



Technical Document

Incorporating rules for Cattle Health Schemes
on BVD, IBR, Leptospirosis, Johne's Disease and
Neospora

June 2025

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Introduction

Cattle Health Certification Standards (UK), abbreviated to CHECS, is the regulatory body for Cattle Health Schemes in the UK and Ireland. It is a non-trading organisation established by the British cattle industry in 1999 for the control and eradication of diseases by a set of standards to which all licensed Cattle Health Schemes must adhere.

These standards ensure that herd health status in one licensed scheme is equivalent to that in all other licensed schemes in the UK and Ireland. Close collaboration by CHECS with other countries ensures that licensed schemes in the UK and Ireland are as good as any in the world.

CHECS is owned by the British Cattle Veterinary Association, the National Beef Association and Holstein UK. It received start-up funding from the Milk Development Council (AHDB).

CHECS principal objectives are:-

- **To promote improvements in cattle health and welfare.**
- **To provide standards and certification for Cattle Health Schemes.**
- **To develop and maintain links with cattle farmers, breed societies, veterinary practitioners, laboratories, government agencies and animal welfare organisations to promote the above objectives.**

This Technical Document sets out the rules to which CHECS licensed Cattle Health Schemes and their member herds must adhere to in order to meet the CHECS standards. These have been agreed and found to be acceptable to the cattle industry and are reviewed on an annual basis.

To ensure that CHECS is operating to best practice and takes into account the latest available science, a technical advisory group comprising representatives from the CHECS licensed cattle health schemes, plus a number of recognised international experts on the diseases of interest, meet annually to review the Technical Document. Appropriate task and finish groups on specific issues are established when necessary.

Cattle Health Schemes provide programmes for the monitoring, control and ultimate eradication of disease. The schemes also provide certification when a herd meets the agreed national CHECS cattle health standards.

Contained within this Technical Document are programmes for the five most important non-statutory diseases (see Appendix 1) that are prevalent in both beef and dairy herds in the UK and Ireland.

Bovine Viral Diarrhoea (BVD)
Infectious Bovine Rhinotracheitis (IBR)
Leptospirosis
Johne's disease
Neospora

Herd owners may test for any or all of the diseases at the same time. The programmes may be used as a framework for routine monitoring, for disease reduction, disease eradication and for certification of freedom from the disease in question. The starting point for any herd will depend on their own objectives and current disease status. At its simplest, monitoring can be limited to quarterly bulk milk antibody testing, while at the top end herds can achieve elite status by reaching risk level 1 for Johne's disease and being accredited free for BVD, IBR and *L. Hardjo*.

Defra have requested that CHECS produce a set of standards relating to bovine tuberculosis which remains under statutory control. These allow a more refined means of assessing herd status and trading risk than simply the location of the holding. They have been published in a stand-alone addition to the Technical Document.

CHECS is not itself a Cattle Health Scheme but it is the regulatory body for Cattle Health Schemes. CHECS is a stamp of approval and a quality mark signifying conformity to an industry standard.

Tim Brigstocke, Executive Director, CHECS
June 2025



The Rules of CHECS

CHECS seeks to identify herds free from certain diseases and to offer a control programme for those herds in which those diseases have been identified. The CHECS rules are mandatory for herds in the Accreditation and Certification programmes. They are not mandatory for herds in the Monitoring or Eradication programmes, although they are strongly recommended as good practice for those herds, with the exception of rule 19, which is mandatory for all herds enrolled in CHECS programmes.

A template 'check list' covering the rules of CHECS for each of the specific diseases is given in Appendix 6.

General Rules

CHECS, as the regulatory body, reserves the right to access information from the CHECS-licensed cattle health schemes about their members for auditing purposes. In addition, a random selection of farms will be visited by CHECS representatives to ensure that the CHECS standards are being maintained.

Appeals against decisions made by CHECS licensees should be emailed to info@checs.co.uk however, appeals presented by e-mail, telephone or letter to any member of CHECS staff will be processed in the same way, provided they have been clearly identified as appeals.

Herd Biosecurity

1. Herd biosecurity: Herd biosecurity is explained and the general principles are detailed in the Defra document entitled "Disease prevention for livestock and poultry keepers", published 11th September 2012. Last updated 21st September 2015: <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>. (accessed 02Apr2025)

Herd owners, managers and Veterinary Surgeons participating in a cattle health scheme must be familiar with this document and should seek to achieve the standards set.

In addition to this general guidance, set out below are more specific conditions and requirements to which participants in the CHECS accreditation programmes must adhere.

2. Herd Definition: A herd is defined as cattle that are under a unified management system but not necessarily on one site. All eligible animals in the herd must be tested within a two-month period, unless management practices support testing groups at different times of the year e.g. herds with spring and autumn calving blocks.

All cattle on the holding are considered to be part of the herd except under exceptional circumstances where the herd's owner and veterinary surgeon can show that adequate separation of two sets of animals exists and can be maintained to satisfy the rules of the scheme. Documentation to this effect must be produced by the herd's veterinary surgeon, reviewed annually and held on file by the CHECS licensee. For herds that share common grazing, handling facilities or that have any direct contact

these should be considered as a single herd. An annual additional declaration must be completed and signed by all members of the co-grazing group at the time of the herd tests (see appendix 4&5), and all eligible animals in the group must be tested within a two-month period. The status of this combined 'herd' would only be awarded on completion of testing of all eligible animals.

3. Farm boundaries: Farm boundaries must prevent cattle from straying off or onto the farm and must prevent nose to nose contact with cattle of a lower health status over fences or walls. Installation of double fencing or use of an equivalent boundary to provide a gap of 3 metres between scheme cattle and any neighbouring cattle of a lower health status, is essential where scheme participants are following the IBR and/or BVD Accredited free programmes. It is also a useful standard to adopt for all disease control programmes.

4. Accredited status: Accredited status is specific to each disease. If herds are accredited for different diseases, the rules for movement and contact between those herds shall be the same as if they were non-accredited herds. Accreditation means that the standard defined for the disease in question has been met.

If a vendor chooses to declare the CHECS health status of their herd, or an animal from their herd, it must be in official CHECS format i.e. with a valid CHECS herd accreditation certificate or CHECS individual health declaration signed off by the health scheme provider.

5. Added animals: Whenever possible, cattle should only be added to a health scheme herd if they are from a herd that is accredited free from the disease in question, or in the case of Johne's disease and Neospora (Neospora females only) at risk level 1. Otherwise, they must be placed in isolation for the required period and tested by the appropriate test(s) for the disease(s) in question. It is strongly advised that purchasers request the official CHECS certification of animals they are buying (see section 4). It is the responsibility of the purchasing scheme member to check the status of the herd of origin of the added animals, to verify that this status applies to the particular added animal(s) and to provide appropriate evidence of this to their scheme provider.

A summary table of testing requirements for non-accredited added animals is given in Appendix 7.

6. Contact with cattle of different health status: Cattle from health scheme herds must not come into contact with non-health scheme cattle or health scheme cattle of a lower status otherwise they will lose their status within the scheme. To re-introduce them into the herd, they must be regarded as non-accredited added animals and must be placed in isolation for the required period and tested by the appropriate test(s) for the disease(s) in question.

7. Grazing of cattle: Cattle must not be grazed on pasture previously grazed by non-accredited cattle until a period of two months for BVD, IBR or leptospirosis accredited cattle or twelve months for Johne's disease accredited cattle 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. For Neospora and grazing recommendations see section 4 of the Neospora Programme.

8. Feed and bedding: 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.

9. Colostrum: Fresh or frozen colostrum must not be brought onto a health scheme herd. Commercially prepared freeze-dried colostrum may be used to protect calf welfare although it cannot be guaranteed that this is entirely without risk.

10. Water: Piped mains water should be used rather than natural water sources whenever possible because there is a risk of cattle becoming infected with leptospirosis and/or Johne's disease from water courses. Where scheme participants are following the programmes for these diseases, it is preferable, but not essential, that scheme cattle do not have access to watercourses that have other cattle or sheep grazing upstream or that have flowed through another farm.

