



GOAT MAP

RULES AND GUIDELINES OF THE
AUSTRALIAN
JOHNE'S DISEASE
MARKET ASSURANCE PROGRAM
FOR GOATS

Photographs: Audrey Diffin, Mohair Australia Ltd, Adrienne Yzerman

3rd Edition – 2009

GOAT MAP



Photographs: Audrey Diffin, Mohair Australia Ltd, Adrienne Yzerman

ICONS KEY



this section is important for Managers



this section is important for Vets



handy tip

ACKNOWLEDGEMENT

The Australian Johne's Disease Market Assurance Program for Goats has been developed by members of the Goat Industry Council of Australia and associated industry organisations, Animal Health Committee and Animal Health Australia's Johne's disease Coordinators. Advice has also been received from the Commonwealth, state and territory government animal health authorities. This document has been revised to be consistent with the Market Assurance Programs for cattle, sheep and alpaca, taking into consideration recommendations of goat breeders.



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- Status
- Breed
- Expiry date
- Year that current status was achieved.

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STATE MARKET ASSURANCE PROGRAM CONTACTS

Contact details of State MAP Coordinators can be found at:

[http://www.animalhealthaustralia.com.au/aahc/programs/jd/maps\\$/map_coords.cfm](http://www.animalhealthaustralia.com.au/aahc/programs/jd/maps$/map_coords.cfm)

INTRODUCTION

Welcome to the third edition of GoatMAP, the Australian Johne's Disease Market Assurance Program for Goats. Whether you are a new participant or have been involved in GoatMAP for some time, your participation in the program is an important part of ongoing efforts to control Johne's disease, reduce its impact on Australian livestock and trade and to ensure the long term sustainability of the goat industry in Australia.

This introduction contains information that will give you useful background on GoatMAP, the quality assurance system, brief details on how testing operates in the program, where GoatMAP '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 to reap the benefits of having a GoatMAP herd more quickly.

ABOUT GOATMAP

GoatMAP is an integral part of the National Johne's Disease Control Program. It complements the current Standard Definitions and Rules for Cattle and other species infected with cattle strains of *M. paratuberculosis* (SDRs), which deal with the regulatory control of Johne's disease and provides some important definitions for MAPs. Animal Health Australia considers market assurance to be a core component of national Johne's disease control.

The GoatMAP is one of a number of Market Assurance Programs developed by the livestock industries, government and the veterinary profession. They are formally endorsed by Animal Health Committee.

The MAPs are coordinated nationally by Animal Health Australia under the National Johne's Disease Control Program. Implementation is managed by the Chief Veterinary Officer in each state.

Industry ownership and commitment to this program are essential for its success. Stakeholders in the program undertake regular reviews to monitor progress, consider technical advances and endorse any changes necessary to improve the program.

The original GoatMAP was developed in 1999 in response to calls from the Australian fibre, meat and dairy goat industries for a herd classification scheme to assure goat breeders and their clients that participating herds have been objectively assessed as having a low risk of being infected with Johne's disease.

The GoatMAP does not guarantee that a herd is free of Johne's disease, but the higher the status a herd achieves, the greater the assurance that it is not infected. Therefore it will be most attractive to herd owners who wish to assure clients that their goats have a low risk of being infected.

It will also be attractive to producers wishing to sell breeding goats to Free and Protected Zones.

As herds in Free Zones are recognised as free of disease, the program is not applicable to them. Although herds in Protected Zones are also considered at low risk, their status is only equivalent to the lowest assessed status (MN 1) in this program. Therefore the program should be considered for herds in a Protected Zone where it is unlikely to be upgraded to a Free Zone in the near future if they wish to sell goats to assessed herds.

GoatMAP is a voluntary scheme with the costs being borne by participating herd owners, although some states may encourage participation with financial assistance.

Goats in Australia have been infected with both bovine (cattle) and ovine (sheep) strains of *M. paratuberculosis*, although most recorded cases of Johne's disease in goats are due to the bovine strain. The program does not apply to infected herds. These may be subject to regulatory control by the various states and territories and information about this may be obtained from your local DPI office.

The Program aims to identify, protect and promote herds 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 factors that minimise the risk of the introduction of Johne's disease into the herd. The assessment of these factors and the testing of stock is the responsibility of veterinarians who are trained and approved under the scheme.

A Second Edition was developed in light of the changes made to the GoatMAP and SheepMAP in 2000 and 2001 and in response to improvements sought by representatives of the goat industry in 2001.

Following a further review in 2007, this revised manual was developed. The changes that have been made include:

- a re-organisation of the material in the manual to more closely reflect the steps in the assurance process and the use made of the manual by herd managers
- modification of the record keeping requirements, including the option of using electronic records
- inclusion of customisable forms
- bringing the format into line with those adopted in 2007 and 2008 for the CattleMAP and SheepMAP
- updating to reflect the recently approved use of Pooled Faecal Culture tests and approved vaccination with Gudair™ vaccine in MAP herds.

Because of the extent of the changes since the 1999 review, this version of the manual has been completely revised.

GOATMAP AND JOHNE'S DISEASE CONTROL

The GoatMAP is an essential component of the Johne's disease control and eradication programs which operate in some states. The role of the MAP in these programs is to:

- provide a source of low risk replacement goats for those herds who want to avoid introducing infection
- facilitate the movement of low risk goats between zones
- allow herds to demonstrate their status in a transparent way so that they can sell breeding or herd replacement goats with confidence
- reduce the risk of Johne's disease being spread at events such as shows and sales.

JOHNE'S DISEASE IN GOATS

Johne's disease is a slowly progressive wasting disease that may be in a herd for many years prior to being detected. Affected goats may appear weaker and fail to thrive, and have intermittent scouring until the final stages of disease. There is no treatment for the disease and death may occur within months of the first appearance of signs. It is important to remember that Johne's disease infected animals can be contaminating land and pasture with the bacteria *Mycobacterium paratuberculosis* for months or even years before the development of recognisable symptoms. Goats of any age may be infected with JD but younger goats are especially susceptible. More information about Johne's disease in goats may be found on the AHA website: www.animalhealthaustralia.com.au

LEVELS OF ASSURANCE FOR JOHNE'S DISEASE

The GoatMAP aims to identify, protect and promote herds at low risk of being infected with Johne's disease. It is based on a testing regime and on property and herd biosecurity management that minimises the risk of introducing Johne's disease into the herd. Approved GoatMAP veterinarians assess these management strategies and test the stock.

Herd testing is used to assess the risk of infection being present in the herd. It comprises either a Pooled Faecal Culture test or a serological screening test on blood with follow-up investigation of reactors by more definitive tests. The status allocated to a herd that tests negative is 'Monitored Negative' (MN). Depending on how long a herd has participated in the program and the number of times negative herd testing has been undertaken, it is allocated MN1, MN2 or MN3 status.

GOATMAP ASSURANCE LEVELS

Assurance Level	How achieved	Relative merit
Monitored Negative 1 (MN1)	1 negative test of herd and a Herd Management Plan in place	Moderate assurance level; equivalent to the status of herds in a Protected Zone declared for goats. =
Monitored Negative 2 (MN2)	2 negative tests of herd over a period of at least 1 to 2* years, and a Herd Management Plan in place.	High Johne's disease assurance level.
Monitored Negative 3 (MN3)	3 negative tests of herd over a period of at least 3 to 4* years, a Herd Management Plan in place and Annual Veterinary Reviews	Highest assessed Johne's disease assurance level; equivalent to a herd in a Free Zone.
Check Tested	Negative test of 50 adults in a herd with no history of infection; but NO herd management requirements	NOT a GoatMAP status. Low introductory level of assurance, to support vendor declarations.

= A Protected Zone for Goats is one that has established a Protected status for goats to the satisfaction of Animal Health Committee.

* The shorter period may apply where herds are tested at a shorter interval to bring goat testing in line with testing for another MAP on the property.

TESTING AND MANAGEMENT

VETERINARY MANAGEMENT

The responsibilities of your Approved Veterinarian for veterinary management of the herd are outlined in the checklists that are included at the end of most of the elements in this Manual. In addition, the Approved Veterinarian should obtain a copy of the *Guidelines for Approved Veterinarians* which provide further detail. The Guidelines are available from your state authority or the Animal Health Australia website: <http://www.animalhealthaustralia.com.au/programs/jd/maps.cfm>.

One of the critical responsibilities of the Approved Veterinarian is testing. In most herds, all goats of the appropriate age will be tested. In large herds, only a sample of the herd is tested. As testing is not 100% sensitive, even testing all animals would not guarantee that the herd was free of Johne's disease. The GoatMAP requires the testing of sufficient animals to provide a high level of assurance that goats from a MAP assessed herd have a low risk of being infected with Johne's disease.

As herd sizes increase, the sample required to provide a high level of assurance plateaus. (Details of the required sample size for different sizes of herds can be found in Element 6.) Providing that the herd is managed to prevent the introduction of disease, the more testing that occurs over time, the greater the level of confidence that a herd is not infected. In addition, any goats which show signs suggestive of Johne's disease must be investigated. These animals must have a faecal sample collected for culture for *M paratuberculosis*, or they may be examined post-mortem with the required specimens submitted to a laboratory to exclude Johne's disease.

The screening blood tests are not 100% specific and this means a small number of false positive reactions (*reactors*) may occur in some herds. These reactors must be investigated promptly. Where pooled faecal culture is used, positive pools must be followed-up promptly. If these follow-up tests are negative, the herd test is classed as negative and a herd maintains the previous status whilst follow-up tests are being conducted.

FARM MANAGEMENT

When you decide to participate in GoatMAP, you need to be prepared to comply with all of the requirements of the program. Herd biosecurity is a key component of the assurance and there are a number of on-farm requirements relating to the introduction of animals, husbandry and record keeping that apply. They are critical to the success of the program. If you are a goat trader or you regularly move goats into your herd, you may find it very difficult to meet the herd 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 herds 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 and reviewing costs of the program.

REVIEW AND AUDIT REQUIREMENTS

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

- they ensure that purchasers can maintain confidence in the program
- they demonstrate that all players are meeting their obligations
- they are a mechanism for evaluating the GoatMAP and identifying elements that require improvement or modification.

Reviewing occurs at two levels. As a herd 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 (an internal audit by your Approved Veterinarian). In addition you must arrange a third party audit every three years that focuses on the compliance with the requirements of GoatMAP of all the people and authorities who are involved (external audit by an Approved Auditor).

One of the significant benefits of GoatMAP 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 GoatMAP requirements is achieved more easily and efficiently.

Further details on the steps in the review process including checklists and examples of records and forms can be found in Element 7 of the manual.

THE GOATMAP MANUAL

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

STRUCTURE

As well as this introductory section, the manual contains seven Elements and four Appendices.

The Elements

Elements 1 to 7 focus on the activities and farm management practices that are required when you are part of GoatMAP. 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 four appendices to GoatMAP.

Appendix 1 contains detailed information for your Approved Veterinarian on the testing procedures.

Appendix 2 is a copy of the Guidelines for Shows, Sales and Exhibitions.

Appendix 3 contains information about the specimens to be collected for follow-up of reactors and investigation of suspect cases.

Appendix 4 contains copies of all the forms that have been developed to ensure that you can meet the record keeping requirements of the program.

There are two types of forms.

- 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 GoatMAP requirements (for example a computer system or some other comprehensive system), you will probably prefer to integrate any new records required with that system.
- A small number of the forms are '*compulsory record formats*'. To comply with GoatMAP requirements you **must** use this precise format.

The code that identifies the form as Recommended (R) or Compulsory (C) is located in the bottom right of the footer and in the top right corner of the form.

All the forms are available as electronic files on the Animal Health Australia website.

All the forms are identified by a name (for example, Herd and Property Risk Assessment Form) and by a code (for example, the Herd and Property Risk Assessment Form is G01.02.08.R).

Reading from left to right, the code G01.02.08.R means:

G = goats (the species to which this MAP, and therefore the form, is relevant)

01 = the Element of GoatMAP to which it is relevant

02 = the serial number assigned to the form

08 = the year in which the form was included in GoatMAP

R = the status of the form (R = recommended; C = compulsory).

If you are planning to substitute a form of your own for one of the recommended formats, it is advisable that you:

- talk the idea over with your Approved Veterinarian
- include the code for the form you are replacing on your personalised document/ format (for example, 'replaces form G01.02.08.R') That way a reviewer can be sure that you are continuing to meet the record keeping requirements of GoatMAP.

DEFINITIONS

ADULT ANIMAL

A goat 12 months of age and over.

ANNUAL VETERINARY REVIEW

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

APPROVED AUDITOR

A person with recognised skills /qualifications as a quality systems auditor, who has completed a MAP orientation program and met any other requirements identified by the MAP Reference Group.

APPROVED LABORATORY

A veterinary laboratory that is NATA accredited to ISO 17025 and is approved by the Chief Veterinary Officer (CVO) of the State/Territory to carry out diagnostic tests for the MAP.

APPROVED PROPERTY DISEASE ERADICATION PROGRAM

A program defined in the Johne's Disease Standard Definitions and Rules for Cattle, goats and other species infected with cattle strains of *M paratuberculosis* approved by the CVO, and conducted by the owner in conjunction with an Approved Veterinarian, to eradicate Johne's disease in an infected herd.

APPROVED TEST

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

APPROVED VACCINATED GOAT

An Approved Vaccinated Goat is defined in the Johne's Disease Standard Definitions and Rules for Cattle, goats and other species infected with cattle strains of *M paratuberculosis*. A goat that is either:

- vaccinated with an approved vaccine by 16 weeks of age
- in the written opinion of a GoatMAP Approved Veterinarian, vaccination occurred when there was no known prior to exposure to Johne's disease infection, and is identified by an Approved Vaccination Tag.

