

# Herdsure<sup>®</sup> protocol for Johne's disease in cattle herds

## Herdsure<sup>®</sup> Chapter 2



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## Introduction

This protocol describes the process used to establish the disease status for Johne's disease in cattle and for control and monitoring Johne's disease in those herds.

This protocol is suitable for both dairy and beef herds.

The three principal elements of this Herdsure® protocol for Johne's disease are:

- sampling and testing to determine status
- sampling and testing to identify infected cattle with advice on appropriate strategies to reduce new infection rates and so improve the health status of the herd
- sampling and testing to monitor the improved health status of the herd together with advice on appropriate measures to reduce the risk of re-introducing infection.

Johne's disease is an endemic disease of cattle that causes well-documented clinical signs. This protocol does not address the management and treatment of clinical Johne's disease in individual animals but addresses the control of the disease in the herd.

This protocol refers only to the control of Johne's disease in cattle. If other susceptible animals are present on the farm, especially if they share grazing with cattle, Johne's disease monitoring and, if necessary, control measures should also be applied to these animals. Your local AHVLA Regional Laboratory is able to provide appropriate testing and advisory services for this purpose.

The Johne's disease protocol comprises a testing regime to establish herd health status at three different levels:

<b>Level 1</b>	Establishes the Johne's disease status of the herd.
<b>Level 2</b>	Aims to improve the health status of the herd for Johne's disease.
<b>Level 3</b>	Monitors and aims to maintain the improved (or established as satisfactory at Level 1) health status of the herd for Johne's disease.

## The disease

### Introduction

Johne's disease, or paratuberculosis, is a chronic illness causing progressive loss of condition, diarrhoea and loss of milk production. It is a bacterial infection caused by *Mycobacterium avium* subspecies *paratuberculosis* (MAP). This organism is present in the faeces of infected animals and it can survive for over a year in the environment. It can also be present in colostrum and milk from both clinically and sub-clinically infected animals.

### Impact of the disease

Calves can be infected *in utero* and may therefore be born already infected. Young calves are most susceptible to infection and the bacterium is faeco-orally transmitted. Increasing age is associated with increasing natural immunity and so infection during adulthood is considered uncommon. The disease has a long incubation period (years) and animals usually show clinical signs around 3 to 5 years of age. The basic pathology of the disease is progressive change in the intestinal mucosa leading to a protein-losing enteropathy. Infection is most likely to enter a herd by the purchase of clinically normal but infected cattle. Uncontrolled infection in the herd can lead to increasing losses owing to reduced longevity, poor quality cull cows and reduced milk production.

Control of the disease on the farm involves making changes to management practices around calving and the rearing of calves and youngstock. A list of the procedures to prevent new infections appears in the Biosecurity section below. Herdsure® offers a testing protocol to identify infected animals, which can be removed; this will eventually reduce general environmental contamination. If the infection rate in a herd is high, consideration may need to be given to the use of vaccines. This will not remove infection from the herd but may reduce clinical cases to improve longevity and productivity. Vaccines are generally administered to calves less than a month old. Because it is not possible to differentiate between vaccinated and infected animals, vaccinated herds will have to leave the Herdsure® programme.

Sero-positive and infected animals and their offspring should be culled as soon as possible. However, a staged removal may be adopted if a large proportion of the herd is infected. This would involve culling those animals that pose the largest risk to others first. At the same time, any offspring of these animals should be identified; there is a high risk that these animals are infected and therefore may become sero-positive later in life. For this reason it may be wise to remove them from the herd before they reach 2 years of age.

Cattle that have high antibody titres should also be prioritised for culling. Other factors, such as reduced milk production, declining body condition and persistent diarrhoea, as well as the availability of replacements, may also influence prioritisation. Calves born to cattle with high antibody titres should not be kept as replacements but could be reared for beef or culled.