11. Veterinary equipment: Equipment such as drenching guns, surgical instruments and hypodermic needles must not be shared with cattle from another herd. Veterinary surgical instruments must be sterilised before use in the herd.

12. Farm equipment: Equipment, machinery, livestock trailers and handling facilities that are shared between health scheme cattle and other livestock must be cleaned and disinfected before use with health scheme cattle. For herds in the Johne's disease programme, a Defra-approved product at the dilution recommended for tuberculosis control must be used: <http://disinfectants.defra.gov.uk/> (accessed: 02Apr25)

13. Delivery or collection of stock: Delivery and pick-up points should be at a site isolated from other cattle on the farm. Where possible the driver should remain in their cab and should never assist in removing cattle from pens unless using farm-dedicated protective clothing and footwear.

14. Isolation facility: 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 manure storage may be shared with other cattle. Manure may only be removed from the dedicated storage area to be spread on land or added to the main manure store when all animals in the isolation facility have passed the required health tests and been added to the herd.

If any of the animals in the isolation facility test positive for any of the five diseases, manure from the isolation facility must not be used in recycled bedding or be disposed of onto pasture that is to be grazed by cattle within 12 months (for Johne's disease) or two months (for the other diseases). Where paddocks have been used to isolate test positive animals, or to quarantine disease breakdown cattle, other cattle must not be allowed to graze them for at least two months for the IBR, leptospirosis and BVD

programmes. For the Johne's disease programme, this period must be extended to 12 months.

15. Isolation period: A defined isolation period must be observed for all additions to a health scheme herd and appropriate testing carried out as required for the particular disease programme being adopted. It is only when both the isolation period and the requisite tests have been completed, with results indicating freedom from infection, that those animals can enter the herd.

16. Co-grazing with sheep or other domestic ruminants or camelids: For the control of *L. Hardjo* it is recommended that there should be a two-month interval before cattle follow sheep or other domestic ruminants or camelids onto pasture. Although not a mandatory requirement, it is strongly recommended that wherever possible cattle and sheep do not graze together.

17. Notification: Herd owners, managers and veterinary surgeons participating in a cattle health scheme must inform the health scheme's supervising Veterinary Surgeon of any changes that could affect herd biosecurity.

18. Semen/embryos: Accredited herds should only source new genetic material from reliable sources (e.g. semen collection centre approved for intra-community trade).

Herd Testing Rules:

19. Previous results: All herds which are enrolled onto a CHECS programme (accredited, monitored and eradication schemes) must declare the results of any screening carried out in the previous 12 months for the disease for which accreditation is being sought. Also if the disease in question has been confirmed in the past 12 months this information must be communicated to the scheme's Veterinary Surgeon. It is implicit within the membership of the scheme that all results relevant to the accreditation process are made available to the health scheme provider by the member. Failure to disclose any such relevant results will result in loss of status.

20. Sample identification: At the time of collection all samples must be identified in order to allow blood, milk or faeces samples to be unequivocally matched with the individuals tested. The animal's full official ear number must be used as the unique identifier. The scheme provider retains the right to carry out further sampling and testing and or re-testing of original samples in order to confirm the integrity of individual samples. This may involve the use of genetic testing.

21. Sample collection: Samples can only be collected by:

- A Veterinary Surgeon.
- Someone designated by the Veterinary Surgeon who is neither the owner of the cattle nor an employee of the owner.
- In the case of milk samples, the milk recorder.

Where the herd uses more than one bulk tank, representative samples must be collected from each tank and tested separately.

- In the case of tissue samples collected by ear punch, the farmer or someone acting on their behalf. In such cases samples must be unambiguously traceable to the animal from which they have been collected e.g. button tags labelled with the official identification number of the animal or by use of tissue sample enabled official identity tags.

22. Establishment of new herd from accredited stock: Where it is intended to establish an IBR, Leptospirosis, Johne's disease or BVD accredited herd by acquiring cattle accredited free of the particular disease, the premises must be inspected by a Veterinary Surgeon before the new stock are introduced in order to ascertain that the biosecurity of the premises and farm boundaries meet the requirements of the scheme. The appropriate accreditation test for the disease must be begun no sooner than three months and no longer than 12 months after establishing the herd. Once testing has been completed with satisfactory results, the herd can be recognised as having achieved accredited status. If any pregnant stock have moved via a market or come in contact with cattle of unknown status then this route to accreditation is not possible for BVD, until all calves have been tested negative for BVD virus over a period of 12 months in the newly established herd.

23. Testing programme: The testing programme for each disease is detailed in the relevant section and must be followed.

24. Suspicion and confirmation of target disease: Any disease condition which might be attributable to a disease that is the target of the scheme must be investigated by the owner's own Veterinary Surgeon. If the Veterinary Surgeon is satisfied that the condition is not the target disease no further action need be taken. If the Veterinary Surgeon cannot rule out the target disease, the requisite samples as detailed in the programme must be collected from each affected animal and tested. The affected animals must be isolated from the herd until the results of the laboratory tests are known.

Confirmation of target disease: After the target disease has been confirmed in a herd, the herd will not be eligible for accredited status until all the herd have passed the requisite tests, as detailed in the specific programme, and all known test positive animals have been removed from the herd. Where animals have been confirmed as BVDV PI or infected with Johne's disease they must not be sold on, except to slaughter. To do otherwise is to risk prosecution under the Sale of Goods Act. and, in the case of a BVD PI, the relevant regional BVD legislation.

25. Movement of accredited cattle off farm for purposes other than show and sale: Accredited cattle leaving their home herd for any purpose other than to attend a show or sale must be loaded, transported, unloaded and accommodated separately from non-accredited cattle. No direct or indirect contact between accredited and non-accredited cattle must be allowed to occur at any time. If these conditions are met then

accredited cattle may return to their herd of origin, or to another accredited herd, without any isolation or testing.

27. Movement of accredited cattle off farm for shows and sales: It should be recognised that any contact with other stock puts the status of the herd at risk. Animals moving off the owner's holding for preparation for sale will lose accredited status if the CHECS biosecurity rules are not adhered to on the premises where preparation is taking place.

In the absence of CHECS accredited sections at cattle shows and sales, any accredited cattle attending a show or sale will be deemed to have lost their accredited status. On being returned to the herd of origin such cattle must be treated as non-accredited added animals and must be isolated and tested according to the requirements of the individual disease programmes. The only exception to this is for Johne's disease accreditation when, providing the period of contact is less than one week, the added animal procedure need not apply. (*See Johne's disease section, paragraph 2.12*)

Should any show or sale be held exclusively for BVD accredited stock then cattle must only be allowed to travel to the event after the owner has faxed or emailed a current CHECS certificate of herd accreditation for BVD to the veterinary surgeon designated by the show or sale. BVD vaccinated monitored free cattle will not qualify for such events, because of the lower biosecurity requirements for that programme. Any cattle returning from such an accredited event will not be required to be tested in quarantine after returning to their herd, providing the transport vehicle has been suitably cleansed and disinfected before use and carries only stock of the same status.

28. Contact with non-accredited cattle: Accredited cattle that have come into contact with non-accredited cattle must be treated on their return to the farm as non-accredited added animals. The isolation and testing programmes as required by the particular disease programme(s) must then be carried out. Failure to observe this condition will result in the loss of accredited status.

29. Certification (1): Certificates are only issued by cattle health scheme operators licensed by CHECS. No other certificates are acceptable to the operators of CHECS cattle health schemes. Only herds with valid certificates are deemed accredited for the disease(s) for which they have been tested. The certificates will be valid for 13 months from date of testing, providing the rules of the scheme continue to be adhered to. Certificates will not be renewed until the testing required to maintain the accredited status of the herd has been carried out, with negative results, for the disease(s) in question.

30. Certification (2): Certification is based upon:

- Owner's declaration of compliance with the rules.
- Inspection of the herd by the practising Veterinary Surgeon.