APPROVED VETERINARIAN

A veterinarian who is accredited under the Accreditation Program for Australian Veterinarians (APAV) and who has successfully completed the National Market Assurance Program training program for veterinarians and has been authorised in writing by the CVO of the State/Territory to participate in the program. Only Approved Veterinarians can enter into an agreement with the herd owner.

BARRIER

A physical separation approved by the relevant CVO which minimises the risk of environmental spread of infection. Suitable barriers include unstocked land, land grazed by non-susceptible species, tree lots, contour banks or stone walls.

CHECK TEST

A test to provide a moderate level of assurance that a herd is not infected with Johne's disease. It is undertaken in accordance with the current edition of the National Johne's Disease Control Program Standard Definitions and Rules. It may be used as a standard for interzone movements. Check Tested herds are not MAP assessed herds.

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 herds and has not been satisfactorily decontaminated in accordance with a program that has been approved by the CVO of the jurisdiction.

CULTURE

Culture of tissues or faecal material by a method approved by the SCAHLS for the detection of both bovine and ovine strains of *M. paratuberculosis*. Appendix 3 lists the specimens to be submitted.

ELIGIBLE SPECIES

Goats, cattle, deer, sheep and camelids.

While this program is primarily intended for goats, other species which can become infected with Johne's disease are classified as eligible species. For the GoatMAP, other eligible species are cattle, deer, sheep and camelids. Where these species are run together or on the same land as goats, they must be of equivalent status under a MAP for their own species. Complementary MAPs have been developed for sheep, cattle and alpaca. Use of the term 'goats' in this manual includes other eligible species.

FAECAL CULTURE

Individual animal faecal culture or pooled faecal culture, conducted at an approved laboratory, may be used as the test for screening goats for the GoatMAP as an alternative to serological (blood) testing.

HERD

The group comprising all goats and/or other eligible species that have grazed the land during a 12-month period and/or that have shared facilities, such as yards or a shearing shed. A herd may be run on separate blocks of land that are not adjoining, however the movement of eligible animals between these blocks must be undertaken to comply with GoatMAP requirements.

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

HERD STATUS CERTIFICATE

A certificate issued to the herd owner by the Approved Veterinarian. It describes the status of the herd following its most recent assessment by the Approved Veterinarian and is valid for 12 months or may be revoked sooner for non-compliance.

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 SCAHLS. The specimens to be submitted are listed in Element 6 and Appendix 3.

INFECTED ANIMAL

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

LAND

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

MAINTENANCE TEST

A test undertaken on fifty (50) animals in the herd to maintain its current status (See Element 6). These animals are not randomly selected but are chosen for testing so as to maximise the probability of detecting infection if it is present in the herd.

MATING AREA

An area of land described in the herd management plan that is used only for the purposes of supervised mating with visiting goats. This land will not otherwise be used by the herd.

MOB

A discrete group of goats, often of similar age or sex that are run together within a herd.

NEIGHBOURING PROPERTY

Any landholding which adjoins land on which an assessed herd is run.

QUARANTINE AREA

An area of land or a building in which animals visiting the herd for hand-mating can be held in isolation from the herd.

REACTOR

An animal which is positive to an approved serological test.

SAMPLE TEST

A screening test of the adult herd or a significant representative sample of the adult herd by a serological test or pooled faecal culture, that is promptly followed by confirmatory testing of any reactors or positive pools. The goats to be tested are selected from the herd in accordance with Element 6. A sample test is positive only if infection is confirmed in the herd.

STANDARD DEFINITIONS AND RULES

The National Johne's Disease Program Standard Definitions and Rules (SDRs) for Cattle and for goats, deer, camelids, buffalo and bison infected species infected with cattle strains of *Mycobacterium paratuberculosis*. The SDRs are publicly available at: <http://www.animalhealthaustralia.com.au/programs/jd/njdcp.cfm>

APPROVED SEROLOGICAL TEST

A serological test approved by the Sub Committee on Animal Health Laboratory Standards (SCAHLs) on behalf of Veterinary Committee, and conducted at an approved laboratory. The approved serological screening tests for goats are the AGID and ELISA, adapted for goats.

ZONE

A zone for Johne's disease is an area declared by legislative or administrative action to enable the exclusion, control or eradication of bovine Johne's disease infection, in accordance with the current National Johne's Disease Program Standard Definitions and Rules for cattle, goats and other species infected with cattle strains of *M paratuberculosis*.

GETTING STARTED

BEFORE YOU START (FOR NEW ENTRANTS)

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

- First, read through each element of the GoatMAP manual. The checklists at the end of each Element provide a summary of what you'll need to do to be part of the program.
- Remember the icons will help you identify the important sections of the GoatMAP manual.

M This section is important for Managers

V This section is important for Vets

★ Handy tip

- Next, contact an Approved GoatMAP Veterinarian. A list of Approved Veterinarians is available on the Animal Health Australia website. As well as being able to answer any questions about how GoatMAP operates, you need to work with the Approved Veterinarian to complete the risk assessments and testing that are the first stages of the program. Part of being in GoatMAP 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 herd. This agreement will be registered on a publicly accessible database.
- Take a look at your record keeping and other management systems and see how much you will need to modify them to meet the requirements of GoatMAP. You may already be recording some or all of the information needed. Once you are enrolled in GoatMAP there is no need to duplicate this. Just ensure your records are easily accessible for reviewing purposes, as well as for your own farm management.

Assuming that you have decided to continue, you need to sign the agreement with the Approved Veterinarian and arrange to complete the herd and property risk assessment outlined in Element 1 and initial herd testing.

STARTING EFFICIENTLY

There is a good deal of work involved in getting started in GoatMAP. By being well prepared you'll 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 herd will be confined and the whole property on which it is located
 - details of any separate blocks that are to be included in the land
 - 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 Veterinarian)
 - 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 herd
 - how long it has been established
 - the number of animals
 - how they are divided into mobs
 - the ages of animals – particularly those over 12 months of age
 - a statement of your current herd status from your District Veterinary Officer.
- how you manage the herd
 - how animals are identified and the records that you keep of the identifiers
 - management of kids born on the property
 - how introduced animals are managed, and copies of NVDs for introduced goats.
 - 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
- ask your Approved Veterinarian which mobs are wanted for testing
- arrange the initial test requirements with your Approved Veterinarian – date, time, number of mobs to be sampled, number of animals in each mob to be sampled.

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

ELEMENT 1: HERD ENTRY REQUIREMENTS, HERD STATUS AND PROPERTY/HERD RISK ASSESSMENT

The herd's eligibility to participate in and remain in the GoatMAP must be established and reviewed regularly. This ensures the appropriate GoatMAP status is maintained.

Procedures must be put in place to minimise the risk of infection of the GoatMAP herd from introduced or neighbouring stock or contaminated water or faeces. These procedures need to be reviewed regularly.

GETTING STARTED

To participate in the GoatMAP you must make a written agreement with a veterinarian who is approved to participate in the program. You must use the **Agreement between Herd Owner and Approved Veterinarian** to record the agreement. Both you and the Approved Veterinarian must keep a copy. The form you must use can be found in Appendix 4.

Once the agreement is signed, you and your Approved Veterinarian work together to ensure that the herd is eligible for inclusion in the GoatMAP. You need to complete a property risk assessment, a herd risk assessment and develop a plan and procedures to minimise the risk of Johne's disease entering the herd.

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

- boundary fences and barriers
- goat handling facilities
- (the) feral and other animal populations
- (the) animals and activities on neighbouring properties
- identifying sites where potentially contaminated water or faeces could enter
- previous grazing use of land.

The **herd** risk assessment reviews the history of the herd, the source of recently introduced goats and the suitability of your livestock identification system and records. A Sample Test is done to ensure that the herd is unlikely to be infected with Johne's disease. Information on testing strategies is provided in Element 6 of this manual.

A Herd Management Plan is developed as an outcome of the risk assessment. The plan focuses on maintaining the assurance status of the herd and ensuring that prompt action can be taken if required. This includes ensuring:

- that adequate stock identification, movement, management, and testing records are maintained
- the integrity of boundary fences and barriers to prevent incursion of neighbouring stock and/or contaminated water and faeces
- you and the Approved Veterinarian sign the plan and you must both comply with its management requirements on an ongoing basis to remain in the GoatMAP.

INITIAL RISK ASSESSMENT

This includes the following tasks:

- Identifying the land to which the GoatMAP herd will be confined (the land) and the whole property on which it is located.
- Checking whether the land comprises a number of separate blocks.
- Developing a property map or plan (or adapting an existing map or plan) to show 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 herd is run
 - all neighbouring properties
 - sites where potentially contaminated water or faeces could enter the land
 - previous grazing use of the land.

When it is finished, you need to include this map or plan in your Herd Management Plan (see Element 5).

- Recording the type of construction of boundary fences and barriers, evaluating their security, and identifying any that need upgrading.
- Finding out whether neighbouring properties run goats or other 'eligible species' (that is, sheep, cattle, camelids and deer).
- Assessing barriers to the entry of potentially contaminated water or faeces.
- Finding 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.
- Ensuring that yards, races, etc are adequate for sample collection and are not used by goats or other eligible species of lower status except in compliance with the MAP.

You must keep a record of the risk assessment. Examples of two forms you can use are:

- the Property/Herd Risk Assessment
- the Boundary Inspection Record.

These are included in Appendix 4 and are available electronically on the Animal Health Australia website.

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

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

ONGOING RISK ASSESSMENT

Herd and property risk assessment is not a 'one-off' event. You are responsible for carrying out all the management tasks detailed in the Herd Management Plan such as regular (quarterly) boundary inspections and repairs when required, monitoring for strays and recording goat introductions, movements 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 Herd Management Plan.

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

DETERMINING HERD STATUS

When your herd is ready to enrol in the GoatMAP it will be given an initial herd status by the Approved Veterinarian acting on behalf of the Chief Veterinary Officer (CVO) of your State. How this happens depends on whether the herd is:

- new to GoatMAP
- assembled from existing GoatMAP herds
- re-entering GoatMAP.

ALLOCATING THE INITIAL STATUS OF NEW GoatMAP HERDS

When your herd first enters the GoatMAP its status will be Non-Assessed (NA) unless the herd was recently tested with negative results and has a status such as Check Tested (CT). Some herds may be known to be infected or infection has been suspected. In these cases, the status will be Infected (IN) or Suspect (SU) respectively.

If the herd is **currently suspected to be infected**, approval must be obtained from the CVO for it to enter GoatMAP. This may require removal of high risk individuals or a negative sample test of the whole adult herd.

- If the new herd is established on **previously contaminated land**, you and the Approved Veterinarian must ensure that suspicion of infection is resolved to the satisfaction of the CVO before the herd enters GoatMAP.
- If the herd is **currently classified as infected**, you must complete an Approved Property Disease Eradication Program and you must get approval from the CVO for the herd to progress to MN1 status.

ALLOCATING THE INITIAL STATUS OF NEW GoatMAP HERDS ASSEMBLED FROM EXISTING GoatMAP HERDS

Before you introduce any goats onto the land, you and the Approved Veterinarian must carry out a herd and property risk assessment as detailed earlier in this section. The Approved Veterinarian will determine the initial herd status.

- If all the goats come from GoatMAP herds, but those herds have different MN statuses, your herd will be allocated the status of the contributing herd with the lowest status, as long as the identity and status of all contributing herds is known.
- If any goats come from a herd of origin which cannot be identified, your herd cannot enter GoatMAP until at least 12 months after the herd is established. The initial status of the herd will be Non-Assessed (NA), as long as the CVO has no reason to suspect the herd to be infected.

DOWNGRADING OR WITHHOLDING GoatMAP STATUS, AND TRACES FROM INFECTED HERDS

There are some cases where the Approved Veterinarian may lower or withhold or cancel the status of your herd. A GoatMAP herd may lose its status if:

- there is a serious breach of the agreement you made with your Approved Veterinarian. In this case the herd status must be changed to NA
- the herd is suspected of being Infected, and the CVO is notified. The herd status must be changed to SUSPECT until suspicion is resolved. The CVO will give advice about this
- you or your Approved Veterinarian become aware of movement of goats from or to an infected herd (a trace back or trace forward). The Approved Veterinarian must advise the CVO who will nominate someone to undertake an investigation.
 - your herd will maintain its current MN status until the investigation is completed. You may continue to sell goats direct to slaughter and for restocking, (with full disclosure to prospective restocker purchasers), unless you are told otherwise by the CVO
 - it is not advisable to remove suspect animals from the herd as this may interfere with the investigation and seriously delay resolution of the suspicion

- you introduce animals from a herd of lower status, other than as allowed under Element 2. The whole herd must revert to the status of the introduced goats
- you fail to maintain documentation to verify the status of any introduced goats the herd status will revert to NA (or lower) from the time of introduction of the goats
- you do not arrange and complete an Annual Veterinary Review, Sample or Maintenance Test within two months of the due date. The herd status may revert to the next lowest status (ie MN1 would revert to NA, MN2 to MN1 etc
This also applies to herds 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
- you do not have an external audit conducted within the required time period.

Reversion to MN1 or MN2 will only occur if your 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 Herd Status Certificate (valid for 12 months) is issued. In the absence of this assessment, the herd status must revert to NA.