It may be preferable to test individual animals more frequently than recommended in this protocol, in addition to the annual herd test. This would provide information for management of the individual animals at calving and allow farmers to adjust the management of their calves according to the disease status of the dam. Please discuss any additional testing with a Herdsure® consultant via the Herdsure® Helpline. Additional samples should be submitted using Unscheduled Submission Form C.

## Testing for the disease

Infection of an animal by MAP produces an antibody response that can be detected in a blood or milk sample. Alternatively, the presence of the organism can be detected in faeces or samples of intestine and associated lymph nodes.

Detection of antibody is by an ELISA test. The sensitivity of this test is highest in an animal displaying clinical signs. Sensitivity is lower when animals are sub-clinically infected.

Following a tuberculin test, animals may produce antibody that may cross-react in the Johne's antibody test to give 'false positives'. To avoid this, it is recommended that blood/milk testing is not carried out within 3 months of a tuberculin test.

When milk samples from cows that have calved in the last 10 days are tested, there is a chance that the high levels of antibodies present could lead to a false positive result. It is therefore recommended that cows up to 10 days post calving are not tested using the milk ELISA.

The organism can be detected in faeces or tissues by culture, which may take up to 8 weeks to give a positive result.

MAP nucleic acid may be detected in the same samples by gene detection using polymerase chain reaction (PCR) technology. This PCR test can produce a result within a few days.

### **Whole herd faeces screen**

Although it is possible to screen a herd by taking individual rectal faeces samples from all animals >2 years old and screening by culture or PCR this is not part of the Herdsure® protocol. If a whole herd faeces screen is being considered, this should be discussed with a Herdsure® consultant.

The following tests are used for the Herdsure® Johne's disease protocol:

TC0366	Serology (serum) – red top tubes
TC0866	Serology (individual milk)
TC0693	PCR (faeces)
TC0713	Liquid culture (faeces)

All blood samples must be collected in red top (plain) blood tubes.

All individual milk samples must consist of at least 10ml of milk collected direct from the cow's teat into an identifiable sample pot containing preservative e.g. bronopol.

All faeces samples must be at least 5g of faeces collected in an identifiable sample pot.

## Biosecurity

Biosecurity is the prevention of disease-causing agents entering or leaving any place where farm animals are present (or have been present recently). It is the responsibility of the herd owner and manager in consultation with their veterinary practitioner to ensure good biosecurity of Herdsure<sup>®</sup> herds. Owners or farm managers must have facilities available for disinfecting vehicles, footwear and clothing.

The following points need to be considered to make the entry of MAP onto a farm less likely.

- It is important that colostrum from a non-Herdsure<sup>®</sup> herd or a herd of lower status is not used on a Herdsure<sup>®</sup> farm.
- Natural water sources are a risk for Johne's disease. It is preferable that if non-Herdsure<sup>®</sup> cattle, sheep or South American Camelids (SACs) have access upstream or the water has passed through another farm then Herdsure<sup>®</sup> cattle should not have access to it. Piped mains water should be used rather than natural water sources whenever possible.
- Co-grazing with sheep and other ruminants or SACs: Johne's disease also affects other ruminants such as sheep, deer, goats and SACs and the possibility of interspecies transmission is at present unresolved.
- Accredited cattle must not be grazed on pasture previously grazed by non-accredited cattle until a period of 12 months has elapsed. The same grazing restrictions apply to accredited cattle if slurry or manure collected from non-accredited cattle has been used on the pasture.
- Movements of people, vehicles or equipment into areas where the cattle are kept, including fields, farm buildings and other holding areas, should be kept to a minimum.
- People entering the premises to handle the cattle or their products should wear protective clothing and footwear. This must be clean and must be disinfected before and after contact with the cattle; alternatively, disposable protective clothing can be used. Other visitors to the farm should be kept away from direct contact with the cattle.
- Equipment, machinery, livestock trailers and handling facilities that are shared between Herdsure<sup>®</sup> cattle and other livestock must be cleaned and disinfected before use.
- Other vehicles entering the farm should not come into contact with the areas used by cattle. They should be parked on clean hard-standing away from the cattle. These vehicles must be visibly free of animal excreta, slurry and so on; otherwise entry of the vehicle should be refused.
- Delivery and pick-up points should be at a site isolated from other cattle on the farm. Where possible, the driver should remain in the cab and should certainly never assist in removing cattle from pens unless using farm-dedicated protective clothing and footwear.
- Veterinary equipment such as drenching guns, surgical instruments and hypodermic needles, which may draw blood, must not be shared with cattle from another herd. Veterinary surgical instruments must be sterilised before use in the herd.