- The Veterinary Surgeon's declaration of compliance with collection of the appropriate samples.
- Appropriate laboratory tests carried out at a CHECS approved laboratory, with results indicating freedom from infection.
- All results relevant to the accreditation process (from private as well as CHECS approved laboratories) are required to be made available to the health scheme provider by the member.
- The standards for certification stated in the Royal College of Veterinary Surgeons guide to professional conduct are adhered to. Veterinary Surgeons who are members of a cattle health scheme operating to the CHECS rules must have knowledge of and comply with the Royal College of Veterinary Surgeons guidance on self- certification.

31. Certification (3): A sample herd accreditation certificate is in Appendix 2. Herd accreditation certificates are signed by the health scheme provider and can be displayed at sales etc.

A sample individual animal declaration (IAD) certificate (pen card) is given in Appendix 3. A3 and A4 IAD certificates are produced for each sale animal. The A3 certificate is displayed above the pen of the sale animal; the A4 certificate contains additional information on vaccination, status and testing results. It is important to note that individual animals that are not from CHECS accredited herds can be sold with a pen card, however column two containing the Herd Accreditation boxes will be blank.

32. Loss of accreditation: Failure to observe any of the above rules will result in loss of status until such time as follow up testing can demonstrate that the disease status of the herd has not been compromised. This will be in the judgement of the CHECS scheme provider's Veterinary Surgeon. Where accreditation has lapsed because testing has not been carried out in the required time period, accreditation may be regained on completion of testing, with satisfactory results, and provided, in the interim period, the herd has been abiding by the rules of the scheme. In addition, where status has lapsed for Johne's disease, any animals of 2 years and over leaving the herd from 13 months after the date of sampling for the last annual screen, must also have been tested for Johne's disease, otherwise previous status will be lost.

33. Veterinary Surgeons: CHECS strongly recommends that Veterinary Surgeons participating in a cattle health scheme are members of the British Cattle Veterinary Association and have received appropriate training on the CHECS scheme and the target diseases.

34. Elite accreditation: Elite status can be applied to herds that are accredited free of BVD, IBR and leptospirosis and have risk level 1 status for Johne's disease.

Bulk Milk Monitoring Programmes

These are only available to dairy herds and use regular bulk milk antibody testing. They will give a good assessment of whether or not the herd has been exposed to the disease in question. Antibody testing of bulk milk samples is simple and convenient and is based on the recognition that like blood, milk also contains antibodies that reflect the animal's disease status.

Bulk milk samples may be tested for antibodies against BoHV-1, *L. Hardjo* and BVDV. A similar test exists for antibodies to Map, but due to the nature of the disease, the test has a more limited sensitivity for detecting infection in a herd and is therefore not included in the bulk milk monitoring programme.

The interpretations provided from the antibody results offer a composite picture from the cows in milk at the time of sampling. Antibody levels that are either high or low are the simplest to interpret, with a high level of antibody indicating either a widespread exposure to infection in the herd, that need not be recent, or the use of vaccines, and negative results indicating low prevalence of current infection. Intermediate antibody levels generally suggest the presence of some infected or vaccinated animals, but it is not possible to give precise prevalence figures. Sampling is typically conducted quarterly and the information derived becomes more reliable and helpful as sequential results are added and any trends of rising or falling levels become clear.

General points

- 1.** There is no requirement for biosecurity, although all farmers are advised to consult with their Veterinary Surgeon and have an active biosecurity plan for their herd.
- 2.** Milk samples should be taken from the bulk tank after all cows have completed milking to provide a representative whole-herd sample. If different groups of animals are milked separately, more information can be gained by submitting samples from each group
- 3.** Herd owners following a Monitoring Programme should consider a herd health visit by their own Veterinary Surgeon to discuss the interpretation of results and future plans for the herd.

Bovine Viral Diarrhoea (BVD) Programmes

For BVD there are four programmes allowing the farmer to work with their own vet to formulate a BVD health strategy to suit the particular circumstances on that farm. Vaccination of the breeding herd can be used in all four programmes without compromising their integrity.

1. Accredited Free Programme

Objective: To demonstrate the herd is free from BVDV, to maintain freedom from BVDV and to allow the sale of stock as accredited free of BVDV. Installation of double fencing, or use of an equivalent boundary to provide a gap of three metres between scheme cattle and any neighbouring cattle of a lower health status is essential for this programme.

2. Vaccinated Monitored Free Programme

Objective: To control BVD through vaccination of the breeding herd and, by regular monitoring of young stock, to demonstrate that the control is effective and exposure of young stock to BVDV has not occurred. The goal is to allow the sale of stock from a vaccinated herd that is monitored free of active BVDV infection. This programme is considered appropriate for commercial herds selling stock for finishing. The status of BVD Vaccinated Monitored Free (BVD VMF) herds is lower than that of BVD Accredited herds.

3. Dairy BVD Negative Programme

Objective: To provide dairy herds with a status indicating that there is no evidence of BVD infection within the herd through regular testing. The status of dairy BVD Negative herds is lower than both BVD Vaccinated Monitored Free herds and BVD Accredited herds and animals from dairy BVD negative herds must be treated as non-accredited animals when joining BVD VMF or BVD accredited herds.

4. Eradication Programme

Objective: To implement a control programme to reduce the detrimental effects on herd productivity caused by the disease and to achieve freedom from the disease. This programme applies where there is evidence of recent BVD infection in the herd or where positive test results have been found in the course of an accreditation programme.

1. Essential Points on Testing Methods

1.1. CHECS Rules: The Rules of CHECS apply to BVD Accredited Free, Vaccinated Monitored Free and dairy BVD Negative Programmes. However, in the case of the VMF Programme and in vaccinating herds following the dairy BVD Negative programme, there is no requirement for double fencing with a three-metre gap as boundary biosecurity. There are also specific added animal requirements for animals entering dairy BVD Negative herds.

1.2. Samples: Blood samples should be either clotted or heparinised, as specified by the testing laboratory. Individual milk samples provide an alternative sample. Tissue samples, typically ear notch samples, may also be used for detection of BVDV by ELISA or molecular tests. Bulk tank screens for antibody to BVDV and for the presence of BVD virus are tests that may be used within the programmes. Advice on sampling can be obtained from your cattle health scheme provider.

1.3. Added animals - Non-accredited Pre-Purchase Screen: When added animals cannot be obtained from accredited herds, it is preferable to blood sample and test them for BVD virus and for antibodies to BVDV on the farm of origin. BVD virus positive animals cannot enter the herd and elimination of them at this stage will create considerable savings in time and expense.

1.4 Added animals - Non-accredited Quarantine and Screening required in BVD accredited and VMF herds:

1.4.1 On entry to the herd, added animals must be placed in quarantine and the general CHECS rules on isolation and testing apply. If animals have not been screened as in 1.3, an early test is strongly recommended to identify infected cattle as soon as possible. Notwithstanding, added animals must be blood sampled and tested for BVD virus and for antibody to BVD at least 28 days after entry into isolation (see 1.7 below for bulls). The appropriate virus test for the age of the animal must be used as directed by the CHECS licensed laboratory. An animal can only enter the herd if it is deemed to be neither transiently nor persistently infected (PI) with BVDV (section 3.4). In a group of animals with mixed antibody results, animals must be held in isolation for a further 28 days and the seronegative animals re-tested. If no further seroconversion is found, the animals, if not pregnant, may enter the herd. If further seroconversion has occurred, the same process must be repeated until no further seroconversion is detected. Thus, added animals can only enter the herd 28 days after the last seroconversion.

1.4.2 Quarantine and testing of calves: Maternal antibody can interfere with BVD virus screening in calves. Calves should only be released from quarantine after they have been screened negative for virus and on the advice of your CHECS scheme provider's Veterinary Surgeon.

1.4.3 Quarantine and testing of pregnant cattle: Pregnant cattle with positive antibody results cannot be released from quarantine because they may be carrying a PI calf. Seropositive pregnant cattle must be excluded from the herd or maintained in quarantine until the calf is born and tested negative for BVDV. Exceptionally, the cow may be removed from quarantine before its calf is born if it was known to be seropositive or fully vaccinated against BVDV prior to service. The cow should be returned to quarantine before calving and the calves of such cows must be screened as soon as possible after birth to confirm that they are not persistently infected (PI).