If your herd 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 herd is not Sample or Maintenance tested within the 12 month period covered by the new Herd Status Certificate, it will revert to NA.

ALLOCATING THE STATUS OF HERDS RE-ENTERING THE GoatMAP

A GoatMAP herd may lose its status if:

- it is exposed to goats of lower status (eg Non-Assessed, Suspect or Infected)
- goats of lower status are introduced
- it is exposed to land that has been contaminated or grazed by animals of lower status.

If the herd's status was removed because of introduction(s) from a Non-Assessed herd or exposure to land grazed by Non-Assessed animals, the herd may re-enter the MAP if it undergoes a negative Sample Test at least 12 months after the introduction(s) occurred or when the youngest introduced animals are at least 12 months of age, whichever is the later.

If the herd's status was removed because goats were exposed to contaminated or non-assessed land or herds AND there is suspicion of infection, the suspicion of infection must be resolved to the satisfaction of the CVO. Additionally, the youngest exposed goats must be at least 12 months of age when the herd re-enters the program.

Such a herd does not regain its previous status and the appropriate herd status would normally be MN1.

Accelerated Entry / Reinstatement of Status

There are some circumstances where the CVO may approve a higher entry status than MN1 for your herd.

Accelerated Entry

If the testing and management controls that applied to your herd before it entered GoatMAP can be shown to be equivalent to those described in the GoatMAP a higher initial status may be allocated by the CVO.

Reinstatement of Status

- If your GoatMAP herd has had its previous status downgraded because you introduced goats of lower status and you can demonstrate that the herd these goats came from a herd that has now achieved a higher status, that status or your original status of your herd may be reinstated.
- If your herd'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 may be reinstated.

If your herd achieves accelerated status or has its status reinstated, you and the Approved Veterinarian should record the CVO's approval and maintain the appropriate supporting documentation.

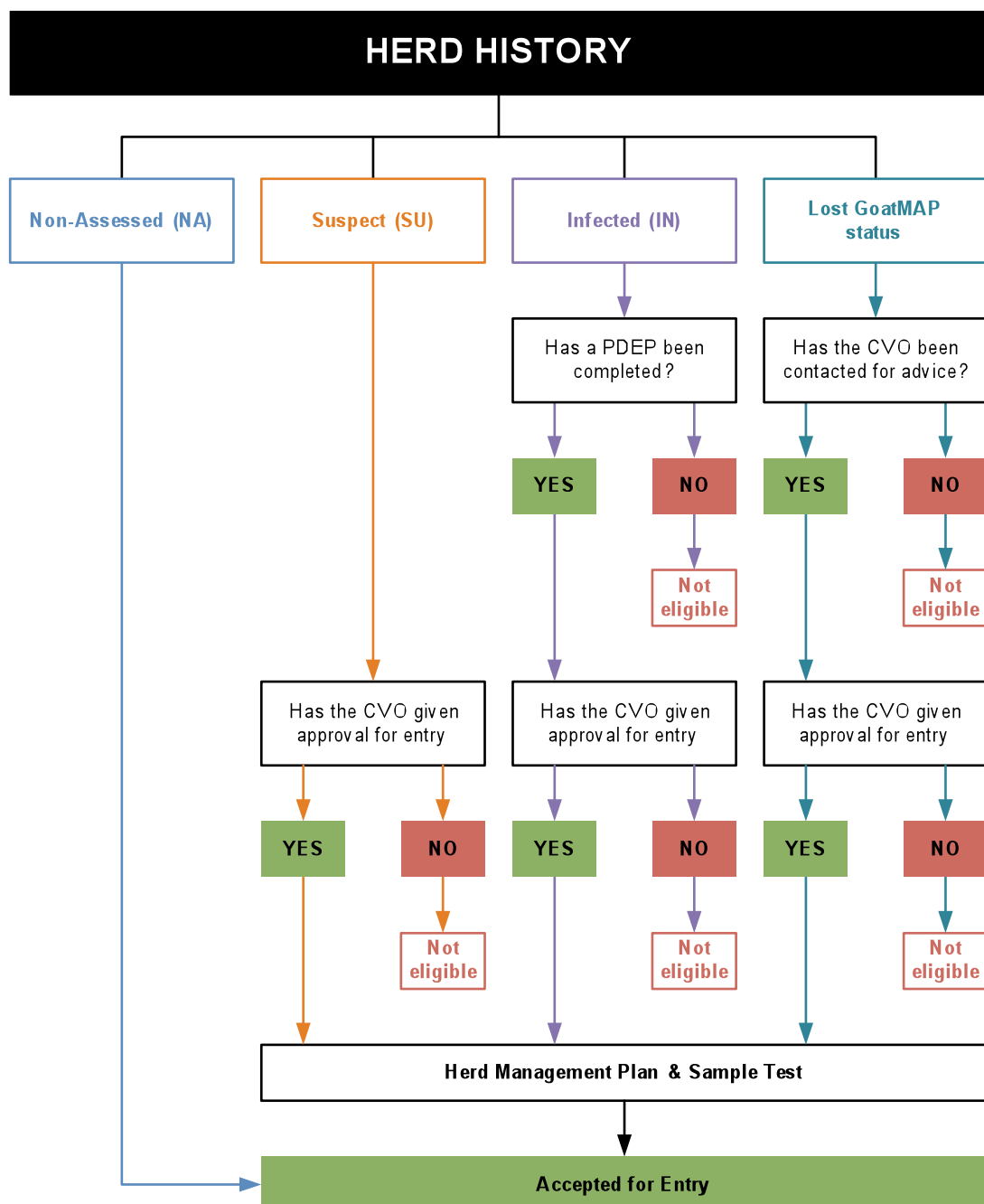
Extended Status

An extended status may be assigned to a herd that has not undergone an Annual Veterinary Review or Sample or Maintenance Testing due to operational or exceptional circumstances. The extended status can only be granted for a maximum of 12 months from the expiry date of the previous Herd Status Certificate and provided that:

- CVO approval is given
- the herd continues to comply with all other requirements of the program
- a new Herd Status Certificate is issued with the status noted as being 'extended' (for example, MN1 2008 – Extended).

HOW THE HERD STATUS IS ASSIGNED **V** **M**

The diagram on the following page describes how herd status is assigned.



REMAINING IN GOATMAP

ANNUAL VETERINARY REVIEW

In order to remain in the GoatMAP the herd must have an Annual Veterinary Review. This is carried out by the Approved Veterinarian. It ensures that you have met the management requirements of the program. This includes a visual inspection of the herd and property so that the Approved Veterinarian is satisfied that the biosecurity aspects of the GoatMAP are being met. It will include examination of records, individual identification of animals at testing and records of movement of animals onto and off the property.

You must keep records of the findings of the Annual Veterinary Review. A form you can use is included in Appendix 4 and is available in electronic format from the Animal Health Australia Website. You can use another format if you prefer, providing it records all the necessary information.

PROGRESSING HERD STATUS

For your herd to progress in the GoatMAP, you must maintain the schedule of negative Sample Testing and satisfactory Annual Veterinary Reviews.

The standard interval for testing to progress from MN1 to MN2 is two years (22-26 months). However if you need the testing to coincide with the testing of a herd or flock of another eligible species in another MAP, sample testing between 10 and 26 months is permitted to progress to MN2.

Further negative testing three to four years after the initial test and keeping up the cycle of Annual Veterinary reviews is needed for the herd to progress to MN3.

MAINTAINING HERD STATUS

You may choose to maintain your herd status at its current level. All herds must undertake an Annual Veterinary Review to maintain their status.

Unvaccinated Herds

To maintain MN1 or MN2 status in an unvaccinated herd, a Maintenance Test must be undertaken 22-26 months after the previous negative Sample or Maintenance Test on which the herd's status was allocated.

To maintain MN3 status in an unvaccinated herd, a Maintenance Test must be undertaken 34-38 months after the previous negative Sample or Maintenance Test.

These conditions also apply in MNn-V herds where not all goats are vaccinated.

Vaccinated Herds

A herd in which some or all goats have been vaccinated using Gudair vaccine is identifiable by its MNn-V status.

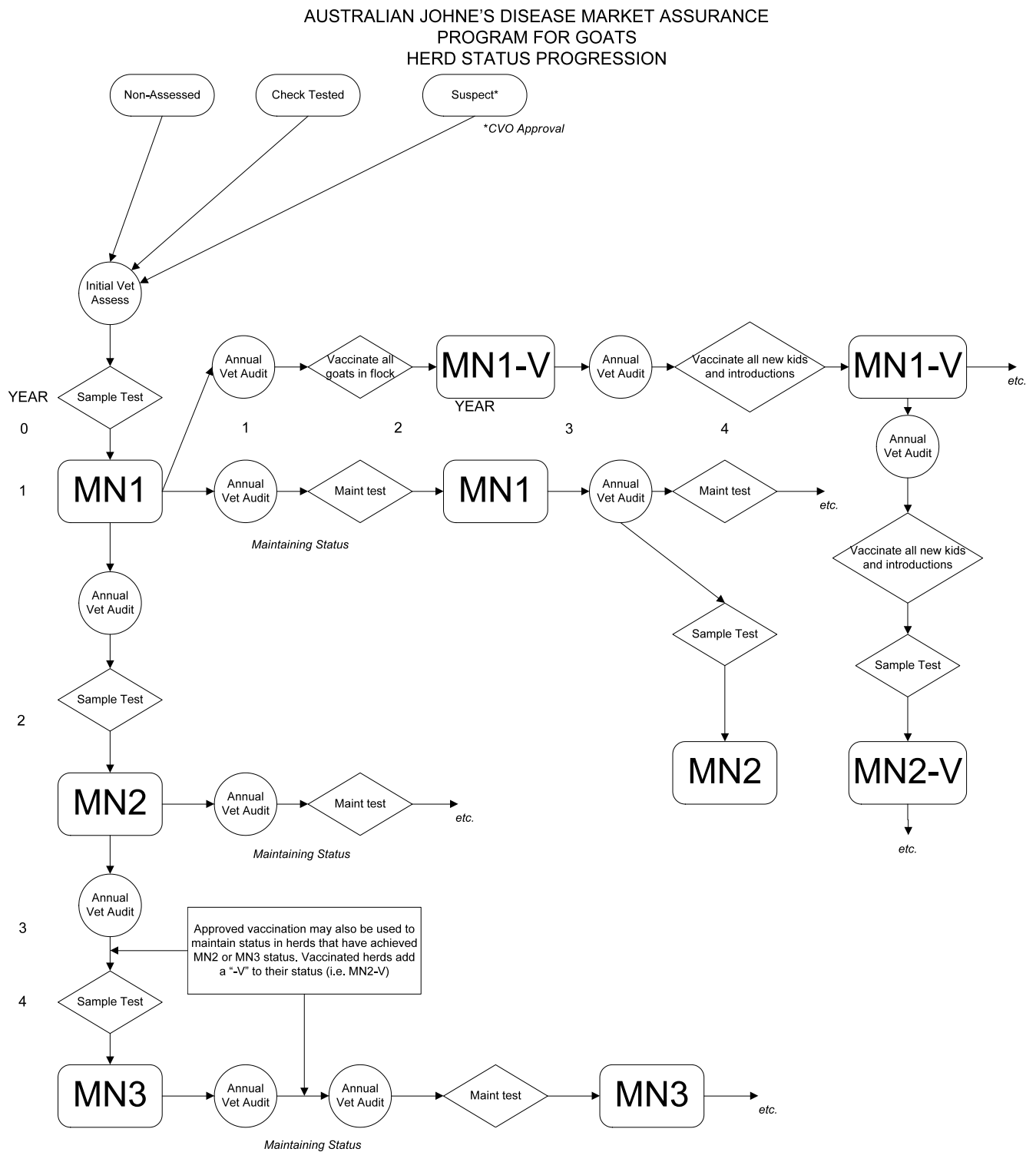
A herd in which all goats are Approved Vaccinates can maintain its current herd status by undertaking vaccination of all kids before they reach 16 weeks of age and undertaking annual veterinary review. In these herds all introductions to the herd must also be Approved Vaccinates. Non vaccinated goats may become Approved Vaccinates if they originate from a MAP herd (which has evidence of negative test results) and are then vaccinated at greater than 16 weeks of age.

EVENTS AFFECTING STATUS

If you become aware of anything that may affect the status of your GoatMAP herd, such as the entry of strays from infected neighbours or movement of goats from or to a herd that subsequently tests positive for Johne's disease, you must immediately advise the Approved Veterinarian. He or she will then advise you on testing requirements and will advise the CVO who will initiate an investigation into the potential effect on the herd's status.

The Approved Veterinarian must notify the CVO promptly of any events or test results that adversely affect the MAP status of the herd.

The diagram below outlines how your herd can progress or maintain its GoatMAP status.



CHECKLIST 1.1M – INITIAL HERD/PROPERTY RISK ASSESSMENT**Herd Manager**

- ☐ Make an agreement with a veterinarian who is approved to participate in the GoatMAP program.
- ☐ Assist the veterinarian to conduct a property and herd risk assessment and to prepare a Herd Management Plan (see Element 5).

CHECKLIST 1.1V - INITIAL HERD/PROPERTY RISK ASSESSMENT**Approved Veterinarian**

- ☐ Make an agreement with the herd manager who wishes to participate in the GoatMAP program.
- ☐ Ensure the herd manager has a copy of the GoatMAP Manual and understands the principles of the GoatMAP, especially the concept of risk management.
- ☐ Conduct a property and herd risk assessment in conjunction with the herd manager.
- ☐ Allocate the initial herd status.
- ☐ Advise the herd manager on any actions required (e.g. repairs or upgrades to fencing or stock handling facilities).
- ☐ In consultation with the herd manager prepare a Herd Management Plan (see Element 5) and ensure that the herd manager is aware of their responsibilities in relation to this plan.