- Farm boundaries must prevent cattle from straying off or onto the farm.
- When buying feed and bedding, care must be taken to avoid the risk of introducing infection into the herd. Feed and bedding stores should be protected against access by vermin and wildlife.

Where herds are seeking CHeCS accreditation, the veterinary practitioner will be asked to confirm that the appropriate biosecurity and management measures have been implemented on the farm.

Herd owners and managers who are participating in the Herdsure® service must inform the supervising veterinary practitioner of any changes that could affect herd biosecurity.

You will be sent a risk assessment questionnaire on enrolment, covering biosecurity and the management of all animals, especially the calf and youngstock, to help identify action points to try and reduce the number of new infections.

The following management changes should reduce the occurrence of new infections on infected premises.

- Maintain clean and dry housing for calving with adequate bedding. Ideally, calving enclosures should be disinfected between each calving.
- Ensure udders are clean if suckling takes place.
- Remove calves as soon as possible after birth.
- Do not use pooled colostrum or waste milk for breeding calves. Ideally, feed only milk replacer or pasteurised milk to female and breeding male calves.
- Avoid faecal contamination of milk and colostrum if fed to calves.
- Ensure youngstock do not graze on manure-fertilised pasture.
- Do not mix youngstock with adult stock until they are >12 months old.
- Isolate any cows with possible Johne's disease and test to establish disease status.
- Cull infected animals, see advice above.

## Keeping track of progress in Herdsure®

Each registered holding will be issued an **annual herd progress report**. The progress report will detail the level achieved for each protocol for which the herd is enrolled on the date of issue.

For a small fee an additional progress report can be produced. This progress report, like the annual report, will detail the level achieved for each protocol for which the herd is enrolled on the date of issue.



## The protocol

### Introduction

This service for Johne's disease in dairy and beef herds covers a laboratory testing programme to establish disease status and progression to monitored freedom from disease. Progress involves regular screening and, where appropriate, the managed removal of test-positive animals.

Beef and dairy herds will be tested using the same protocol; milk samples are an alternative to blood samples for dairy cows. On premises where there are both dairy and beef herds, both must join the service; where the protocol refers to 'all animals', this will include both beef and dairy animals.

### Summary of objectives

This protocol aims to establish the infection status of the herd for Johne's disease and to monitor with increasing confidence the absence of infection in the herd.

If evidence of infection is found in the herd, Herdsure® offers management advice to reduce the likelihood of new infections and a testing programme to identify infected animals, which can be removed. If infection is satisfactorily removed and the herd undergoes four clear herd tests, the herd would be eligible for CHeCS accreditation. If CHeCS accreditation is to be sought in the future, Form D must be completed at the time of registration.



## Level 1

### Level 1: Objective of Herdsure<sup>®</sup> testing

- To establish whether Johne's disease infected animals are present in the herd.

### Level 1: Sampling and testing protocol

Also refer to the flowchart summary of the protocol at the end of Level 3.

1.1	Herds with a laboratory-confirmed history of disease e.g. Johne's disease confirmed by serology, culture or post mortem and histopathology, should progress to Level 2b without testing at Level 1; otherwise herds should proceed as below.
1.2 	In herds with no confirmed history of Johne's disease, blood samples (red top) should be collected from all breeding male and female cattle over 2 years of age. Individual milk samples (with preservative e.g. bronopol) are an alternative for dairy cows. It is acceptable to submit a combination of milk and blood samples from a single herd. It is assumed that, where fattening cattle over 2 years of age are present, they will be kept entirely separately from the dairy or suckler herds. Where this is not the case please contact a Herdsure <sup>®</sup> consultant before commencing sampling.
1.3 	Blood and/or individual milk samples are submitted to AHVLA (using the Herdsure <sup>®</sup> Business Reply labels) for testing using TC0366 or TC0866. Results will be interpreted and reported as either negative or positive.

