tasks:

- Preparing a venue management plan at least 14 days before animals enter the venue, and
- The Approved Veterinarian auditing the venue for compliance immediately before animals are brought to the venue and (subject to a satisfactory outcome) issuing a certificate of compliance which is displayed for exhibitors at the event.

Other forms of record keeping can be used, e.g. photographs of the venue demonstrating barriers, etc.

## **2. FOR OWNERS AND APPROVED VETERINARIANS**

While organisers are encouraged to implement a high level of hygiene management and appropriate entry requirements, the flock owner is responsible for ensuring that the MAP status of their animals is not compromised at the event.

To help them make the decision about participating flock owners need to:

- Seek the advice of their Approved Veterinarians as to whether the status of the flock will be maintained or downgraded to a lower status if they return sheep to the assessed flock, or send sheep to another assessed flock after the show or sale
- Assess the risk of contact with sheep or other eligible species from non-assessed or lower status flocks
- Consider the level of hygiene management at the show, sale or exhibition.

## **3. STANDARDS AND REQUIREMENTS**

### **3.1. Entry Requirements**

Bearing in mind their responsibility in regard to the spread of disease at an event under their supervision, show and sale organisers can determine what entry standard they will impose for the event.

As long as a venue audit is conducted as described above, other entry requirements for Johne's disease are optional except for sheep from an infected flock. Where an organiser wants to apply **other** entry tests for Johne's disease, tests should only be conducted on animals over 24 months of age.

If sheep are tested, allow sufficient time for follow-up investigation and resolving positive screening tests.

Any other entry requirements by the show society will depend on the standards of separation and hygiene that can be implemented at the venue, what exhibitors they wish to attract and on what eventual destination and movement requirements the organisers wish to meet in advance.

The Agricultural Shows Australian recognises the current national Sheep Health Declaration as the health declaration for entry to Shows and Sales. Individual show societies may have additional requirements.

### 3.2 Separation

Primary segregation at shows should take into account MAP status.

As a minimum standard, sheep should be segregated as follows:

1. *Medium-High Assurance*: sheep from SheepMAP flocks
2. *Low Assurance*: sheep from a flock that has tested negative (abattoir 500 or pooled faecal culture 350) in the last two years, an abattoir 150 within the last 12 months and/or are Approved Vaccinates.
3. *Minimal Assurance*: Not assessed.

Depending on the local need and risk situation, show organisers may segregate within a group (e.g. within the Medium-High group) and/or pen sheep according to their area and level of testing or MAP status within segregated groups.

The responsibilities of organisers, owners and Approved Veterinarians with regard to segregation are set out below:

- Separation capable of preventing movement of faeces or contaminated food, water, or bedding in transit and at the show or sale may be achieved by physical means and/or by managing the time or order in which sheep use facilities.
- Owners will ensure that sheep from assessed flocks are transported to the show or sale in compliance with Element 3.
- There will be a space of at least two metres or a solid wall between sheep from Medium/High Assurance and Low Assurance flocks housed or stalled in the one facility at the same time. Separate buildings are not essential and MAP sheep may be separated from other sheep within lines of each breed.
- All sheep need to be adequately supervised at the venue.
- All sheep will be restricted to their designated area by tethering or some other means of restraint or penning when not being led.
- MAP sheep will not share watering troughs, washing areas, tie-up points or isolation areas with other sheep.

### 3.3 Hygiene Management

- Sheep will be fed and watered above ground level.
- The floors of the sheds and stalls housing assessed sheep will be cleaned and washed of faecal material or covered before assessed sheep enter the facility.
- Note: If sheep from an MN flock are to be housed in areas that cannot be cleaned or covered, and where non-assessed sheep or other susceptible species have been previously, then the rules for Movement of Assessed Animals in Element 3 apply.
- Faecal material will be collected regularly and removed to a place where stock have no access. This is particularly important in laneways and judging areas.
- Equipment used for mucking out stalls, sheds, etc. will be cleaned regularly to prevent build-up of faeces.

- Special attention should be paid when cleaning out pens so that sheep do not have access to areas, fixtures, bedding, etc., that are contaminated by other flocks.
- Sick sheep will be isolated if Johne's disease is considered a possibility.

### **3.4 Showing low assurance sheep or minimal assurance sheep**

In October 2002, Chief Veterinary Officers agreed that additional measures would have to be taken where low assurance sheep were to be exhibited. These guidelines should also be considered for managing risks of spreading Johne's disease venue management at all shows.

(See also section 7 of manual):

- Thorough cleaning of all venues between shows
- Segregation of sections by pens or walkways at least two metres wide
- Provision of non-edible material on pen floor e.g. shavings
- Above floor water and feed containers
- No grazing of grassed areas surrounding judging rings, pavilions etc.
- No watering at communal troughs
- All stock to be led by a responsible person when not penned
- Sweeping of show and judging rings between classes
- Cleaning of feet of exhibited stock following use of common areas and prior to penning.

**Other requirements by the show society** will depend on the standards of separation and hygiene that can be implemented at the venue, what exhibitors they wish to attract and on what eventual destination and movement requirements the organisers wish to meet in advance.

The Agricultural Shows Association has also endorsed a standard Sheep Flock Health Declaration for Shows and Sales which outlines the requirements that may be considered. Individual show societies may have additional requirements.