CHECKLIST 1.2M – ONGOING TASKS TO MAINTAIN HERD STATUS**Herd Manager**

- ☐ Check the land regularly for evidence of entry of eligible species and record what you do to manage these incursions.
- ☐ Check the boundary fencing around each paddock before you introduce animals to the paddock and when you remove them from the paddock.
- ☐ Check the entire length of the boundary fence at least every three months.
- ☐ Check boundary fences after storms for fallen branches etc.
- ☐ Repair any breaks or holes in fences or floodgates immediately. Record the date and the name of the person carrying out these inspections and repairs.
- ☐ Check flood gates after any major changes in flow patterns of rivers or creeks running through or adjoining the land. Record details of all damage and repairs.
- ☐ Check railway land or other adjoining public land regularly for stray stock.
- ☐ If you know or suspect faecal run-off from neighbouring properties has encroached on to the land, record the date and location of the possible encroachment and report it to the Approved Veterinarian. He/she will advise you if you need to amend your Herd Management Plan.
- ☐ Schedule your Approved Veterinarian to conduct an Annual Veterinary Review each year.
- ☐ Schedule your Approved Veterinarian to conduct herd testing in accordance with the testing strategy in the Herd Management Plan (see Element 6).
- ☐ Advise the Approved Veterinarian immediately if you become aware of any event that may influence the herd's disease status.

CHECKLIST 1.2V – ONGOING TASKS TO MAINTAIN HERD STATUS**Approved Veterinarian**

- ☐ Conduct an Annual Veterinary Review and review the property/herd risk assessment, goat introductions and movements and the Herd Management Plan in conjunction with the herd manager.
- ☐ Amend the Herd Management Plan with the herd manager as required.
- ☐ Ensure that any necessary changes are made before confirming the status of the herd or allowing it to progress.
- ☐ Conduct Maintenance and Sample Tests as requested by the herd manager.
- ☐ Issue the herd manager with a Herd Status Certificate after each review or test.
- ☐ Advise the CVO if a trace back or forward from an infected herd occurs.
- ☐ Advise the CVO promptly of any events or test results that adversely affect the MAP status of the herd.

ELEMENT 2: INTRODUCED LIVESTOCK (INCLUDING STRAYS)

You must follow the GoatMAP requirements when you introduce animals into your herd. Introduced animals must be appropriately identified and recorded and the records kept to ensure traceability.

BACKGROUND INFORMATION

Before you introduce goats into your GoatMAP herd you must:

- consult your Approved Veterinarian to determine the risk of infection from the animals you propose to introduce
- find out and record the MN status of the herd of origin.

WHICH ANIMALS CAN BE INTRODUCED?

Bringing animals into the herd presents one of the greatest risks of introducing Johne's disease. Control over introductions is therefore an essential part of the program.

Goats may be introduced to an assessed herd:

- from MN herds of the same or higher status
- into an **MN1 herd**, from herds with the same or higher National Goat Health Statement Risk Rating (i.e. 6) or from herds in a BJD Protected or Free Zone that is also an OJD Low Prevalence Zone
- as semen or washed embryos*.

**M paratuberculosis* can be secreted into semen and uterine fluids of animals with advanced Johne's disease. Such animals should not be used for semen collection and embryos should be washed according to international standards. Embryo recipients must not be introduced to a herd unless they comply with movement requirements.

Generally, if goats are introduced from a herd of lower status, the whole herd will revert to the status of the introduced animal. There are some special circumstances where animals from herds of lower status (including young goats) can be introduced. They are described below.

INTRODUCING BREEDING GOATS

You can introduce small numbers of bucks and does (up to **5% of the total herd number per annum**) into any MAP herd if they are from MAP herds one status lower, or from non-assessed herds with a National Goat Health Statement risk rating of 6 or greater.

However, there are conditions you must observe:

- You must have the prior written approval of your Approved Veterinarian.
- The animals must be permanently individually identified.
- Introduced animals and progeny born to female introductions 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 2 years after introduction.
- All adult animals (over 12 months) must be tested before being introduced as follows:

Your herd's status	Originating herd's status	Test
MN3	MN2	Negative ELISA, AGID or individual faecal culture. If ELISA or AGID is positive, follow-up by negative faecal culture.
MN2	MN1	Negative ELISA, AGID or individual faecal culture. If ELISA or AGID is positive, follow-up by negative faecal culture.
MN1	CT	Negative AGID or ELISA and negative individual faecal culture (i.e. in parallel).

The introduced animals must be retested (in addition to the selected sample) at the first annual veterinary audit or Sample or Maintenance Test whichever falls 12 months or more after the introduction.

If the animals you introduce are under 12 months old they are not tested prior to introduction. The tests described above must be done when they are 12-18 months old. They are then retested (in addition to the selected sample) at the first annual veterinary audit or Sample or Maintenance Test which falls 12 months or more after the introduction.

SHORT TERM INTRODUCTION OF YOUNG GOATS

You can introduce any number of young animals (those under 18 months of age) for a limited period if you have the prior written approval of your Approved Veterinarian and the animals are from:

- MAP assessed herds (including those of a lower MAP status)
- herds in a Protected Zone declared for goats that are not suspected of being infected, or
- herds that are Check Tested.

These animals must leave the land:

- before kidding
- before reaching 18 months of age, or
- if there are no reliable records of age, before the eruption of any permanent incisor teeth.

Whichever occurs first.

Herd animals must not graze land on which these short term introductions have grazed for at least 3 months after the introductions have been removed.

Short term introductions may use the same handling yards as the GoatMAP herd, but separate holding yards must be provided and used for them.

INTRODUCING YOUNG CATTLE FOR SHORT-TERM REARING OR FINISHING

You can introduce young cattle (animals under 2 years of age) for a limited period if:

- you have the prior written approval of your Approved Veterinarian
- the animals are from MAP assessed cattle herds (including those of a lower MAP status, or the cattle are from a BJD Protected or Free zone and are not suspected of being infected)
- the cattle entering a MN1 or MN2 goat herd are from cattle herds that are 'Beef Only' or Dairy Assurance Score 7 or greater.

These animals must leave the land:

- before calving
- before reaching two years of age, or
- in the absence of reliable age records, before eruption of any permanent incisor teeth.

Whichever occurs first.

Goats under 12 months of age in the assessed herd must not graze the land grazed by these introductions for at least 3 months after their removal.

These young cattle may use common handling yards but separate holding yards must be provided and used for them.

Short-term introductions of sheep of an equivalent or higher MN status are allowed under this program.

SHORT-TERM INTRODUCTIONS FOR HAND-MATING

You may bring males or females from lower status GoatMAP herds or CT or NA herds onto the land for short periods for the purposes of supervised hand-mating. You must comply with the following conditions:

- If the introduced animal is from an NA herd, you must obtain a veterinary certificate that Johne's disease is not known or suspected to have occurred in the herd of origin
- If the introduced animal is from a CT herd, you must obtain a veterinary certificate that the herd has been Check Tested with negative results
- All mating must be managed in an area designated for supervised hand mating
- The introduced animal will not mix with the herd during its stay except for hand-mating. It must be penned or housed away from the herd in a designated quarantine area
- The quarantine area must be either separate from the land on which the herd runs or must be able to be cleaned and decontaminated to a standard equivalent to show venues (See Appendix 2).

RECORD KEEPING

INTRODUCTIONS AND PURCHASES

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

- Date of purchase/introduction
- Vendor's name and address or Property Identification Code
- Description of the livestock including number, sex/age, brands, ear marks or tags
- Name of the selling agent and sale (if purchased at auction)
- The MAP status of the herd from which the animals originated.

You must obtain and retain a **declaration of Johne's disease status**. If you do not do this, the animals will be considered to be of Non Assessed, or possibly of lower status, thus jeopardising your herd status.

Note: Keeping the National Vendor Declaration and National Goat Health Statement, and waybill satisfies this requirement.

An example of a form you can use to record introductions and purchases is included in Appendix 4.

DEPARTURE OF SHORT TERM INTRODUCTIONS

You should keep a record of the date on which any short term introductions (eg. goats for hand mating, cattle for rearing or finishing, young goats not retained in the herd) leave the land.

TESTING RECORDS

You must maintain testing records for introduced animals. An example is provided in Appendix 4. It is not compulsory to use this form. You may wish to maintain testing records in a different format.

STRAYING ANIMALS

If any goats that are not part of the GoatMAP herd or any deer, sheep, cattle or camelids enter the land (e.g. strays or neighbours' stock) you must take the following action:

- remove the animal(s) as soon as possible after they are discovered from the GoatMAP accredited property
- record the date of the incursion, its likely duration, the description of the animals involved including age, and any individual identification and the identity of the goats in the MAP herd which were grazing the area the animal(s) entered. A record format you can use is included in Appendix 4
- notify your Approved Veterinarian immediately and work with him/her to assess the impact of the incursion on the herd status and any actions required. This may involve testing of the straying animal(s)
- identify breaks in boundary security and repair them immediately
- carry out all actions you have agreed with the Approved Veterinarian.

ROAMING AND FERAL ANIMALS

Herds which have feral goats and deer roaming onto the property may achieve assessed status but this must be considered in the flock risk assessment and documented in the flock management plan. The risk posed by the feral population may be assessed indirectly by testing of the domestic herd and by the status of any neighbouring herds and flocks that have been tested.

CHECKLIST 2.1 M – INTRODUCING LIVESTOCK**Herd Manager**

- ☐ Before introducing any goats confirm their MAP status.
- ☐ Consult your Approved Veterinarian to confirm that the animals are eligible for introduction into the herd.
- ☐ Confirm and record the additional testing requirements for animals from herds with a lower status (if required).
- ☐ Record relevant details of introduced stock, including date of departure, for short term introductions.
- ☐ Record and maintain testing details for introduced stock.
- ☐ Follow the housing, penning and quarantine requirements for livestock introduced for supervised hand-mating.
- ☐ Before introducing any eligible species confirm their MAP status and eligibility for introduction onto the property.

CHECKLIST 2.1 V – INTRODUCING LIVESTOCK**Approved Veterinarian**

- ☐ Ascertain the risk of infection from goats or other Eligible Species proposed for introduction.
- ☐ Confirm with the herd manager that animals are eligible to enter the herd.
- ☐ Carry out testing of animals introduced from herds with a lower status (as required).
- ☐ Audit the herd manager's compliance with this Element of the GoatMAP.

CHECKLIST 2.2M – DEALING WITH UNINTENTIONAL ENTRY INTO THE HERD**Herd Manager**

- ☐ Remove all strays or unintentional introductions as soon as possible.
- ☐ Record relevant details related to the incursion.
- ☐ Notify your Approved Veterinarian and in consultation determine impact and necessary actions.
- ☐ Check boundary security and make repairs immediately if required.
- ☐ Carry out any actions requested by your Approved Veterinarian.

CHECKLIST 2.2V – DEALING WITH UNINTENTIONAL ENTRY INTO THE HERD**Approved Veterinarian**

- ☐ Assess the risk of infection from the unintentional incursion.
- ☐ Determine if any action is required and notify the herd manager accordingly.

ELEMENT 3: MOVEMENT OF ASSESSED ANIMALS

On-farm systems must be implemented to minimise the risk of infection in goats from GoatMAP herds when they are moved to or from the property, if the MN status of the animals is to be retained, either for return to the herd or onward sale or movement.

INTRODUCTION

Animals usually become infected with Johne's disease by consumption of food or water that has been contaminated by the faeces of infected animals. It is therefore essential that the animals in your GoatMAP herds are not allowed to eat or drink from potentially infected sources. You must observe the following procedures when moving goats on to or off your land.

WALKING

Any animals from a GoatMAP herd can be moved short distances across any land (eg. across a road) if they are closely supervised to prevent grazing or drinking.

If any goats 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 goats 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 goats and other eligible species (i.e sheep, cattle, deer or camelids) from herds in which Johne's disease is known or suspected have not run on, or otherwise contaminated, the land during the previous 12 months. You must obtain a written declaration to this effect from the person in charge of the land
- ensure that eligible species from a herd of a lower status have not been run on the land during the previous 12 months.

While goats from the GoatMAP herd are being moved, you must ensure that their access to grazing and drinking from potentially contaminated sources is minimised.

TRANSPORTING

Goats from MAP assessed herds may be transported in a well cleaned truck with non assessed animals.

There must be a solid barrier between animals from GoatMAP and Non-Assessed herds to prevent the movement of faeces.

SHOWS, STUD SALES AND EXHIBITIONS

If you are moving assessed goats from a GoatMAP herd to a show, stud sale or exhibition, it is important that they maintain their status if you want them to return to your herd or another MAP assessed herd. As well as seeking advice from your Approved Veterinarian about the risks involved, use the following procedures to minimise the risks.

Before goats from your GoatMAP herd attend a show, sale or exhibition you should either:

- sight and where possible obtain a copy of the Certificate of Compliance with the Federal Council of Agricultural Societies' Venue Audit for the particular show, sale or exhibition (see Appendix 2), which should be retained for audit purposes, or
- where a venue has not been audited, evaluate the housing and hygiene standards at the venue and discuss with your Approved Veterinarian whether the standards are adequate to ensure that the MAP status of your animals is maintained.