### Level 1: Interpretation of results

1.4	<p>There are two outcomes from Level 1 testing:</p> <p><b>(a)</b> All tested animals give a negative test result. These herds can then progress directly to Level 2a.</p> <p><b>(b)</b> The herd test detects one or more sero-positive animals. Optionally, these animals can be further investigated (see below). If not, the herd progresses by testing at Level 2b.</p> <p><i>Where small numbers of positives (&lt;2% of the cattle eligible for testing) are identified in homebred animals in herds with no previous evidence of infection you may want to confirm these results by faecal PCR to eliminate the possibility of cross-reaction. This should be discussed with a Herdsure<sup>®</sup> consultant.</i></p> <p><i>While awaiting confirmation of test results, sero-positive animals should be isolated from the herd.</i></p>
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## Level 2

### Level 2: Objective of Herdsure® testing




- To reduce the detrimental influence of Johne's disease in the herd.

### Level 2: Sampling, testing and interpretation protocol

Herds enter Level 2 by two routes:

- 'clear test at Level 1'
- or
- 'known history of Johne's disease' or 'sero-positive animals at Level 1'.

**Also refer to the flowchart summary of the protocol at the end of Level 3.**

<b>Level 2a: Clear test at Level 1</b>	
<b>2.1.1</b>	These herds will confirm their Johne's disease status by a 'final qualifying test' at Level 2a, 12 months after the clear test at Level 1.
<b>2.1.2</b>  	Blood and/or individual milk samples from all adult animals are submitted directly to AHVLA laboratory (using the Herdsure® Business Reply labels) for testing using TC0366 or TC0866.
<b>2.1.3</b> 	<p>There are two outcomes from Level 2a testing:</p> <p><b>(a)</b> All tested animals give a negative test result. These herds will progress to Level 3, 'monitored freedom'. Provided biosecurity measures are met and appropriate monitoring is carried out at Level 3, herds reaching this point qualify for CHeCS-accredited status.</p> <p><b>(b)</b> The herd test discloses one or more sero-positive animals. These animals must be kept isolated until further testing has been carried out:</p> <p style="margin-left: 20px;"><b>(i)</b> A sample of faeces will be examined for MAP by culture/PCR.</p> <p style="margin-left: 20px;"><b>(ii)</b> If the animal is slaughtered, samples of ileo-caecal junction and associated lymph node should be examined for MAP by culture/PCR or histology.</p> <p>If an animal gives a positive result to any of these tests, this confirms the presence of MAP/Johne's disease in the herd. Further progression is by testing at Level 2b. If an animal gives a negative result, the case must be discussed with a Herdsure® consultant via the Helpline. If the animal in question is homebred, has had no previous positive serology results and there is no history of Johne's disease in the herd, it may be possible for the herd to progress to Level 3.</p> <p>If this further testing is not carried out, animals giving positive results will be considered to be reactors by default and further progression through the Johne's protocol will be via the level 2b route.</p>