1.4.4 BVD virus in semen: Bulls that are antibody positive have a chance of shedding virus in their semen and should not be used for a minimum period of ten weeks after entry to quarantine. It is also possible that a bull that is antibody positive may persistently produce BVD virus in its semen. This is considered to be extremely rare

but to reduce risk further, semen can be screened for virus under the guidance of your Veterinary Surgeon and the scheme's Veterinary Surgeon.

1.4.5. Animals added prior to commencing the accreditation programmes: All animals that have been purchased before beginning a BVD programme and have not been in contact with a group which will be screened by a Check Test (see 2.3 below) by the time of the initial screen should be identified, blood sampled and tested for BVD antibody and virus.

1.5 Added animals – dairy BVD negative programme:

All animals added to the herd must have a negative BVD virus test result; ideally, this will be before being added, however it must be within 40 days of being added to the herd. The appropriate virus test for the age of the animal must be used as directed by the CHECS licensed laboratory. For herds using retrospective test results to gain herd status, all animals added within the timescale of tests used towards the status must have a negative BVD virus test result. Where added animals have not been virus tested within the required time period, the herd status will lapse until such time as the testing is carried out.

All calves born to added pregnant animals must be tested for BVD virus as soon after birth as possible.

2. Test systems used in the accreditation, VMF and the dairy BVD negative programmes.

There are a range of testing options that may be carried out at different times depending on the programme being followed and the results of previous tests. These are defined below and the criterion for a test pass or fail is provided. It should be noted that a test failure need not mean a failure in achieving accredited status. This is explained further in the section on the implementation of the programmes (5.0 onwards).

2.1. Bulk Milk Test: A representative sample of milk is taken from the bulk tank and tested for antibody to BVDV. If the milk from the cows goes into more than one tank, then a separate sample must be collected from each tank.

If the Bulk Milk Test is antibody positive the result is a Fail. If the Bulk Milk Test is antibody negative the result is a Pass.

2.2. First Lactation Heifer Test: Individual milk samples are collected from all cows in their first lactation. These samples will be combined at the testing laboratory to give a single sample for testing for antibodies to BVD.

Alternatively, a check test of samples from five 1st lactation heifers taken at least two months after they have been in the milking herd could be tested individually for antibodies to BVD.

If the either the first lactation combined milk or any of the individual check test samples are antibody positive the result is a Fail. If the first lactation combined milk or all of the individual check test samples are antibody negative the result is a Pass.

2.3. Check Test: From each separately managed group of cattle in the age range 9 to 18 months*, sample five unvaccinated home reared cattle and test for antibody to BVDV.

- Where groups are made up after weaning, these are considered to be separate subgroups and five samples must be collected from each group.
- In groups of cattle where animals have been added to the group at intervals it is necessary to sample the five oldest in the group, which have not been vaccinated and the five that have been added most recently.
- Cattle should only be sampled after they have been together for at least two months.
- Where more than one group is included in the Check Test and at least five animals are sampled in each subgroup and all are antibody negative the Check Test is considered to be a pass and no further testing is required.
- Where fewer than seven animals in total have been sampled and are all antibody negative, then one animal should be tested for BVD virus. The check test is considered a pass if the single animal is also negative for BVD virus.
- Where fewer than five animals are sampled in any group included in the Check Test and all animals are antibody negative then one animal from each group with fewer than five animals should be tested for BVD virus. The Check Test is considered a pass when the animals tested for BVD virus are also negative.

Animals that have been vaccinated with a BVD vaccine or a multivalent vaccine containing a BVD component may test positive for antibody to BVDV and should be excluded from the Check Test.

Where multivalent pneumonia vaccines are used consideration should be given, where possible, to refining the vaccine programme to avoid the use of vaccines that have a BVD component.

If there is evidence of exposure to BVDV in the Check Test the result is a Fail. If every animal in the Check Test is antibody negative and providing that any test carried out for BVD virus is also negative the result is a Pass.

**In herds where complete groups may be sold off the farm before 9 months of age, the age range for the Check Test should be 6 to 9 months and the sample size should be 10 per group of animals or the whole group if less than 10 animals are available within this age range and not five. It should be noted that maternally derived antibody may occasionally persist beyond 6 months of age. In herds where vaccine is used cattle should be sampled before vaccination.*

2.4 Calf virus test: The calf virus test is an alternative to the Check Test and can be used where the majority of the calves are sold before they reach nine months of age (and are not available for the check test, see 2.3 above). All calves born are tested for virus using blood or tissue samples (see 1.2). The testing laboratory should be consulted prior to testing to ensure that the correct samples are tested for the age of calf and virus test to be used.

A positive result for any animal in the calf virus test is a Fail. If every animal born, including stillborn calves, in the last 12 months is virus-negative the result is a Pass. Calves that test negative for BVD virus within a “failed” herd test can be sold as individually tested BVD virus free.

3. Tests used in the dairy BVD negative and Eradication Programmes

When testing in the accreditation programme results in a failure, indicating active BVDV infection in the herd, the emphasis changes to disease eradication and to detection of animals that are carrying BVD virus. The approach taken in any herd will depend on the specific conditions of the herd. The objective is to provide the most cost-effective and timely testing programme required for the herd to remove BVDV infection. It should be recognised that the probability of a PI animal existing in the adults of the herd is much lower than in the young animals of the herd. Therefore, approaches that minimise screening the adult herd may be adopted (3.1 and 3.2). However, the gold standard remains screening every individual animal for the presence of BVD virus.

3.1 Screening the breeding herd for BVD virus (dairy): The bulk tank can be screened for the presence of BVD virus using the RT-PCR test. There will be an upper limit for the number of animals that can be tested in a single pooled sample. This number may vary according to the scheme provider. In herds where the numbers in milk exceed this then the pooled samples for screening may be produced by collecting individual milk samples and producing pools from those. If the test for any pool is positive then the animals contributing to the pool must be individually tested in order to identify the virus positive animal(s). All animals not contributing to the bulk tank must be screened individually by the blood test.

3.2 Screening the breeding herd for BVD virus (beef): After the calf crop has been screened individually (3.3), dams of calves which are not PI do not need to be tested. Other breeding females and bulls should be tested individually.

3.3 Screening immature cattle for BVD virus (beef and dairy): All immature cattle (includes all females yet to calve and young bulls not specifically covered by 3.1 and 3.2) on the farm should be screened for BVD virus from an age within the detection limit of the test used. Testing of all calves born into the herd should continue for 12 months after the last PI animal has been identified and removed, or for a period of 12 months after eradication step 1 (sections 9.1 or 10.1) has been completed without detecting any PI cattle.

3.4 Confirming BVD virus positives as PI animals: All animals that are identified as virus positive should either be removed immediately or be placed in quarantine and re-sampled three weeks after the first sample to differentiate persistent infection (PI) and transient infection. Once confirmed, PI animals should be removed immediately from the herd to slaughter.

4. Other Essential Tests for all Programmes

4.1. Reproductive Failure: Any unvaccinated animal that aborts, produces a stillborn calf or fails to calve having been previously identified as pregnant, should be blood-tested for antibodies to BVD. It is at the discretion of the herd's Veterinary Surgeon whether this sample is also tested for virus. The interpretation of the result of this test must be made against the herd status and any knowledge of the seroprevalence within the herd. It is a statutory requirement to report abortions and it is good practice to fully investigate abortion events by submission of the aborted foetus and placenta to your regional APHA/SAC/AFBI laboratory.

4.2. Clinical Disease: Any animal showing ill health and where BVD infection cannot be excluded on clinical grounds must be blood tested for BVD antibodies and virus. Virus positive cattle must either be removed immediately or be placed in strict isolation and undergo a second test for virus at least 21 days later to confirm whether they are PI or transiently infected. Animals confirmed as PI must be removed from the herd immediately.