AGISTMENT AND HOLDING GOATS ON OTHER LAND

You may sometimes want to move goats to leased country, for agistment or to a group rearing scheme. Your goats can still retain their MAP status when they return to your land if:

- you and your Approved Veterinarian have carried out a property risk assessment of the land you want to move goats to, before the animals are moved and are satisfied with the results
- you obtain a written statement from the owner/manager of the land your goats will be moved to that it has not been stocked with eligible species of lower status during the past 12 months and that the land is not contaminated land
- you have amended your Herd Management Plan (see Element 5) to document the steps you will take to protect the herd status while goats are away
- goats are constrained by natural barriers, fences, walls or other reasonable means to ensure that they are satisfactorily confined to the land they have been moved to
- you have a written declaration from the person in charge of the land that no other eligible species will be run on the land with your goats at any time unless they are accompanied by a declaration that they originate from a herd of the same or higher MAP status.

ANIMALS THAT STRAY

Goats that stray from an assessed herd should not be returned as they could be infected and present a risk of infecting the rest of your herd. If, in exceptional circumstances, strays have to be returned, they must be isolated and the Approved Veterinarian must be consulted prior to returning the animals to the herd.

RECORD KEEPING

You must keep records for all goats dispatched from the herd for sale, slaughter or subsequent return to the herd. The records must include:

- date of sale/transaction/movement
- the destination or purchaser's/selling agent's name
- description of livestock (number, sex, age, breed and management group)
- name of transport operator and vehicle registration number (if applicable)
- reason for movement (where goats are to be returned to the herd).



Keeping the LPA NVD waybill satisfies this requirement. Also, note the reason where required.

Examples of two forms you can use are included Appendix 4 to assist your record keeping. They are also available electronically on the Animal Health Australia website.

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

- the records for goats whose MAP status is to be maintained must be signed by the Approved Veterinarian
- the records must contain all the required information.

CHECKLIST 3.1M – MOVING GOATS BY WALKING	M
Herd Manager	
<input type="checkbox"/> If there is potential for grazing or drinking during walking consult with your Approved Veterinarian and gain prior approval for the movement.	
<input type="checkbox"/> Ensure that eligible species from herds of lower status have not run on or otherwise contaminated land to be crossed during the previous 12 months.	
<input type="checkbox"/> Obtain a written declaration confirming the above from the owner of the land to be crossed.	
<input type="checkbox"/> Maintain appropriate livestock movement records.	

CHECKLIST 3.1V – MOVING GOATS BY WALKING	V
Approved Veterinarian	
<input type="checkbox"/> Ascertain the risk of infection when animals are to be moved by walking.	
<input type="checkbox"/> If you consider the risk low or minimal, provide written approval for the movement to the herd manager.	

CHECKLIST 3.2M – MOVING GOATS TO AND FROM SHOWS, STUD SALES OR EXHIBITIONS**M****Herd Manager**

- ☐ Sight the venue's Certificate of Compliance or evaluate the housing and hygiene standards at the venue prior to dispatching goats.
- ☐ Ensure truck drivers are aware of requirements for transporting GoatMAP goats.
- ☐ Inspect trucks or other transport prior to loading.
- ☐ Ensure the status of assessed goats is protected at the event.
- ☐ Complete and retain livestock movement records.

CHECKLIST 3.2V – MOVING GOATS TO AND FROM SHOWS, STUD SALES OR EXHIBITIONS**V****Approved Veterinarian**

- ☐ Assist the herd manager to assure that venue standards are appropriate.
- ☐ Ensure livestock movement forms are completed and signed.

CHECKLIST 3.3M – MOVING GOATS FOR AGISTMENT**M****Herd Manager**

- ☐ Check with your Approved Veterinarian that the land is suitable before you dispatch goats.
- ☐ Obtain declarations as required from the owner/manager of the land.
- ☐ Amend the Herd Management Plan.
- ☐ Inspect trucks or other transport prior to loading.
- ☐ If goats are exposed to animals or land of lower status during agistment consult with your Approved Veterinarian to determine if they can return to the herd.
- ☐ Carry out all actions requested by your Approved Veterinarian.
- ☐ Complete and retain livestock movement record forms.

CHECKLIST 3.3V – MOVING GOATS FOR AGISTMENT**V****Approved Veterinarian**

- ☐ Conduct a risk assessment on the land proposed for agistment with the herd manager.
- ☐ If goats are exposed to animals or land of lower status during agistment conduct a risk assessment to determine if they can return to the herd.
- ☐ Ensure that the Herd Management Plan is amended appropriately and notify the herd manager of any action required.

CHECKLIST 3.4 – ASSESSED ANIMALS STRAY FROM THE PROPERTY**Herd Manager**

- ☐ Notify your Approved Veterinarian and carry out all agreed actions.
- ☐ Distinctly identify animals that have strayed (if required).
- ☐ Determine the cause(s) of straying and rectify any boundary defects.
- ☐ Record relevant details related to the incident.

CHECKLIST 3.4V – ASSESSED ANIMALS STRAY FROM THE PROPERTY**Approved Veterinarian**

- ☐ Assess the risk of infection posed by the return of straying animals (if required).
- ☐ Determine action(s) required (if any) and notify the herd manager accordingly.

ELEMENT 4: LIVESTOCK IDENTIFICATION

Livestock identification and recording systems must be implemented in GoatMAP herds so records can be kept and stock can be traced both within the herd and following dispatch from the herd.

GETTING STARTED

To be sure you are complying with this Element of the GoatMAP you must:

- establish a stock identification system that ensures permanent individual or mob identification of all animals in the GoatMAP herd. 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. Each tested animal must be able to be individually identified
- identify each animal by brand, tattoo, ear mark, NLIS tag, other numbered ear tag, electronic implant or another method approved by the Chief Veterinary Officer
- maintain records that identify all goats on the property
- ensure that identification of kids born on the property takes place at a suitably young age (i.e. before weaning)
- ensure that all introduced animals are appropriately identified within seven (7) days of arriving on your property
- identify any animals that have been tested in any way for the purposes of GoatMAP
- identify any animals that are suspected of being infected
- attach details of your herd identification system to your Herd Management Plan (as detailed in Element 5).

RECORD KEEPING

You must keep records that identify all goats on the property. Two sample Livestock Identification Record Forms – one for goats born and reared on the property, and one for introduced or purchased stock – are included in Appendix 4. It is not compulsory to use these forms. Remember, if you choose to use an alternative format, that all the required information must be recorded.

ELEMENT 5: HERD MANAGEMENT PLAN

A Herd Management Plan must be prepared for each herd enrolled in the GoatMAP. The plan must take into account the outcomes from Elements 1, 2, 3, 4, 6 and 7 of this manual.

A Herd Management Plan is required to ensure that the status of the herd is able to be maintained and that prompt and remedial action can be taken, if and when required.

GETTING STARTED

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

PREPARING THE HERD MANAGEMENT PLAN

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

- The origin of the herd and how long it has been established
- Identification details of all animals not bred on the property including their district and property of origin
- Herd details listing each mob including number, sex and age of goats in each mob
- Details of all other Eligible Species run on the land.
- The general management system used in the herd such as mating and rearing practices, weaning and weaner management, selling and culling policies etc
- All outcomes from the initial property and herd risk assessment which 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 goats into the herd (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 and agistment, and the strategy for dealing with assessed animals that stray from the land
- How you will manage feral goats and deer roaming onto the property and assess the risk they pose
- Any changes you need to make to the livestock identification system you use in the herd, 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 herd including testing dates and mobs to be tested (as detailed in Element 6)
- Vaccination times and strategies (where vaccination is carried out)
- 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 the GoatMAP Code of Practice.

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

An example of a Herd Management Plan format you can use is included in Appendix 4 and is available electronically on the Animal Health Australia website. 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 you must both keep a copy
- the plan must contain all the required information.

WHAT ELSE MUST YOU DO?

OTHER ELIGIBLE SPECIES

Where other Eligible Species (i.e. cattle, sheep, deer and camelids) are run on the land, they are to be assessed independently under their own species' MAP. Your Approved Veterinarian may give an exemption if there are three (3) or fewer animals of another eligible species as long as:

- these animals are not sold or moved off the land with a declared or implied MAP status
- the introduction, management, and monitoring of these animals complies with all requirements of the GoatMAP
- they are tested using a test approved for their respective MAP at the same time as the goat herd is tested to maintain or progress status.

If your GoatMAP herd maintains status by vaccination, these few animals of other eligible species (including sheep that are not Approved Vaccinates) must be tested at the interval that would be appropriate for the herd's GoatMAP status (i.e. every two years for MN1 and MN2, every three years for MN3).

CONTACT YOUR NEIGHBOURS

You must write to the owners of all neighbouring properties that carry Eligible Species informing them that your herd is enrolled in the GoatMAP and ask them to:

- contact you before returning any stray animals
- notify you of any change to their herd or flock's status for Johne's disease.

An example of a letter to neighbours is provided in Appendix 4. You don't have to use this letter, so long as your letter covers the required information.

RECORD DETAILS OF NEIGHBOURS

You need to keep a record of all neighbouring properties that run goats or other eligible species together with their Johne's disease infection status and the date that you notified them of your herd's enrolment in the GoatMAP.

An example of a way to keep details of neighbouring properties is provided in Appendix 4. You may use another format, so long as you include the required information.

CHANGED DISEASE RISK

If you do something or something happens that may result in a significant change to the herd's disease risk situation (such as being advised that a neighbouring herd is infected or suspect) you must notify your Approved Veterinarian immediately. You and he/she must then review the property and herd risk assessment (as detailed in Element 1) and ensure that adequate steps are taken to minimise any risk the event has on your herd (e.g. that an appropriate barrier exists between the two herds).

TRACE FORWARD AND TRACE BACK

If you become aware that you have introduced goats from a herd that is later found to be infected (a 'trace-forward') or that goats in another herd which came from your GoatMAP herd have been found or are suspected to be infected (a 'trace-back') you must advise your Approved Veterinarian as soon as possible, who will advise the CVO.

You may continue to sell goats direct to slaughter or for restocking unless you are advised otherwise by the Chief Veterinary Officer. If you do continue to sell stock for restocking you must make a full disclosure to prospective re-stocker purchasers of the status of the animals.

CHECKLIST 5M – PREPARING A HERD MANAGEMENT PLAN**Herd Manager**

- ☐ Prepare the Herd Management Plan as detailed in this section in consultation with the Approved Veterinarian.
- ☐ Sign the Herd Management Plan and retain one copy.
- ☐ Notify all your neighbours in writing that the herd is enrolled in the GoatMAP.
- ☐ Notify your Approved Veterinarian if anything happens that may change the herd's disease risk status.
- ☐ Notify your Approved Veterinarian if you become aware of a trace-forward or trace-back from an infected herd to the GoatMAP herd.

CHECKLIST 5V – PREPARING A HERD MANAGEMENT PLAN**Approved Veterinarian**

- ☐ Provide advice and assistance to the herd manager on the preparation of the Herd Management Plan.
- ☐ Sign the Herd Management Plan and retain one copy.
- ☐ Assess the risk of infection from any event notified by the herd manager that may change the herd's disease risk status.
- ☐ Determine the actions required (if any) and notify the herd manager accordingly.
- ☐ Carry out herd testing as required if the herd manager becomes aware of a trace-forward or trace-back from an infected herd.
- ☐ Notify your CVO if you become aware of a trace-forward or trace-back from an infected herd to the GoatMAP herd.

ELEMENT 6: TESTING STRATEGIES

You must test a representative sample of the herd before it gains a status as a GoatMAP herd, and at prescribed intervals from then on to provide regular ongoing monitoring of the status of the herd.

GETTING STARTED

It is your responsibility to arrange for the Approved Veterinarian to test goats in the herd at the times required by GoatMAP.

When your herd is first enrolled in GoatMAP a representative sample of the goats in the herd is tested. Once the herd has been given a GoatMAP status it requires ongoing testing and an Annual Veterinary Review to maintain its GoatMAP herd status or to progress to a higher status.

There are two types of testing in GoatMAP:

- **Sample Test.** Sample Testing is done when a herd enrolls in the GoatMAP. A Sample Test is also required for the herd to progress to a higher status (e.g. to move from MN1 to MN2 or from MN2 to MN3).
- **Maintenance Test.** Maintenance Testing monitors the ongoing disease status of a GoatMAP herd so that it can maintain its current status.

The table below summarises the testing program.

Current status	Reason for test	Type of test
Non-Assessed (NA)	Enrol in MAP	Sample test
Check Tested (CT)	Enrol In MAP	Sample test
Suspect (SU), approved by CVO	Enrol in MAP	Test of all goats 12 months of age or older
MN1 (-V)	Progress to MN2	Sample test
MN2 (-V)	Progress to MN3	Sample test
MN1 (-V)	Maintain MN1 status	Maintenance Test
MN2 (-V)	Maintain MN2 status	Maintenance Test
MN3 (-V)	Maintain MN3 status	Maintenance Test
MN1-V with all goats Approved Vaccinates	Maintain MN1 status	Approved vaccination
MN2-V with all goats Approved Vaccinates	Maintain MN2 status	Approved vaccination
MN3-V with all goats Approved Vaccinates	Maintain MN3 status	Approved vaccination

You must ensure that adequate goat handling facilities are available for herd testing and that a suitable livestock identification system is in place to present and record the identities of the goats tested.

SAMPLE TESTING

A Sample Test involves screening the whole adult herd or, in very large herds, a representative sample (that is a sample large enough to accurately represent the whole herd) of adult animals to provide a high level of assurance that the goats have a low risk of being infected with Johne's disease. Sample Testing is required when a herd enrolls in the GoatMAP and when you want the herd to progress to a higher MAP status.