<b>Level 2b: Known history of Johne's disease or 'sero-positive animals at Level 1'</b>	
<b>2.2.1</b>	<p>The second route of entry to Level 2 is for those herds with a known history of Johne's disease on the farm and those herds with positive test results at Level 1. These herds enter at Level 2b, the 'disease reduction' phase.</p> <p>Owing to the risk of younger infected animals sero-converting later in life, these herds must have three consecutive negative annual full adult herd tests before entering Level 3.</p>
<b>2.2.2</b>	<p>At each annual test there will be two possible outcomes:</p> <p><b>(a)</b> All the results are negative; these herds remain at Level 2b until they have achieved three consecutive clear herd tests 12 months apart before progressing to Level 3. Provided biosecurity measures are met and appropriate monitoring is carried out at Level 3, herds achieving three consecutive clear tests qualify for CHeCS-accredited status.</p> <p><b>(b)</b> If any of the samples tested are positive, then the herd returns to a repeat annual test at the Level 2b 'disease reduction' phase. As these herds have prior evidence of Johne's disease on the premises there is no requirement or eligibility to confirm infection using a confirmatory test.</p>
<b>2.2.3</b>	<p>Animals giving a positive blood or individual milk result are identified as sero-positive and infected and should be culled as soon as possible. If the animal is pregnant, a decision should be made about the timing of its removal. If the animal is allowed to calve before removal, the calf should be removed from the herd and not reared as a replacement.</p> <p>For options for managing infected animals, see the section on 'Biosecurity'.</p>
<b>2.2.4</b>	<p>In herds with few sero-positive animals (&lt;5%), a test and cull policy may be the most cost-effective way to achieve freedom from disease. However, this is only effective if management practices are also changed to eliminate risks of transmission and re-introduction of disease (as outlined in the section on 'Biosecurity'). Although the Level 2 testing protocol uses annual adult herd blood or milk sampling, additional tests can be submitted at any time to clarify the status of an individual animal. These samples should be submitted using Unscheduled Submission Form C.</p> <p>For herds with a high sero-prevalence, where immediate culling of all the positive animals is not economically feasible, a 'staged' removal of sero-positive cattle and their offspring (as described in the section on 'Impact of the disease') may be employed. In some instances, vaccination may be considered. Because it is not possible to differentiate between vaccinated and infected animals, vaccinated herds will have to leave the Herdsure® programme.</p> <p>The veterinary practitioner and farmer client should be aware that it may take a number of years to successfully eliminate Johne's disease from infected herds.</p>

**2.2.5 Clinical disease**

Any animals over 6 months of age showing clinical signs that may suggest the presence of Johne's disease (i.e. weight loss, diarrhoea or milk drop) should be isolated and examined by the attending veterinary practitioner. If Johne's disease cannot be ruled out, samples of blood and faeces should be taken and submitted to the nearest AHVLA Regional Laboratory as routine diagnostic samples. Animals that die before blood or faeces samples are taken should be examined *post mortem* and samples of ileo-caecal junction and associated lymph node should be examined for MAP by culture/PCR or histology. Positive results from cases of possible clinical disease (diagnostic testing) must be reported to the Herdsure<sup>®</sup> administrator by the veterinary practitioner.





## Level 3

### Level 3: Objective of Herdsure® testing

- To monitor and maintain the improved health status of the herd.
- Infected animals can start to shed MAP without showing signs of Johne's disease. To increase confidence, the disease-free status the herd must be monitored for a number of years at Level 3. Every year a herd is 'monitored negative' increases the degree of confidence that infection has been controlled. The Herdsure® Management System will maintain records to reflect progress.



### Level 3: Sampling, testing and interpretation protocol

**Also refer to the flowchart summary of the protocol at the end of Level 3.**

<b>3.1</b>	The Year 1 test at Level 3 is due 12 months after the qualifying test at Level 2.
<b>3.2</b>  	Blood and/or individual milk samples from all adult animals are submitted directly to the AHVLA laboratory (using the Herdsure® Business Reply labels) for testing by TC0366 or TC0866. This testing protocol will be repeated in Year 3 of Level 3.
<b>3.3</b>  	<p>There are two outcomes from Level 3 Year 1 testing:</p> <p><b>(a) All tested animals give a negative test result.</b> Provided biosecurity measures are met and appropriate monitoring is carried out, herds qualify for CHeCS-accredited status.</p> <p><b>(b) The herd test finds one or more sero-positive animals.</b> Positive animals must be kept isolated until further testing has been carried out on them:</p> <ul style="list-style-type: none"> <li><b>(i)</b> A faeces sample examined for MAP by culture/PCR.</li> <li><b>(ii)</b> If the animal is sent for slaughter, samples of ileo-caecal junction and associated lymph node should be examined for MAP by culture/PCR or histology.</li> </ul> <p>If an animal gives a positive result to any of these tests, the herd status reverts to Level 2b.</p> <p>If an animal gives a negative result by culture/PCR the case must be discussed with a Herdsure® consultant via the Helpline. If the animal in question is homebred, has had no previous serology results and there is no history of Johne's disease in the herd, the herd may be able to remain at Level 3.</p>