Step-By-Step Implementation of BVD Programmes

5. Accredited Free Programme - Dairy Herds

5.1. Accreditation Step 1: Carry out a bulk milk test for BVD antibody. If this is negative, repeat quarterly over the next year and proceed to Step 2. If positive, a first lactation heifer test should be carried out. If both are positive there is the possibility of current or recent infection in the herd. Proceed to Step 2 (check test) to investigate further. If the bulk milk test is negative or the first lactation heifer test is negative, this suggests the herd may be currently free of infection; proceed to Step 2 (Check Test or calf virus test) to investigate further.

5.2. Accreditation Step 2:

Option 1. A Check Test should be carried out as described (see 2.3 above). If the test is positive, there is evidence of current or recent infection and the herd should enter the eradication programme. If negative, the Check Test is repeated on successive groups of heifers.

Option 2. A calf virus test should be carried out as described (see 2.4 above). If the test is positive (virus detected in one or more calves) the herd should enter the eradication programme. If negative, the calf virus test should be used on the following year's calf crop. After one or more rounds of calf virus testing, herds may revert to check testing.

5.3. Achieving Accreditation: without herd vaccination against BVDV: A dairy herd is accredited free of BVDV if Step 1 is completed followed by either negative check tests on successive groups of calves over a 12-month period or negative calf virus tests in two successive years, and either the bulk milk test or first lactation heifer tests

remain negative. Bulk milk testing or 1st lactation heifer bulk milk testing are carried out quarterly. A 1st lactation heifer check test is carried out at 6 monthly intervals.

5.4 Achieving Accreditation with vaccination against BVDV: A vaccinated dairy herd is accredited free of BVDV when there are negative check tests on successive groups of calves over a 12-month period or negative calf virus tests for two successive years. (There are several BVDV vaccines available that will impact on the bulk milk test differently. In general, where BVDV vaccine has been used in the herd bulk milk testing options may not be appropriate for accreditation. Your health scheme provider can advise on this in relation to the vaccine and antibody test used and whether bulk tank milk antibody may be used in the accreditation process.)

5.5. Maintaining Accreditation: Following accreditation a Check Test (see 2.3) is also carried out on successive groups of calves or calf virus test (see 2.4) is carried out on all calves born into the herd each year. It is advised that bulk tank or 1st lactation heifer monitoring may be used in unvaccinated herds or as explained in 5.4. Reproductive failure and clinical disease testing should be carried out whenever such disease occurs.

6. Accredited Free Programme - Beef Herds

6.1. Accreditation Step 1: A check test or calf virus test (see 2.3 or 2.4) should be carried out. If the test is positive, there is evidence of infection and the herd should enter the eradication programme. If negative, proceed to accreditation Step 2.

6.2. Accreditation Step 2: A check test or calf virus test (see 2.3 or 2.4) is carried out again on the following year's calf crop. If the test is positive, then there is evidence of infection and the herd should enter the eradication programme. If negative, the check test or calf virus test is repeated annually.

6.3. Achieving Accreditation: A herd is accredited free of BVDV if Steps 1 and 2 are completed and negative results achieved without there being any other evidence of active BVD infection in the herd.

6.4. Maintaining Accreditation: Following accreditation, a check test or calf virus test (see 2.3 or 2.4) is carried out on each successive calf crop. Reproductive failure and clinical disease testing should be carried out whenever such disease occurs.

7.0. Loss of Accredited Status - Dairy and Beef Herds: Where any test for the presence of BVDV is positive, then accreditation is lost. Exceptions to this are; antibody tests in vaccinating herds, in adult animals that were antibody positive prior to accreditation or added seropositive animals. Where further screening is done and the results indicate a limited breakdown without the birth of a PI, then status may be regained if the check tests carried out from each subsequent eligible group of calves for the next 12 months show no evidence of infection and the review of herd biosecurity indicates that it is compatible with the CHECS rules for this disease.

8. Vaccinated Monitored Free (VMF) Programme

8.1 VMF Step 1: Carry out a Check Test or calf virus test (see 2.3 or 2.4). Where evidence of exposure to or infection with BVDV is obtained in the young stock, a herd should move into the eradication programme for dairy or beef herds as appropriate. Where no evidence of exposure to or infection with BVDV in the young stock is found, this constitutes the first clear test.

8.2 VMF Step 2: A Check Test or calf virus test (see 2.3 or 2.4) is carried out again on the following year's calf crop. If positive results are obtained, then the options are as in step 1.

8.3 VMF Accreditation: A herd is deemed BVD vaccinated monitored free if step 1 and step 2 are completed and negative results achieved without there being any other evidence of active BVDV infection in the herd.

8.4 Maintaining VMF Accredited Status: After gaining BVD VMF status, a Check Test or calf virus test (see 2.3 or 2.4) is carried out on each successive calf crop. Reproductive failure and clinical disease testing should be carried out whenever such disease occurs. The breeding herd should continue to be vaccinated according to the instructions of the vaccine manufacturer.

9.0 Dairy BVD Negative Programme

9.1 Bulk tank BVD PCR testing: must be carried out quarterly.

9.2 Young stock screening: young stock can be screened by either

9.2.1 a check test carried out on each management group of young stock as detailed in section 2.3 or

9.2.2 all calves born tested for BVD virus as in section 2.4

If quarterly bulk milk screening as in 9.1 and young stock screening as in 9.2 are carried out over a 12-month period, and all animals added over this period have been tested as in 1.5 and all results are negative, dairy BVD negative status can be awarded.

Quarterly bulk milk screening and young stock screening of subsequent calf crops, along with appropriate added animal testing are required to maintain status. Vaccination of breeding stock is recommended, particularly where there may be nose to nose contact with neighbouring cattle.

10. Eradication Programme - Dairy herds

10.1 Eradication Step 1: Either all animals in the herd are screened individually or the bulk tank is screened for BVD virus by PCR (see 3.1) and all animals not contributing to the bulk tank are screened individually. Virus positive animals that are confirmed as PI should be removed from the herd to slaughter immediately.

10.2 Eradication Step 2: All calves to be screened as in section 3.3.

10.3 Eradication Step 3: After step 2 has been completed, Check Tests (2.3) are carried out as heifer groups reach 9 months of age. If positive, then step 2 should be repeated, testing all animals in the target range that have not already been tested.

10.4 Eradication Step 4: At 12 months after passing step 3, a Check Test is carried out. Negative results in two Check Tests, allow accreditation.

11. Eradication Programme - Beef herds

11.1 Eradication Step 1: Either all animals in the herd are screened individually for BVD virus or screening is restricted initially to the immature cattle as detailed in section 3.3. If the latter option is selected then once the results of the immature cattle screen are obtained, this is followed by screening the dam of any virus positive animal identified, any female that has not had a calf tested and all bulls (see 3.2). Virus positive animals that are confirmed as PI should be removed from the herd to slaughter immediately.

11.2 Eradication Step 2: Following step 1 all calves born are tested as detailed in section 3.3.

11.3 Eradication Step 3: After step 2 has been completed, Check Tests (see 2.3) are carried out as calf groups reach 9 months of age or calf screening continues. If positive, then step 2 should be repeated, testing all animals in the target range that have not already been tested individually.

11.4. Eradication Step 4: At 12 months after passing step 3, either a Check Test (see 2.3) or a calf screen are carried out. Negative results in two Check Tests allow accreditation.

Infectious Bovine Rhinotracheitis (IBR) Programmes

For IBR, there are three programmes:

Accredited Free (AF) Programme

Objective: To demonstrate the herd is free from BoHV-1, to maintain freedom from BoHV-1 and to allow the sale of stock as accredited free of BoHV-1. The installation of double fencing or the use of an equivalent boundary to provide a gap of three metres between scheme cattle and any neighbouring cattle of a lower health status is mandatory for this programme. Marker vaccinated animals can be present within such herds.

Vaccinated Monitored free (VMF) Programme

Objective: To demonstrate that the herd is operating a marker vaccination policy and is free from infection based on testing for gE antibodies. The goal is to allow herds that are free of BoHV 1 but for whom double fencing is not an option, to get recognition of that status and to enable the purchase of stock that have a much lower risk of being latently infected carriers than those in the general population. The status of IBR VMF herds is lower than that of IBR accredited free herds.