HOW IS THE TESTING DONE?

Sample tests can be done using Pooled Faecal Culture Tests or a serological screening test (ELISA) on blood.

Pooled Faecal Culture

The Pooled Faecal Culture (PFC) test is now approved for sample and maintenance testing for the GoatMAP. Pooled faecal culture of pooled samples comprises screening with radiometric (Bactec) culture and additional testing of any positive pools. The status of all animals contributing to a positive pool must be clarified before the herd's status can progress.

Serological Screening

Testing involves a serological screening test (ELISA) on blood. The test is unlikely to detect infection in animals younger than 12 months so only goats over that age are tested. Any animals that return a positive result on the ELISA (called reactors) are investigated further either by culturing of a faecal sample or by slaughter and a laboratory examination of samples collected at a post-mortem.

INITIAL SAMPLE TEST

In the test when the herd is first enrolled in the MAP the sample is selected from all goats 12 months of age or older, no matter how long they have been part of the herd. All introduced bucks 12 months of age or older must be tested. Where the testing is done by Pooled Faecal Culture, these bucks must be tested as a separate additional pool. If the Sample Test returns any positive results they are investigated further.

How many animals are tested depends on two things:

- **The size of the herd**

If the herd contains fewer than 450 animals to be tested by PFC or 425 animals to be tested by serology that are 12 months of age or older they are all tested. In larger herds a sample is selected and tested. The maximum number of animals in very large herds that are screened by serology is 500 and by PFC is 450. The number of animals to be selected and the method of selection are covered in Appendix 1.

- **The status of the herd**

In a Suspect herd, all animals over 12 months of age must be included in the initial sample test, irrespective of the size of the herd.

SUBSEQUENT SAMPLE TESTS

After the Sample Test that determines the herd's initial MAP status, you must arrange for a Sample Test if you want to progress to the next herd status. To move to the next herd status you must arrange a Sample Test 22 to 26 months after the previous Sample Test or Maintenance Test.

SELECTING THE GOATS TO BE TESTED

Pooled Faecal Culture

The selection of animals for these tests needs to be made as follows:

- The sample is selected from all goats that are 12 months of age and older
- In a herd with fewer than 450 adult goats, all goats over 12 months of age must be tested
- All introduced bucks 12 months of age and older are to be included in the sample (as a separate pool)
- Any breeding animals introduced to the herd from a herd of a lower status (e.g. in an MN2 herd from an MN 1 herd) must be tested unless it is more than 4 years since they were introduced or the herd of origin has since achieved the same herd status.

You should select the goats to be sampled to include any in poor condition and then select the remainder systematically. A procedure and form for selecting goats and recording those selected is included in Appendix 4 and is also available electronically from the Animal Health Australia website. 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.

You should select the goats to be tested by following your Approved Veterinarian's instructions. (See Appendix 1 on selecting goats for Sample Tests).

Serological Screening

The selection of animals for these tests needs to be made as follows:

- The sample is selected from all goats that are 12 months of age and older
- In a herd with fewer than 450 adult goats, all goats over 12 months of age must be tested
- All introduced bucks 12 months years of age and older are to be included in the sample
- You should not include females if they are expected to kid in the next 30 days or have kidded in the last 30 days. (Serological tests during this period may be unreliable)
- Any breeding animals introduced to the herd from a herd of a lower status (e.g. in an MN2 herd from an MN 1 herd) must be tested unless it is more than 4 years since they were introduced or the herd of origin has since achieved the same herd status.

Note

The goats selected must be individually identified prior to the collection of blood samples and **must remain individually identifiable**. An example of a format for keeping these records is included in Appendix 4. It is not compulsory to use this form. Remember that if you choose to use an alternative format, all the required information must be recorded.

MAINTENANCE TESTING

Maintenance Testing is used to monitor the ongoing disease status of your GoatMAP herds if you do not wish to progress to a higher MAP status. The table below sets out how often you must undertake Maintenance Testing.

Current status	Testing required*
MN1 or MN2	Maintenance test every 2 years after the previous Sample Test or Maintenance Test
MN3	Maintenance test every 3 years after the previous Sample Test or Maintenance Test

* Remember whether your herd is maintaining or progressing in MAP status an Annual Veterinary Review must be undertaken each year

The Maintenance test is conducted on 50 goats from the herd that are selected to maximise the chance of including animals most likely to be infected and most likely to react to the test. This includes:

- animals in poor condition
- older animals
- introduced animals, taking into consideration the herd and the zone/region they came from, their contact with other potentially infected herds and any other relevant information.

If you do not have any goats in these high risk groups, the sample should be selected systematically from all mobs in the herd.

You should select the goats 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.

A negative Maintenance Test for goats will comprise testing the selected animals by:

- Either the PFC, or the ELISA, or AGID or individual faecal culture with negative follow up testing of all serological reactors or inconclusive faecal cultures (as per the Investigation of reactors section)
- by ELISA, AGID or individual faecal culture and follow-up testing of all serological reactors by faecal culture or by post-mortem and histopathology with negative results.

TESTING INTRODUCED BREEDING ANIMALS

If you introduce breeding animals into your GoatMAP herd from a herd with a lower MN status, or to MN1 herds from a herd not in GoatMAP as permitted in Element 2, you should follow the testing protocols set out in Element Two, Section Two.

TESTING OUTCOMES

Note

You cannot dispose of tested goats until test results are confirmed as negative or follow-up investigations are completed. Where possible, sampled goats should be run as a group separated from the rest of the herd until the test results are known. This makes it easier to ensure that none disappear and that reactors can be located and isolated if necessary.

WHAT CONSTITUTES A NEGATIVE TEST?

A Sample or Maintenance Test conducted using a blood test is deemed to be negative if:

- all goats tested by the screening test are negative, or
- all reactors (animals which test positive) are followed up by faecal culture or slaughtered for post-mortem examination and histopathology are found to be negative.

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

- all pools are negative on radiometric (Bactec) culture (PFC negative)
- all positive radiometric (Bactec) pools are negative on Polymerase Chain Reaction (PCR) and solid media subculture, or
- all positive radiometric (Bactec) 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 blood or PFC tests done in a Sample or Maintenance test yields a positive result, you must undertake the follow-up procedures your veterinarian requires within one month of the date of the laboratory results, unless the CVO agrees to a different timeframe. The procedures are outlined in Appendix 4. Provided this follow-up occurs, the status of the herd will not change until the follow-up investigation is completed. However, if these timeframes are not met, the herd status will become Suspect (SU).

EFFECTS OF TEST RESULTS ON HERD STATUS

The outcome of the combined results of the serological (blood) screening test and follow up tests on herd status is presented in the following table.

Serological screening testing	Individual faecal culture or post mortem examination	Result	Herd Status
Negative	Not required	Negative	Progress status (if Sample Test) Maintain status (if Maintenance Test)
Positive	Negative	Negative	Progress status (if Sample Test) Maintain status (if Maintenance Test)
Positive	Not conducted	Suspicious test (SUSPECT)	Suspect
Positive	Positive	Positive test (INFECTED)	Infected

The outcome of the combined results of the PFC screening test and repeat faecal culture tests on herd status is presented in the following table, assuming no infected animals are detected in the required blood testing.

Pooled faecal culture	Repeat faecal culture	Result	Herd Status
Negative radiometric (Bactec) culture	Not required	Negative test	Progress status (if Sample Test) Maintain status (if Maintenance Test)
Positive radiometric (Bactec) culture; positive PCR; negative on solid media i.e. 'DNA consistent with <i>M. ptb</i> '	Negative radiometric (Bactec) culture	Negative test	Progress status (if Sample Test) Maintain status (if Maintenance Test)
Positive radiometric (Bactec) culture; positive PCR; negative on solid media i.e. 'DNA consistent with <i>M. ptb</i> '	Positive radiometric (Bactec) culture; positive PCR; negative on solid media i.e. 'DNA consistent with <i>M. ptb</i> '	Suspicious test (SUSPECT)	Suspect
Positive radiometric (Bactec) culture; positive PCR; negative on solid media i.e. 'DNA consistent with <i>M. ptb</i> '	Positive radiometric (Bactec) culture; <i>M. ptb</i> isolated on solid media subculture; PCR positive (to either radiometric culture or subculture)	Positive test (INFECTED)	Infected
Positive radiometric (Bactec) culture; <i>M. ptb</i> isolated on solid media subculture; positive PCR (either Bactec or subculture)	Not required	Positive test (INFECTED)	Infected

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

If a herd is withdrawn from the GoatMAP, all animals which were serological reactors must be permanently identified. You and Approved Veterinarian must notify the CVO and investigate all reactors according to the requirements of the policy in your state.

TESTING AS PART OF THE ANNUAL VETERINARY REVIEW

Testing is undertaken in conjunction with the Annual Veterinary Review in years when Sample or Maintenance Tests are not being performed. In these years testing must include post-mortem examination of up to three abnormally thin goats (if available, taking into account the enterprise and seasonal conditions), if this has not been undertaken in the year since the last review. If there are any gross lesions suggestive of Johne's disease, the full range of specimens for laboratory examination must be collected.

Where three appropriate thin goats are not present in the herd, the Approved Veterinarian must certify that the herd has been examined and that 0, 1 or 2 thin goats have been identified and post mortemed, with collection of appropriate specimens for laboratory examination where there were any lesions suggestive of Johne's disease.

CHECKLIST 6M – TESTING HERDS**Herd Manager**

- ☐ Determine current status of herd in consultation with Approved Veterinarian and the type of test required eg. Sample or Maintenance Test.
- ☐ Schedule Approved Veterinarian to carry out required test.
- ☐ Ensure adequate goats handling facilities available for testing and that a suitable livestock identification system is in place to present and record the identities of the goats tested.
- ☐ In consultation with the Approved Veterinarian determine number of animals to be sampled from each mob.

CHECKLIST 6V – TESTING HERDS**Approved Veterinarian**

- ☐ Conduct herd testing as requested by the herd manager.
- ☐ Record and maintain test results.
- ☐ Conduct follow-up testing on reactors as required.
- ☐ Provide herd manager with test results.
- ☐ Notify the CVO if infected animal(s) are detected and remove the herd from GoatMAP.
- ☐ Notify the CVO of the herd's status change.

ELEMENT 7: VACCINATION

To help protect the herd, approved vaccination may be undertaken using Gudair™ vaccine. GoatMAP herds that are fully vaccinated can maintain their current GoatMAP status by Annual Veterinary Reviews and approved vaccination of young kids. To advance an MN-V status, herds must undertake a Sample Test with negative results.

CAUTION: Gudair™ causes chronic inflammation and should be handled and used with care. Avoid accidental self inoculation and seek medical attention immediately should this occur. See the vaccine package for further information and contact details.

BACKGROUND INFORMATION

As a means of providing further assurance, you can vaccinate kids in your GoatMAP herd. If your GoatMAP herd is at risk of infection from strays or animals from neighbouring herds or flocks, you are encouraged to seriously consider the added protection provided by vaccination with the killed vaccine, Gudair™.

If you vaccinate kids annually in addition to complying with the other conditions of the GoatMAP your herd will be assigned the relevant GoatMAP status with a V added to it (eg MN1-V, MN2-V) followed by the year in which the current MN level was initially obtained. For example, MN2-V 2007 indicates a Monitored Negative 2 herd, where all goats were initially vaccinated and all kids are vaccinated annually, and which first obtained its vaccinated status in 2007. Once vaccination commences in a herd, advances in status can only be achieved using Pooled Faecal Culture. A plan needs to be developed and documented with your Approved Veterinarian about how long the vaccination is going to continue in the herd.

You can maintain the MNn-V status of your approved vaccinated herd by:

- initial approved vaccination of all goats
- annual veterinary reviews
- annual vaccination of kids
- only Approved Vaccinates being introduced to the herd.

In this case your whole herd comprises Approved Vaccinates. You do not need to undertake a Maintenance Test to maintain herd status in a vaccinated herd that meets these requirements.

VACCINATION REQUIREMENTS **V**

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

- Vaccinate all goats in the herd initially if you intend to maintain the MN status of the herd by Annual Veterinary Reviews and vaccination
- Vaccinate all kids born on the property each year before the oldest kids are 16 weeks of age
- Ensure all introductions to the herd are Approved Vaccinates
- Tag all vaccinated animals with an Approved Vaccination Tag
- Maintain vaccination records detailing the number and type of goats vaccinated and the method of identification. A suggested format is included in Appendix 4 and is available electronically on the Animal Health Australia website. 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
- Remember that in some states Gudair is a regulated vaccine only available from DPI, and vaccinators must undergo training in the use of Gudair vaccine
- Retain copies of the state authorisation allowing vaccination (where applicable)
- Retain copies of all Vendor Declarations that state that goats sold or moved to and from the herd have been vaccinated.

ELEMENT 8: MAINTAINING YOUR GOATMAP SYSTEMS

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

Records shall be kept to provide documentary evidence of compliance with the GoatMAP and provide a mechanism to assist in independent auditing of your GoatMAP 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.

THE IMPORTANCE OF MAINTAINING THE SYSTEM

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

The on-farm biosecurity systems that you have in place must be demonstrated. Therefore it is important that you ensure three things are being managed well on your property:

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

RECORD KEEPING

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

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 herd (both currently and in the past)
- show how you are managing your herd 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 and Annual Veterinary Reviews that have been carried out on your herd and the results of the tests
- show you are complying with the review requirements of GoatMAP (for example, completed copies of corrective action reports showing how you have corrected non-compliances).