- 3.4** All purchased incoming animals should be blood or individually milk sampled annually and samples tested by TC0366 or TC0866 until four clear tests have been achieved.



<p><b>3.5</b></p>  	<p>All animals over 2 years of age will be retested every 12 months.</p> <p>Any animal with positive results must be kept isolated until further testing (see paragraph <b>3.3</b> above) has been carried out. If the annual herd test reveals Johne's positive animals then the herd will move to Herdsure® Level 2 and lose its accreditation status.</p>
<p><b>3.6</b></p>	<p>Once a herd has reached Level 3 and had two further consecutive, clear annual herd tests there is an option to test homebred cattle biennially, rather than annually.</p>

## CHeCS accreditation

Accredited free status: A herd is Accredited Free if **three** clear qualifying tests (full herd tests) at an interval of 12 months have been achieved without any reactor being detected. Please note that under CHeCS rules, milk samples submitted towards CHeCS accreditation must be collected by the milk recorder, veterinary practitioner or other practice employee e.g. nurse or paraprofessional. A herd will be eligible for accreditation either following a full herd test after 12 months at Level 3 via Level 2a or upon entry at Level 3 via Level 2b. The date the herd first achieved Accredited Free status will be included on the Certificate of Accreditation. Should a herd lose status and then regain it having met the subsequent testing requirements the date on the certificate will be when accreditation was regained. More information is available on the CHeCS website ([www.cheecs.co.uk](http://www.cheecs.co.uk)).

### **CHeCS Health Plan – new for 2012/2013**

For members working towards CHeCS accreditation a health plan covering Johne's disease must be in place. It must be updated annually and signed off by both the vet and herd owner/manager. On joining the Accreditation Programme the health plan must be submitted to Herdsure® within 2 months of carrying out the herd test. Thereafter the health plan (covering the last year) must be submitted with the herd test. The health plan must cover the three mandatory control elements detailed in the CHeCS Technical Document: 3.1 Antibody positive animals, 3.2 Cull all reactors and 3.3 Offspring of female test positive animals. The veterinary practitioner must detail in writing why any particular guideline has not been followed. For further information, visit [www.cheecs.co.uk](http://www.cheecs.co.uk)