Eradication Programme

Objective: To implement a control programme to reduce the detrimental effects this disease has on herd productivity. The long-term goal is to achieve freedom from the disease and accredited status.

Marker Vaccine - A gE deleted marker vaccine may be used in all programmes. A marker vaccination programme must be in place for the IBR VMF programme (3.1). Where any animal is vaccinated with the marker vaccine, this information must be recorded and noted on the laboratory request form in order to allow the appropriate laboratory test to be carried out.

1. Essential Points on Testing Methods

1.1 Samples: Blood samples which should be either clotted or heparinised. Individual milk samples provide an alternative sample. Advice on this can be obtained from your cattle health scheme provider.

Where herds are vaccinated with the gE deleted marker vaccine, the antibody test that is used should be the gE antibody ELISA.

1.2 Test positive animal or herd: Any animal or bulk milk sample that is positive in the appropriate antibody test is a test positive animal or herd. This will result in loss of status. It is at the discretion of the scheme provider to re-test animals testing low positive. This may be with an alternative test.

1.3. Added animals - Non-accredited: When added animals cannot be obtained from accredited herds it is strongly recommended to blood sample and test them for

antibodies to BoHV-1 on the farm of origin. If positive, the animals cannot enter the herd.

On entry to the herd, added animals must be placed in isolation and the general CHECS rules on isolation and testing apply. The animals must be blood sampled and tested for antibodies to BoHV-1 at least 28 days after entry into isolation. In addition, an earlier test is strongly recommended to identify antibody positive cattle as soon as possible. Only if all the results are negative can the animals be introduced to the herd. Where there are two or more animals in isolation and both negative and positive animals are found, the positive animals must be removed from the isolation facilities and herd. The negative animals must remain in isolation and be retested 28 days after the removal of the positive animals.

Owners should be aware that occasional animals from non-accredited herds can test negative for antibody but be latently infected and therefore still present a small risk of infection. All non-homebred animals of 12 months of age or older must therefore be tested every year (see 2.3 and 2.4 below). Animals can only be classified as accredited after a clear test at least one year after introduction, although the herd remains accredited in the interim.

2. Accredited Free Programme

2.1. Qualifying Tests: Two herd tests are carried out with a minimum interval of 4 weeks and a maximum interval of 12 months between tests. At these first two tests all animals 12 months of age or older are sampled, plus all younger animals that are not homebred. If test positive animals are found, move to the Eradication Programme (see section 4).

2.2. Accreditation: Herd accreditation is achieved when all animals test negative in two consecutive qualifying tests and no evidence of infection is found in investigations into reproductive failure or clinical disease investigation (see section 2.6)

2.3. Maintaining Accreditation - Dairy Herd: Following Accreditation, bulk milk should be tested quarterly for antibody. In addition, a statistically based sample of animals 12 months of age or older in each separately managed group within the herd, but excluding those that have entered the milking herd, must be tested annually (See section 5). All breeding bulls, all animals that are not homebred and originate from a herd not accredited free of BoHV-1 at the time of purchase, and all animals vaccinated with a marker vaccine must be tested annually in addition to the statistically based sample.

2.4. Maintaining Accreditation - Beef Herd: Following Accreditation, a statistically-based sample of animals 12 months of age or older in each separately managed group within the herd must be tested annually. This would usually mean a sample from the cow herd and a sample from the followers (See section 5). All breeding bulls, all animals that are not homebred and originate from a herd not accredited free of BoHV-1 and all animals vaccinated with a marker vaccine must be tested annually in addition to the statistically based sample.

2.5. Reproductive Failure: Any cow that aborts, produces a stillborn calf or fails to calve having previously been identified as pregnant must be tested for antibodies to BoHV-1.

2.6. Clinical Disease: Any animal showing ill health where IBR cannot be excluded on clinical grounds should be isolated. Blood samples should be collected on first examination and again 14-21 days later and tested for antibodies to BoHV-1. Samples for virus detection (e.g. nasal/ocular swabs, broncho-alveolar lavage) may also be collected on first examination. These should be packaged to preserve the samples according to the test method to be applied (e.g. placed in virus transport medium for virus isolation) and immediately dispatched to the laboratory.

2.7. Loss of Status: When evidence of disease is found in a herd with either Accredited Free or Vaccinated Monitored Free status then the status of the herd is lost and the herd has the option to progress as for the eradication programme.

3. Vaccinated Monitored Free Programme

3.1. Vaccination strategy: With permitted exceptions, all cattle over 12 months of age must be vaccinated with marker vaccine as per the relevant product data sheet. It is permissible to leave some breeding stock unvaccinated e.g. to provide BoHV-1 antibody-free colostrum. Such animals should make up no more than 5% of the adult herd (over two years of age). Note that bulls that may enter semen collection stations should not be vaccinated in order to maintain their eligibility but must be managed to avoid accidental exposure to vaccine virus. Decisions on vaccine selection (live or inactivated; route of administration) should be made with the herd's veterinary surgeon.

3.2. VMF Qualifying Tests: Two herd tests are carried out, with a minimum interval of 4 weeks and a maximum interval of 12 months between tests. At these first two tests all animals 12 months of age or older are sampled, plus all younger animals that are not homebred. If test positive animals are found, move to the Eradication Programme (see section 4).

3.3. VMF Accreditation: Herd accreditation is achieved when all animals test negative in two consecutive qualifying tests and no evidence of infection is found in investigations into reproductive failure or clinical disease investigation (see section 3.6 and 3.7).

3.4. Maintaining VMF Accreditation - Dairy Herd: Following VMF Accreditation all animals that are 12 months of age or older and all animals that are not homebred and originate from a herd not accredited free of BoHV-1 must be tested annually. Bulk milk must be tested quarterly for antibody.

3.5. Maintaining VMF Accreditation - Beef Herd: Following VMF Accreditation all animals that are 12 months of age or older and animals that are not homebred and originate from a herd not accredited free of BoHV-1 must be tested annually.

3.6. Reproductive Failure: Any cow that aborts, produces a stillborn calf or fails to calve having previously been identified as pregnant, should be tested for antibodies to BoHV-1. It is a statutory requirement to report abortions and it is good practice to fully investigate abortion events by submission of the aborted foetus and placenta to your regional APHJA/SAC/AFBI laboratory.

3.7. Clinical Disease: Any animal showing ill health where IBR cannot be excluded on clinical grounds should be isolated. Blood samples should be collected on first examination and again 14-21 days later and tested for antibodies to BoHV-1. Samples for virus detection (e.g. nasal/ocular swabs, broncho-alveolar lavage) may also be collected on first examination. These should be packaged to preserve the samples according to the test method to be applied (e.g. placed in virus transport medium for virus isolation) and immediately dispatched to the laboratory.

3.8. Loss of Status: When evidence of disease is found in a Vaccinated Monitored Free herd the status of the herd is lost and the herd has the option to progress as for the eradication programme.

4. Eradication Programme

4.1. Initial Herd Test: All animals 12 months of age or older, plus all younger animals that are not homebred, should be tested. If all samples in the initial herd test are negative then this is the first qualifying test for accreditation.

4.2. Removal of Test positive animals: If the number of test positive animals is low they may be culled and the initial herd test repeated at intervals of not less than three months until a clear test is achieved. Once a clear test is achieved, this is the first qualifying test of the accreditation programme.

4.3. Vaccination: Where the number of test positive animals is too great to remove them from the herd, the herd may be vaccinated with a gE deleted marker vaccine. This should continue until all the original test positives have left the herd. At this time, the herd can again undergo the accreditation programme above. However, the gE antibody ELISA test should be used and this request should be made on the herd test submission form.

5. Statistical sampling size

5.1. Sample size for IBR annual tests in herds Accredited Free and not vaccinating. The table below gives the sample size for each separately managed group within the herd. Hence, for a 100 cow herd with 20 followers, 38 cows should be sampled and 19 of the followers. In addition, all breeding bulls should be tested as well as any animals introduced from a herd not accredited for IBR and all cattle vaccinated with a marker vaccine.