ARE THERE SPECIFIC FORMS I HAVE TO USE?

With a few exceptions, you can keep your MAP records in the way that best suits you and that fits in best with your other record keeping needs and systems.

Some records must be kept in a specific format:

- your herd status certificate
- your document register
- notification of MAP Herd/Herd Details & Status/Expiry (which will be supplied by your Approved Veterinarian)
- the agreement you make with your Approved Veterinarian to participate in GoatMAP.

For all other aspects of GoatMAP, recommended record formats have been developed. They include all the information you must keep. A blank copy of each one is in Appendix 4. 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. To make it easier for you to adapt the forms, they are available electronically on the Animal Health Australia website. www.animalhealthaustralia.com.au

WHO KEEPS THE RECORDS?

Both you and your Approved Veterinarian need to keep records. You must keep a copy of *all* documents that relate to GoatMAP on your property for at least the minimum period indicated on the archive register.

The Approved Veterinarian must keep a copy of:

- the agreement you and he/she have made
- the herd status certificate
- notification of MAP Herd/Herd Details & Status/Expiry Date
- test results
- recommendations for any corrective actions required, including the timeframe for compliance.

HOW LONG MUST RECORDS BE KEPT FOR?

You and/or your Approved Veterinarian must keep the records for at least the minimum period indicated on the archive register (generally five 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.

DOCUMENT CONTROL

GoatMAP requirements change from time to time. These changes may require you to:

- 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 herd management and administration activities on the current requirements of GoatMAP.

You should:

- ensure that your GoatMAP manual is up to date. When Animal Health Australia notifies you of an amendment to the manual make sure that you make the changes to your printed copy
- check the Animal Health Australia website regularly for updates, amendments and reports that may be new
- regularly check that you are using the current version of any compulsory forms and that any forms you have modified from their recommended format still comply with GoatMAP 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).

CONDUCTING OR PARTICIPATING IN REVIEWS AND AUDITS

A crucial part of the GoatMAP system is the various review processes that everyone involved, including, herd managers, Approved Veterinarians, state authorities, and even the Animal Health Committee, is expected to take part in.

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

Your GoatMAP herd will be audited at three levels:

- internal reviews
- annual veterinary reviews
- external audits.

INTERNAL REVIEWS

System Monitoring Reviews

The best way to ensure that you are continuing to comply with the requirements of GoatMAP 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 GoatMAP activities and maintaining up-to-date, accurate and reliable records containing 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?

You do – or an appropriately trained and skilled member of your staff. 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?

Appendix 4 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 will probably occur from time to time. For example, neighbours' animals may stray onto land on which the herd is run or an animal may lose its identification.

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

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

Generally, five questions are asked 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?

Answering these five questions should ensure that the problem is 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. It is done by your Approved Veterinarian. This review is critical to the ongoing MN status of your herd and is also the ideal opportunity for you and your Approved Veterinarian to identify ways to improve your systems and procedures.

EXTERNAL AUDITS

All MAP herds are audited externally once every three years. Audits are generally done on only a proportion of herds in the program in any one year. There may be circumstances where a herd requires additional auditing.

Failure to participate in an external audit within 2 months after the final date designated by Animal Health Australia is a critical defect which results in the herd status being demoted to Non-Assessed.

These audits focus on compliance with the program by herd managers, veterinarians, laboratories and state authorities. The basis for the audit system is the herd audit which will verify the official herd status. Audits involve detailed examination of your procedures and documentation, including:

- checking the Herd Management Plan and the agreement you have with your Approved Veterinarian
- comparing your testing records against the herd status certificates
- checking records of movements onto and off the property
- checking your compliance with the herd management plan.

Audits of other aspects of the system are also carried out and additional elements may be audited as issues are identified by herd audits such as:

- checking herd status certificates against the departmental record
- obtaining testing records from approved laboratories and checking them against your records
- checking investigation of reactors against property, abattoir and laboratory records.

AUDITS OF APPROVED VETERINARIANS

Approved veterinarians who are actively participating in the GoatMAP may be audited to ensure that both they and herds under their supervision are complying with the program.

These audits include checks that:

- prescribed testing procedures have been followed, including the selection of goats for sampling and the follow-up of positive results
- prescribed time intervals have been observed
- herds meet the criteria for the status assigned by the veterinarian
- the annual reviews have been completed
- adequate herd records are kept
- adequate details are provided with laboratory submissions.

AUDITS OF STATE AUTHORITIES

State authorities overseeing the GoatMAP may be audited to ensure that the herd status recorded officially correlates with that assigned by the Approved Veterinarian.

MAINTENANCE OF LABORATORY STANDARDS

Performance of laboratories and tests is a critical part of the program. This is monitored by SCAHLS through its Johne's Disease Quality Plan and, where necessary, laboratories are externally audited. Where a laboratory's performance is inadequate, the CVO can withdraw its approval to perform GoatMAP testing.

ADDITIONAL HERD AUDITS

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

- if you change Approved Veterinarian. Depending on the circumstances in which this occurs, your herd may be subject to audit during the following twelve months
- where a major or critical defect (see below) involves the actions of your Approved Veterinarian. Your herd may be audited even if it was not involved in the major defect
- if an audit is requested by someone who intends to buy goats from your herd and you agree, in this case, all costs (yours and the Approved Veterinarian's) would be met by the person making the request.

APPROVED AUDITORS AND THE COST OF AUDITING

When advised by Animal Health Australia that your herd is due for audit you will need to organise and meet the costs of routine external audits but some industry subsidies may be available (the Animal Health Australia website has details).

Only auditors approved and listed by Animal Health Australia can conduct GoatMAP audits. Where these auditors are also approved for other quality programs such as Cattlecare, the audits may be conducted with one another.

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 GoatMAP
- 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. Any other result means you will need 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 practices, but which is not a deliberate attempt to compromise the integrity of the GoatMAP. It needs immediate attention. Examples could include:

- major inaccuracies or omissions in record keeping
- unsatisfactory submission of samples for testing.

A major defect is immediately and fully reported to all parties involved. The Approved 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 Approved 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 GoatMAP 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 Market Assurance Program (or the Accreditation Program for Australian Veterinarians). 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:

- failing to have an appropriate herd management plan in place
- not disclosing positive herd test results
- substituting animals/samples
- introducing animals from an infected herd
- failing to keep essential records
- false certification
- failing to investigate reactors
- failing to rectify previous major defect/s found at audit
- selling goats as MN while suspicious tracings are being investigated, without written notification to buyers
- selling goats as MN while reactors remain unresolved, without written notification to buyers.

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

CHECKLIST 7M/V– MAINTAINING YOUR GOATMAP SYSTEMS



Herd Manager Veterinarian

- ☐ Keep the required records in a suitable format and retain them as required.
- ☐ Control the documents that are part of your GoatMAP compliance.
- ☐ Participate in and conduct the required internal reviews and external audits.

APPENDIX 1

TESTING STRATEGIES

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

The goats to be tested in the herd must be selected by the procedures that follow, to be 95% confident of detecting disease if it is present across the mob in at least 2% of the goats aged 12 months and over.

The goats selected must be individually identified prior to the collection of blood or faecal samples and **must remain individually identifiable**. An example of a format for keeping these records is included in Appendix 3. It is not compulsory to use this form. Remember that if you choose to use an alternative format, all the required information must be recorded.

In a Suspect herd, all animals over 12 months of age must be included in the initial sample test, irrespective of the size of the herd.

1. Serological screening

- The selection of animals for these tests needs to be made as follows:
- The sample is selected from all goats that are 12 months of age and older.
- In a herd with fewer than 425 over 12 months of age, all of these goats must be tested.
- In larger herds, a sample is serologically selected and tested according to Table 1. The maximum number of animals in very large herds that are screened by serology is 500.
- All introduced bucks 12 months years of age and older are to be included.
- Females that are expected to kid in the next 30 days or have kidded in the last 30 days should not include. (Serological tests during this period may be unreliable.) If the herd has fewer than 425 adult goats it may be appropriate to test these animals at a later time.
- In addition to the calculated sample size, any breeding animals introduced to the herd from a herd of a lower status (e.g. in an MN2 herd from an MN 1 herd) must be tested unless it is more than 2 years since they were introduced or the herd of origin has since achieved the same herd status.
- Calculate the proportion of the herd represented by each mob.
- For each mob calculate the number to be sampled by multiplying the proportion of the herd that it represents by the total number of goats to be sampled. For example, in a herd with 900 goats over 12 months old, a total of 460 goats has to be sampled. The herd includes a mob of 300 aged does. As these represent one-third of the herd, the number of aged does to sample from this mob would be $0.333 \times 460 = 153$.
- Within each mob the goats to be sampled should be selected by an unbiased method unless there are obviously poorer animals in the mob in which case the sample should be biased to include them. These low condition animals should be chosen first and the balance of the mob selected systematically by drafting off every nth goat that comes up the race.

In the above example, assume that there were 11 unthrifty does in the mob. These are included in the sample of 153, leaving 142 to select from the remaining 449 does i.e. about one in every three does. To select the first doe to sample, select a number at random between one and three (inclusive). Sample that doe and then every third doe that follows up the race. Repeat a similar procedure in the other mobs to sample the total number of 460 goats.

Table 1. The number of goats (over 12 months of age) to be sampled from a herd using SEROLOGY (ie the AGID or ELISA test) to provide 95% confidence of detecting infection at a prevalence of at least 2%.

No of goats over 12 months	SEROLOGY
425 or fewer	ALL
450	425
500	431
550	437
600	442
700	449
800	455
900	460
1000	464
1200	469
1400	474
1600	477
1800	479
2000	481
2200	483
2400	484
2600	485
2800	486
3000	487
3500	489
4000	490
5000	492
10000	496
Maximum	500

2. Pooled Faecal Culture

The selection of animals for these tests needs to be made as follows:

- The sample is selected from all goats that are 12 months of age and older.
- Pools comprise single faecal pellets from each of 10 to 25 goats.
- The maximum number of animals in very large herds that are screened by PFC is 450.
- In a herd with fewer than 450 goats over 12 months of age, all of these animals must be tested.
- All introduced bucks 12 months of age and older are to be included (as a separate pool).
- Any breeding animals introduced to the herd from a herd of a lower status (e.g. in an MN2 herd from an MN 1 herd) must be tested unless it is more than 2 years since they were introduced or the herd of origin has since achieved the same herd status.

The goats to be sampled should first include any in poor condition and then the remainder selected systematically. A procedure and form for selecting goats and recording those selected is included in Appendix 3 and is also available electronically from the Animal Health Australia website. 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.

3. Faecal sample collection for Pooled Faecal Culture submissions

- One faecal pellet is required from each goat selected for sampling. If no pellet can be collected, the animal should be identified and collection attempted when the remaining goats in that pool have been sampled. Alternatively, a substitute sample from an additionally selected goat may need to be collected.
- Collect one pellet from each goat into a sterile plastic jar with a maximum of 25 and a minimum of 10 pellets per jar. Keep count of the number of pellets per jar and do not exceed 25. In herds with less than 450 adult goats, ensure all pools have faecal material from a minimum of 10 goats/pool. (For instance, if there are 358 goats to sample, collect 13 pools of 25 from 325 goats and two pools of between 10 and 25 from the remaining 33).
- Change gloves for collection of faeces between each pool to prevent cross-contamination of pools.
- To avoid contamination of a pool from a goat 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 goat has soft/watery faeces, collect an amount similar to a normal pellet.
- Ensure proper labelling of each pool to enable identification of goat which have contributed to that pool. Record ear tag number/colour or brand details for each group of goats 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 three 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 Appendix 3 of this manual and is also available online at: [http://www.animalhealthaustralia.com.au/programs/jd/maps\\$/goatmap.cfm](http://www.animalhealthaustralia.com.au/programs/jd/maps$/goatmap.cfm).

It is not compulsory to use this form and veterinarians may wish to use an alternative recording format.

4. Disposal of tested animals

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

5. Investigation of serological reactors

Sample or Maintenance Testing using serology involves screening, using the Agar Gel Immunodiffusion (AGID) test or ELISA, and subsequent follow-up of any reactors.

The status of all reactors must be clarified before a herd's status can progress. No reactor may be disposed of, or slaughtered, unless it is done as part of a follow-up investigation by the Approved Veterinarian.

Reactors must be identified and held in a secure area, preferably isolated, as soon as possible and must be slaughtered for follow-up investigation (histopathology and, if necessary, tissue culture) within one month of the date of the positive serological result being reported.

A Test Results – Handling of Reactors Form is provided in Appendix 3. It is not compulsory to use this form and veterinarians may wish to use to record the results in another format.

6. Investigation of positive radiometric (Bactec) pools

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

The status of all animals contributing to a Bactec positive pool must be clarified before a herd's status can progress. Pools are considered positive to the screening test if positive growth is detected in Bactec culture. Positive pools require additional testing using:

- Polymerase Chain Reaction (PCR) on the Bactec culture
- Subculture from the Bactec sample 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 Bactec 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 or the Bactec culture but negative on subculture on solid media, goats 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 CVO.

No tested goats 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.