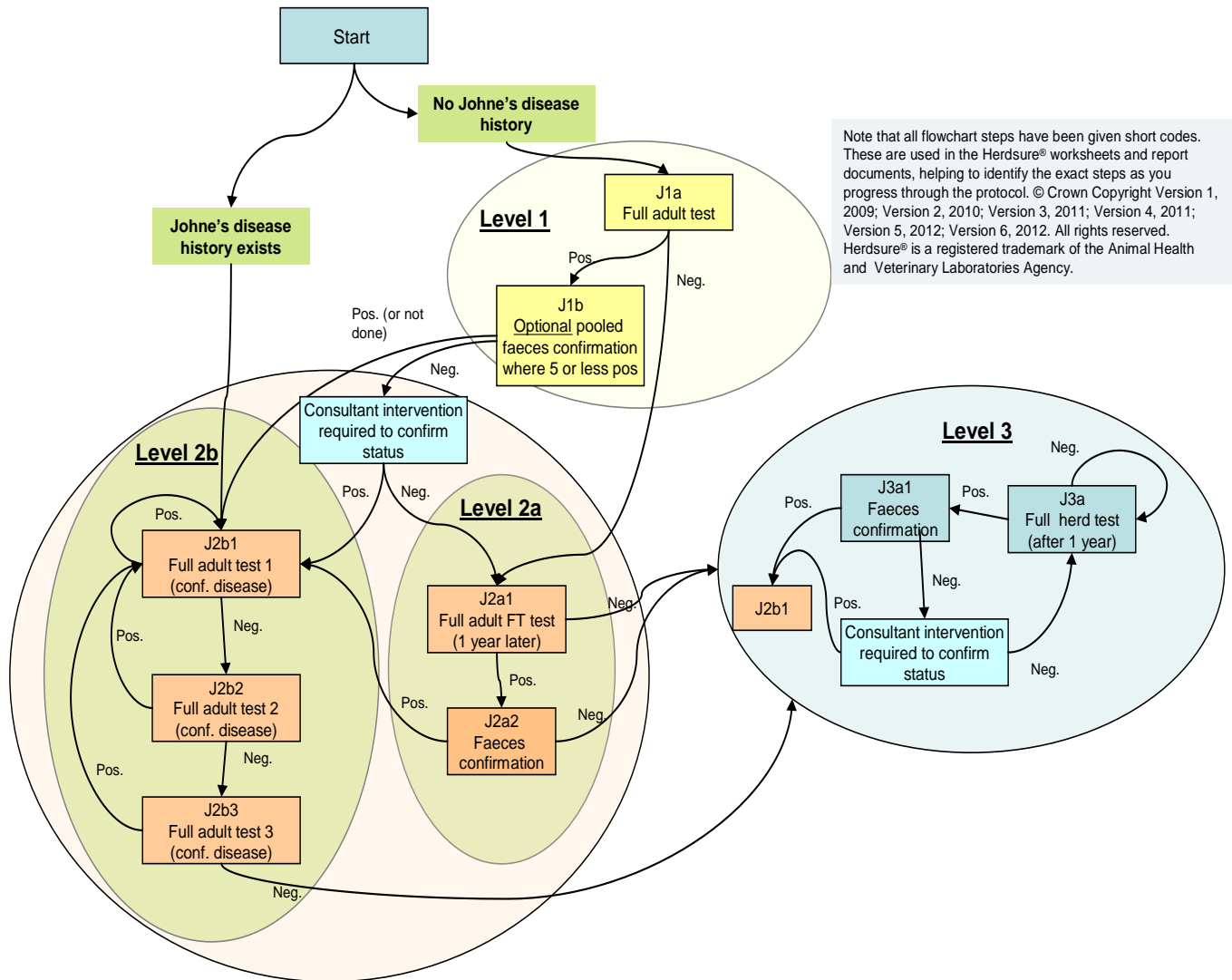


## Key to flowchart summary of the Herdsure® protocol for Johne's disease

Step	Step name	
<b>J1a</b>	Full adult test	All cows/bulls >2 years of age are sampled and tested using TC0366 or TC0866. Ear tag details are provided.
<b>J1b</b>	Optional faeces confirmation	Where five or fewer positives are disclosed at the full herd test these may be confirmed via faeces using PCR TC0693.
<b>J2a1</b>	Full adult test (fast-track)	This full test can qualify the farm for entry to Level 3. All cattle >2 years of age are tested using TC0366 or TC0866. Ear tag details are provided.
<b>J2a2</b>	Faeces confirmation	Positives from the fast-track test can be retested using faeces. Samples are tested with PCR TC0693 in pools of up to 5. The ear tag details of positive animals will be provided.
<b>J2b1</b>	Full adult test No.1	The first annual test in Level 2b. All cattle >2 years are tested using TC0366 or TC0866. Ear tag details are provided.
<b>J2b2</b>	Full adult test No.2	The second annual test in Level 2b. All cattle >2 years are tested using TC0366 or TC0866. Ear tag details are provided.
<b>J2b3</b>	Full adult test No.3	The third annual test in Level 2b. All cattle >2 years are tested using TC0366 or TC0866. Ear tag details are provided.
<b>J3a</b>	Full adult test No.1 at Level 3	The first annual test in Level 3. All cattle >2 years are tested using TC0366 or TC0866. Ear tag details are provided. This is carried out 12 months after completion of Level 2 testing and entry into Level 3.
<b>J3a1</b>	Faeces confirmation (test No.1)	Positives from a full test are tested using faeces. Samples are tested with PCR TC0693 in pools of up to 5. The ear tag details of positive animals will be provided.