GROUP	SAMPLE	GROUP	SAMPLE	GROUP	SAMPLE
10	10	50	31	200	42
20	19	70	34	300	43
30	24	100	38	500	45
40	28	150	40	800	45

*For group sizes that fall between those in the table use the next highest group size to give the sample size.

Leptospirosis Programmes

For leptospirosis, there are three programmes:

Accredited Free Programme

Objective: To demonstrate the herd is free from *L. Hardjo* infection, to maintain freedom from infection with *L. Hardjo* and to allow the sale of stock as accredited free of *L. Hardjo*.

Monitored Free Programme

Objective: To demonstrate that, despite the presence of a small number of test positive animals in the herd (a single test positive animal in herds with 20 or fewer breeding animals, or up to 5% of breeding animals in other herds), there is no evidence of disease transmission. This will provide a transition stage towards accreditation during which time the lack of active leptospirosis in the herd can be recognised. The status of *L. Hardjo* Monitored Free herds is lower than that of *L. Hardjo* Accredited Free herds.

Eradication Programme

Objective: To identify test positive animals and to remove them from the herd to achieve freedom from *L. Hardjo* infection. The long-term goal is to achieve freedom from the disease and to gain accredited free status.

1. Essential points on Testing Methods

1.1. Samples: Blood samples should be either clotted or heparinised. Individual milk samples provide an alternative sample. Advice on this can be obtained from your cattle health scheme provider.

1.2. Test positive animal or sample: Any animal or bulk milk sample that is positive to the antibody test is a test positive animal or herd. This will result in loss of status. A small number of test positive animals may be retained in *L. Hardjo* Monitored Free Herds (see section 3.1) however these individual animals cannot be sold as accredited.

1.3. Added Animals - Non-accredited: When added animals cannot be obtained from accredited herds, it is strongly recommended to blood sample and test them for antibodies to *L. Hardjo* on the farm of origin. If positive, the animals cannot enter the herd.

On entry to the herd, added animals must be placed in isolation and the general CHECS rules on isolation and testing apply. The animals must be blood sampled and tested for antibodies to *L. Hardjo* at least 28 days after entry into isolation. In addition, an earlier test is strongly recommended to identify antibody positive cattle as soon as possible. Only if all the results are negative can the animals be introduced to the herd. Where there are two or more animals in isolation and both negative and positive animals are found, the positive animals must be removed from the isolation unit and

the herd. The negative animals must remain in isolation and be re-tested 28 days after removal of the positive animals.

Negative animals can enter the herd and positive animals must be removed from the herd.

Owners should be aware that animals from non-accredited herds might test negative but be infected and therefore present a small risk of infection. All non-homebred animals 12 months of age or older must therefore be tested every year. Only after a clear test at least one year after introduction can animals be classed as accredited.

Note: It is possible for infected carrier cattle to give negative antibody results, particularly if infection occurred some years ago.

2. Accredited Free Programme

2.1. Qualifying Tests: Two herd tests are carried out at an interval of at least six months and no longer than 12 months. All animals two years and older, plus any females or males between one and two years of age which are intended for breeding and any purchased animals, must be tested.

2.2. Accreditation: Herd accreditation is achieved when all animals test negative in two consecutive qualifying tests and no evidence of infection is found in investigations into reproductive failure or clinical disease investigation (see section 2.5 and 2.6).

2.3. Maintaining Accreditation - Dairy Herd: Following Accreditation, bulk milk should be tested quarterly for antibody. In addition, a statistically based sample of animals one year of age or older in each separately managed group of followers within the herd must be tested annually (see Section 5). All breeding bulls must be tested annually.

2.4. Maintaining Accreditation - Beef Herd: Following Accreditation, a statistically based sample of breeding animals one year of age and older in each separately managed group, within the herd must be tested annually. This would usually mean a sample from the cow herd and a sample from the followers (see Section 5). All breeding bulls must be tested annually.

2.5. Reproductive Failure: Any animal that aborts, produces a stillborn calf or fails to calve having been previously identified as pregnant should be blood tested for antibodies to *L. Hardjo*. It is a statutory requirement to report abortions and it is good practice to fully investigate abortion events by submission of the aborted foetus and placenta to your regional APHJA/SAC/AFBI laboratory.

2.6. Clinical disease: Any animal showing ill health, and where Leptospirosis cannot be excluded on clinical grounds, should be isolated. Blood samples should be collected on first examination and again 28 days later and tested for antibodies to *L. Hardjo*.

3. L. Hardjo Monitored Free Programme

3.1. Qualifying Tests: Where a herd has entered the Accredited Free Programme and test positive animals are identified, but the number of test positive animals is 5% or lower, (or one test positive animal where the number of eligible animals is less than 20) the herd will have the option to move to the L. Hardjo Monitored Free Programme. The second qualifying test is carried out at an interval of at least six months and no longer than 12 months. All animals 2 years of age and older, plus any females or males between one and two years of age which are intended for breeding, must be tested. Animals that tested positive in the first herd test may be excluded from further testing.

3.2. Monitored Free Status: Herd accreditation is achieved when all animals test negative in two consecutive qualifying tests (excluding the 5% or lower, animals identified as positive at the first test) and no evidence of infection is found in investigations into reproductive failure or clinical disease investigation (see section 3.5 and 3.6).

3.3. Maintaining Monitored Free Status - Dairy and Beef Herds: Once L. Hardjo Monitored Free Status has been achieved, an annual herd test is carried out as for the qualifying tests; previously identified seropositive animals may be excluded from this test.

3.4. Removal of Test Positive Animals: Any herd with Monitored Free status can progress to Accredited Free Status by removing test positive animals at least six months before the next herd test is due. Providing the herd test is then negative Accredited Free Status will be awarded.

3.5. Reproductive Failure: Any animal that aborts, produces a stillborn calf or fails to calve, having been previously identified as pregnant, should be blood tested for antibodies to L. Hardjo.

3.6. Clinical Disease: Any animal showing ill health, and where Leptospirosis cannot be excluded on clinical grounds, should be isolated. Blood samples should be collected on first examination and again 28 days later and tested for antibodies to L. Hardjo.

4. Eradication Programme

4.1. Initial Herd Test: All animals one year of age and older that are intended for breeding should be tested. If all samples in the initial herd test are negative, then this is the first qualifying test for accreditation.

4.2. Removal of test positive animals: If the number of test positive animals is low, they may be culled, and the initial herd test may be repeated at an interval of not less than six months and no more than 12 months until a clear test is achieved. Once a clear test is achieved, this is the first qualifying test of the accreditation programme.

4.3. Options if large numbers of test positive animals are found in young stock and young cows:

Three options are available:-

- If the initial herd test shows seropositive, non-vaccinated animals across all age ranges consistent with recent/current exposure, treat all animals over 12 months of age simultaneously with an appropriate antibiotic therapy (in consultation with the herd's Veterinary Surgeon). Thereafter, testing of sentinel groups of heifers and first lactation animals can be used to monitor progress. Repeated negative results in these groups are consistent with absence of active infection and would suggest that in time the herd will become seronegative in the absence of vaccination.
- In vaccinating herds, or where the initial herd test shows only seropositive cattle in the older age groups consistent with absence of current infection in the herd, maintain herd biosecurity and retest a sentinel group of serologically negative animals every six months. Ongoing negative results are consistent with absence of active infection and would suggest that in time the herd will become seronegative in the absence of vaccination. Where positive results are found in sentinel animals, consideration should be given to antibiotic treatment or vaccination.
- Vaccinate the herd.

4.4. Vaccination: A vaccination programme will prevent losses associated with the disease. However, once a vaccination programme has been implemented in all breeding animals in the herd it will not be possible to determine whether infection is active within the herd as the currently available tests are unable to differentiate infection from vaccination. Accreditation cannot begin until all antibody positive animals have left the herd but monitored free status can still be gained in the absence of any active seroconversion where 5% or less of the herd have been vaccinated or a limited number of vaccinated animals remain in the herd.