7. Faecal Culture Follow-up Test

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

PCR +ve, Solid media –ve, All goats present

Where one or more pools are positive on PCR of Bactec culture but negative on subculture on solid media and ALL goats which contributed to the relevant PFC pools are present:

- Collect blood and faecal samples from all goats in PCR positive/solid media subculture negative pool(s) and submitted for serology and PFC testing. Faecal samples must be submitted in pools of up to 25 (in the same groupings as occurred at the initial sampling).
- If any serological reactors are found in this test, the animals must be subject to autopsy and histological examination (and if necessary tissue culture) as set out in “Specimens to be Collected for Follow-up of Serological Reactors” below.
- If no serological reactors occur or all reactors are negative on histology AND the repeat faecal culture, the result will be considered as a negative Sample Test.
- If no serological reactors occur or all reactors are negative on histology AND the repeat faecal culture result is positive on PCR of Bactec culture but negative on subculture on solid media, the result will be considered inconclusive and additional monitoring as determined by the CVO will be required.
- If a goat 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 goat NOT present

Where one or more pools are positive on PCR of Bactec culture but negative on subculture on solid media and all goat 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 goats in a pool are unable to be located, one additional pool derived from the same mob(s) as the missing goat(s) 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 goat(s) 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 goat(s) 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 25 goats) 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 to allow further sampling of goat from the appropriate mob if any animals are missing.

Note: Where vaccinated animals are present in groups of goats that require a Faecal Culture Follow-Up Test, serological testing cannot be used.

8. Specimens to be Collected for Follow-up of Serological Reactors and Investigation of Suspect Cases

The standards for diagnosis of Johne's disease are determined by Veterinary Committee's Sub-committee on Animal Health Laboratory Standards (SCAHLs). The diagnostic techniques for Johne's disease are improving and, as necessary, SCAHLs will advise approved laboratories of changes to standard procedures and specimens to be examined. As knowledge of the distribution of lesions in infected goats improves, the tissues examined by histopathology and culture may be amended.

Follow up investigations must be conducted for:

- any goat that reacts to a serological test (reactor)
- goats that are members of a pool that is positive on radiometric culture and require further investigation as outlined above
- suspect clinical cases.

Note: Where the goat herd has had direct or indirect contact with sheep, there is a risk that they may be infected with ovine strains of *M. paratuberculosis*. This may include herds where goats in the herd have had contact with other goats that have had contact with sheep. In these circumstances any follow-up examination by culture of faeces or tissues must be undertaken at a laboratory approved to undertake culture of ovine strains of *M. paratuberculosis*.

There are specific sample requirements depending on the type of test conducted.

Where faecal culture is required, the following must be submitted to an approved laboratory:

1. specimen advice form, with full details of the history and post-mortem findings
2. blood sample
3. faecal sample, collected directly from the rectum of the goat using a clean glove into a sterile container. Submit the sample chilled but not frozen to the laboratory within 24 hours.

Where post-mortem examination is required the following must be submitted to an approved laboratory:

1. specimen advice form, with full details of the history and post-mortem findings
2. blood sample
3. fresh samples for tissue culture and preserved samples for histopathology, after a thorough examination of the intestine and associated lymph nodes:
 - a) any tissues with gross lesions suggestive of Johne's disease
 - b) the entire ileo-caecal valve including the 5cm of ileum immediately adjacent to it
 - c) three additional 5cm pieces of small intestine taken at about one metre intervals anterior to the ileocaecal valve
 - d) ileocaecal lymph nodes
 - e) ileal (also called terminal mesenteric or caudal jejunal) lymph node
 - f) piece of caecum
 - g) piece of proximal colon
4. faeces for faecal culture as above.

Sites for tissue sampling: Please refer to Appendix 3.

APPENDIX 2

GUIDELINES FOR SHOWS, SALES AND EXHIBITIONS

Organisers

Officials need to be mindful of the following important aspects of Johne's disease control:

- When goats from different sources are mixed there is a risk of disease spreading if it is present
- The bacteria causing Johne's disease can survive for long periods in the environment and the risk of infection increases with increased contamination
- The most likely method of spread of Johne's disease is by the faeces of infected animals being ingested by other animals
- The risk of spreading can be reduced and more easily managed by good hygiene or separation of animals of different status
- Ingestion of the bacteria causing Johne's disease may occur by goats drinking contaminated water and eating contaminated feed
- Goats from herds assessed under the GoatMAP may be jeopardising their status if they mix with non-assessed goats under conditions where disease may spread.

Preventing spread of Johne's disease among animals at shows or sales and protection of the status of goats from herds assessed under the Market Assurance Program depends on:

- **good hygiene** combined with some separation of assessed and non-assessed goats to prevent the ingestion of faeces or contaminated feed and water
- **entry requirements** that reduce the risk of infected animals coming to shows or sales.

Owners and Approved Veterinarians

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

Each Approved Veterinarian need not audit the particular venue but must advise owners of assessed herds as to whether the status of the herd will be maintained or downgraded to a lower status if they return goats to the assessed herd, or send goats to another assessed herd after the show or sale.

The level of hygiene management and the potential contact between goats from assessed herds and goats or other eligible species of non-assessed or lower status must be considered.

Venue Audit

The Federal Council of Agricultural Societies has endorsed a Venue Audit and compliance Certificate to facilitate compliance of venues with standards that would protect the low risk status of herds from Free and Protected Zones and from MAP assessed herds.

Although it is not compulsory that venues be audited, it is strongly recommended. Such a standard visible process for approving venues has benefits to both show and sale organisers and to exhibitors.

Approval of a venue will be undertaken by an Approved Veterinarian appointed by the show society with the Chief Steward or his or her representative as follows:

- a venue management plan will be prepared with the approved veterinarian at least 14 days before animals enter the venue
- the Approved Veterinarian will also audit the venue for compliance immediately before animals are brought to the venue and will issue a certificate of compliance to be displayed for exhibitors at the event.



Separation

- 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 goats use facilities.
- Owners will ensure that animals from assessed herds are transported to the show or sale in compliance with Section 5.11.
- There will be a space of at least two metres or a solid wall between goats from assessed and non-assessed herds housed or stalled in the one facility at the same time. Separate buildings are not essential and assessed goats may be separated from non-assessed goats within lines of each breed.
- All goats need to be adequately supervised at the venue.
- All goats will be restricted to their designated area by tethering or some other means of restraint or penning when not being led.
- Assessed goats and non-assessed goats will not share watering troughs, washing areas, tie-up points or isolation areas.

Hygiene Management

- Goats will be fed and watered above ground level.
- The floors of the sheds and stalls housing assessed goats will be cleaned and washed of faecal material or covered before assessed animals enter the facility.

Note: If assessed goats are to be housed in areas that cannot be cleaned or covered, and where non-assessed goats or other susceptible species have been previously, then the rules of movement of assessed animals in Element Three 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 goats do not have access to areas, fixtures, bedding etc, that are contaminated by other herds.
- Sick goats will be isolated if Johne's disease is considered a possibility.

Entry Requirements

Bearing in mind their responsibilities in regard to the spread of disease at an event under their supervision, show and sale organisers will determine what entry standard they will impose for the event. As long as venue management is conducted as described in this Appendix, entry requirements for Johne's disease are determined by the organising committee. There may be additional legislative requirements for movement across zone boundaries.

The requirements 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.

Please note:

- Where an organiser applies an entry requirement for Johne's disease that incorporates testing, tests should only be conducted on animals over 12 months of age, and within 6 months of the event.
- If goats are tested, allow sufficient time for follow-up investigation and resolving positive screening tests.

APPENDIX 3

SPECIMENS TO BE COLLECTED FOR FOLLOW-UP OF REACTORS AND INVESTIGATION OF SUSPECT CASES

The standards for diagnosis of Johne's disease are determined by Veterinary Committee's Sub-committee on Animal Health Laboratory Standards (SCAHLs). The diagnostic techniques for Johne's disease are improving and, as necessary, SCAHLs will advise approved laboratories of changes to standard procedures and specimens to be examined. As knowledge of the distribution of lesions in infected goats improves, the tissues examined by histopathology and culture may be amended.

To ensure that the required information and specimens are available for laboratory examination, the following must be submitted to an approved laboratory for follow-up investigation of:

- reactors as required by section 6.4
- suspect clinical cases as required by section 7.1.

Note: Where the goat herd has had direct or indirect contact with sheep, there is a risk that they may be infected with ovine strains of *M. paratuberculosis*. This may include herds where goats in the herd have had contact with other goats that have had contact with sheep. In these circumstances any follow-up examination by culture of faeces or tissues that is required by section 6.4 or 7.1 must be undertaken at a laboratory approved to undertake culture of ovine strains of *M. paratuberculosis*.

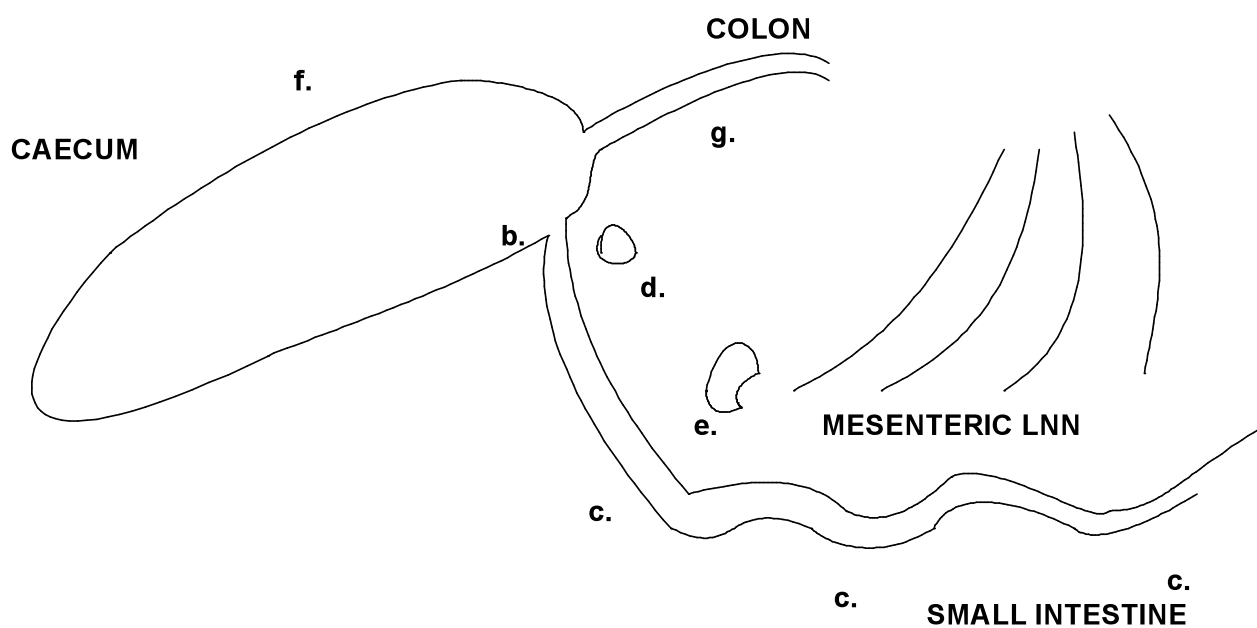
Where faecal culture is required the following must be submitted to an approved laboratory:

- specimen advice form, with full details of the history and post-mortem findings
- blood sample
- faecal sample, collected directly from the rectum of the goat using a clean glove into a sterile container. Submit the sample chilled but not frozen to the laboratory within 24 hours.

Where post-mortem examination is required the following must be submitted to an approved laboratory:

- specimen advice form, with full details of the history and post-mortem findings
- blood sample
- fresh samples for tissue culture and preserved samples for histopathology, after a thorough examination of the intestine and associated lymph nodes:
 - any tissues with gross lesions suggestive of Johne's disease
 - 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 anterior to the ileocaecal valve
 - ileocaecal lymph nodes
 - ileal (also called terminal mesenteric or caudal jejunal) lymph node
 - piece of caecum
 - piece of proximal colon
- faeces for faecal culture as above.

Sites for tissue sampling:



APPENDIX 4

RESOURCES AND FORMS

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ELEMENT 1	AGREEMENT BETWEEN HERD OWNER AND APPROVED VETERINARIAN
ELEMENT 1	PROPERTY AND HERD RISK ASSESSMENT
ELEMENT 1	BOUNDARY INSPECTION RECORD
ELEMENT 2	INTRODUCED ANIMALS
ELEMENT 2	RECORD OF TESTING: INTRODUCED ANIMALS
ELEMENT 2	STRAYING ANIMALS
ELEMENT 3	LIVESTOCK MOVEMENT RECORD (FOR GOATS WHERE STATUS IS TO BE MAINTAINED)
ELEMENT 3	LIVESTOCK MOVEMENT RECORD (FOR GOATS WHERE STATUS IS NOT TO BE MAINTAINED)
ELEMENT 4	LIVESTOCK IDENTIFICATION RECORD (STOCK BORN AND REARED ON THE PROPERTY)
ELEMENT 4	LIVESTOCK IDENTIFICATION RECORD (INTRODUCED OR PURCHASED STOCK)
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ELEMENT 6	GOATS SELECTED FOR TESTING
ELEMENT 6	TEST RESULTS FORM
ELEMENT 6	INVESTIGATION OF TEST RESULTS
ELEMENT 7	NOTIFICATION OF STATUS
ELEMENT 7	DOCUMENT CONTROL REGISTER
ELEMENT 7	JOHNE'S DISEASE MARKET ASSURANCE PROGRAM- PROPERTY AUDIT
ELEMENT 7	CORRECTIVE ACTION AND IMPROVEMENT REPORT (CAIR)

All forms are available to download from the website:

[http://www.animalhealthaustralia.com.au/programs/jd/maps\\$/goatmap.cfm](http://www.animalhealthaustralia.com.au/programs/jd/maps$/goatmap.cfm)