# Flowchart summary of the Herdsure<sup>®</sup> protocol for Johne's disease

## Johne's disease



Note that all flowchart steps have been given short codes. These are used in the Herdsure<sup>®</sup> worksheets and report documents, helping to identify the exact steps as you progress through the protocol. © Crown Copyright Version 1, 2009; Version 2, 2010; Version 3, 2011; Version 4, 2011; Version 5, 2012; Version 6, 2012. All rights reserved. Herdsure<sup>®</sup> is a registered trademark of the Animal Health and Veterinary Laboratories Agency.

## Procedures for added animals

The Herdsure® service recommends that all added animals are isolated and tested before joining the herd. Testing and isolation of added animals is mandatory for herds seeking CHeCS accreditation. The only exception to this is where animals are sourced from CHeCS disease-free certificated herds. Refer to the CHeCS technical document for the rules that apply.

### Sourcing new animals

New animals could be infected but still test negative and thereby introduce infection into the herd. This risk can be reduced by purchasing from a herd of similar or higher herd health status.

If introducing animals of any age from a herd with unknown health status is necessary, the animals should be tested by blood and faeces sampling on the farm of origin. If an animal or source herd is found to be positive, animals must not enter the herd. If testing at the farm of origin is not possible, new animals should be held in isolation<sup>5</sup> on entry to the herd and tested by both blood and faeces sampling. The animals should not enter the herd unless both tests are negative. If groups of animals from different herds of origin are tested and one or more from any group tests positive, none of that group can enter the herd without loss of the herd's status. Such animals should be held in isolation until the results of all tests are known. If infection is confirmed, the building(s) should be thoroughly cleansed and disinfected and the manure held for at least 12 months before it is spread on to pasture. If the infected animals were at pasture, the field(s) should not be grazed for at least 12 months.

On entry to the herd, added animals should be tested by TC0366 (blood) or TC0866 (individual milk) annually on reaching 2 years of age until four consecutive clear tests have been achieved. This may include the pre-entry test if the animal was 2 or more years of age at the time of sampling.

### Establishment of a new herd from accredited stock

Where it is intended to establish a Johne's-free accredited herd by acquiring cattle accredited free of Johne's, the premises must be inspected by the veterinary practitioner before the new stock is introduced in order to ascertain that the biosecurity of the premises and farm boundaries meet the requirements of CHeCS. Accreditation testing for Johne's must be carried out no sooner than three months after establishing the herd. Once testing has been completed, with satisfactory results, the herd can be recognised as having achieved accredited status.

### Shows and sales

Due to the absence of a test with potential for detecting infection soon after possible exposure to MAP, no testing is required when show animals return to the herd. The risk of infection is considered highest in calves under 6 months of age and so these animals

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<sup>5</sup> An isolation facility that prevents contact with other stock must be provided for all added animals. A dedicated building separate from other cattle buildings is ideal, but a separate paddock that prevents contact with other stock may suffice. No air space, drainage or dung storage may be shared with other cattle. Dung may only be removed from the dedicated storage area, to be spread on land or added to the main dung store, when all cattle in the isolation facility have passed all the required health tests and have been added to the herd.

must be tested for four consecutive years once they are 2 years of age.

For CHeCS-accredited herds, the CHeCS rules must be followed:

If cattle from an accredited Johne's disease-free herd leave their home premises for fewer than 7 days and are prevented from direct contact with other animals' faeces and soiled bedding, these can rejoin the herd without the need for isolation and testing.