5. Statistical sampling size

5.1 Sample Size for Leptospirosis annual tests in herds accredited free of infection: Use the table below to give the sample size for each separately managed group within the herd. Hence, for a 100 cow herd with 20 followers, 38 cows should be sampled and 19 of the followers. In addition, all breeding bulls should be tested as well as any animals introduced from a herd not accredited for leptospirosis.

GROUP	SAMPLE	GROUP	SAMPLE	GROUP	SAMPLE
10	10	50	31	200	42
20	19	70	34	300	43
30	24	100	38	500	45
40	28	150	40	800	45

*For group sizes that fall between those in the table use the next highest group size to give the sample size.

Johne's Disease Programmes

For Johne's disease, there are two programmes:

1. **Johne's Disease Risk-Level Certification Programme (beef and dairy)**
2. **The Johne's Disease Risk-Level Reduction Programme for the dairy herd**

1. Johne's Disease Risk-Level Certification Programme (beef and dairy)

Objectives

To assess the risk of Johne's disease being present in the herd.

To reduce the risk of Johne's disease to the herd.

To support the marketing of animals from herds with a certified Johne's disease risk level.

Method

The programme uses testing of the adult herd for Johne's disease to assess the level of disease present. This information, supported by a set of management rules and a Johne's health plan, allows the Johne's disease risk level for the herd to be determined and managed to reduce the risk of Johne's disease or maintain freedom from Johne's disease as appropriate for the herd.

The programme can be used for both beef and dairy herds, but for many commercial dairy herds the Johne's Disease Risk Level Reduction Programme for Dairy Herds may be more appropriate.

Testing of all animals aged 24 months and older must be done annually (except in those risk level 1 herds that have taken the option for biennial herd testing - see 2.4). The number of animals tested as part of the annual herd disease screen, and the number of animals that have tested positive since the previous annual test are used in the risk level calculation.

Definition of a test pass

- If all animals test negative for antibodies by ELISA or negative for *Mycobacterium avium* subsp. *paratuberculosis* (MAP) if herd faecal testing is carried out, then the annual herd test is passed.
- If any animal in the herd test is positive for antibody to Johne's disease further faecal testing may be carried out, as in section 1.3. If the faecal test results are negative, the herd test is passed.
- If further faecal testing is not carried out, animals with positive antibody results are considered to be test positive animals and the herd test has not been passed.
- Level R1* only applies to herds that have achieved R1 status and have had no seropositive animals in the most recent herd test or during the previous 12 months. Further faecal or blood testing of seropositive animals as described in section 1.3 does not allow R1* to be achieved.

Definition of levels within the Johne's Disease Risk-Level Certification Programme

Risk Level 1 (R1 and R1*)

R1 & R1* carry the lowest risk of Johne's disease being present within the herd. Herds achieve R1 when they have passed three consecutive annual herd tests. In addition, any herd that has achieved R1 status and where no animal has tested seropositive at the most recent herd test or during the previous 12 months will be certified as R1*.

Risk Level 2 (R2)

Any herd that has passed the most recent annual herd test but has yet to reach R1 is categorised as R2.

Risk Level 3 (R3)

Test-positive animals have been detected at the most recent annual herd test, but the number does not exceed 3% of the animals tested.

Risk Level 4 (R4)

More than 3% of the animals tested were test positive at the most recent annual herd test.

Risk Level 5 (R5)

These are herds that are not adhering to all the mandatory Johne's disease programme rules, but they may be carrying out some parts of the programme.

Risk Level Certification

The date of expiration of the disease status, the number of animals tested, the number of seropositive results and the risk level attained are provided on the herd certificate. If a whole herd faecal screen is carried out, this will be stated on the certificate.

1.0 Essential points on Testing Methods

The instructions within 1.1 to 2.13 are mandatory for the Johne's Disease Risk Level Certification Programme.

1.1 Samples

Blood samples should be either clotted or heparinised and must be identified by the official ear number of the animal. Milk samples may also be used. Faeces samples must weigh at least 5g and be submitted in a sample pot designed for the purpose. Any pooling of faeces must be carried out by the testing laboratory and must not be done on the farm or in the practice laboratory.

An annual herd screen must be carried out using the same sample type for all animals ie all blood, all milk or all faeces.

1.2 Tests used in the programme

Blood and milk samples are tested by ELISA for the presence of antibodies to MAP, the causal organism of Johne's disease.

Faeces samples are tested for MAP by culture and/or PCR.

1.3 Definition of a test positive animal

- Any animal that tests positive for antibodies to Johne's disease is defined as test-positive in the programme if no further testing is carried out.
- An animal testing positive for antibodies in milk may subsequently be subjected to a blood test within one month of the milk test. If the blood result is negative, this animal is no longer classed as test positive.
- Any animal that tests positive for the presence of the Johne's disease organism (MAP) by culture or PCR testing of the faeces is defined as test-positive in the programme.
- Antibody positive/faecal negative animals are not considered as test positive within the programme but are considered high risk. Their presence within a herd prevents it achieving R1* status and these animals cannot be sold as breeding animals.
- Note that pooling of faeces is not permitted when faecally screening previously antibody positive animals.
- Clinical cases confirmed via post-mortem examination/histopathology will also be defined as test positive and contribute to the herd status calculation.

1.4 Antibody positives in an annual herd test following intradermal tuberculin testing

To minimise the risk of antibody positives that may be produced following SICCT testing for tuberculosis it is recommended not to carry out Johne's disease blood testing within three months of a SICCT test. Where this cannot be avoided, or where it has inadvertently occurred, seropositive animals must be separated from test negative animals and tested again after one month, and if still positive, again three months after day 1 of the SICCT test. Those animals that subsequently test negative as above for antibody are considered not to be test positive in the programme, but their presence is a barrier to achieving R1* status.

Any animal remaining positive for antibody three months after day 1 of a SICCT test is permitted to be tested by faecal culture or PCR. If the result is negative and no other faecal test positive animals remain in the herd the herd test can be considered to be a pass. Such a pattern of results does not prevent the herd being certified as R1 or R2, but R1* cannot be awarded.

2.0 Herd testing and other requirements

2.1 Whole Herd Annual Blood Test

- All animals in the herd aged 24 months or older must be tested each year using the antibody ELISA (exception see 2.4).
- An annual herd test can only count as a pass providing 12 months have elapsed since there was a herd test with any test positive animal, and providing no other

test positive animal has been identified in the herd in the intervening 12 months. Sampling of the herd must be completed within one month. In herds with two distinct calving blocks, animals may be tested on separate occasions, but all eligible animals must be tested within a 12 month period.

2.2 Quarterly Individual Milk Samples

This can be used in place of a herd test as described in 2.1. A cycle of testing is considered passed when four quarterly tests have been carried out and all bulls and other eligible non-milking cattle have been blood tested and no test positive animal has been identified in the herd over a 12-month period.

2.3 Whole Herd Faecal Screen

The option exists for herds to test the whole herd by faecal culture or PCR instead of the blood test. Where pooled this must be performed by the testing laboratory. The maximum pool size is five. Using whole herd faecal screening is a barrier to achieving R1* status.

2.4 Biennial Herd Test for R1 Herds

- Once a herd achieves R1 status and has subsequently had two further clear annual herd tests, there is the option to follow the non-homebred and cull screen programme (see 2.5 below), in which testing of homebred animals may be carried out biennially rather than annually. This option is only available to herds that have at least 20 homebred breeding animals of two years of age and over.
- Note that this option does not allow herds to obtain or maintain R1* status where the annual whole herd test must be carried out.

2.5 Non-Home Bred and Cull Screen

- This test must be performed when the biennial herd test has been selected.
- At 12 months from the last complete whole herd test, blood and dung samples must be taken from all breeding animals two years or older that are not homebred or are scheduled to leave the herd.
- Where, in the course of the second 12 months from the full herd test, further animals are removed from the herd, they too must be sampled and tested as above.
- If the blood results are positive, then their faeces samples will be screened for the presence of MAP by culture or PCR.

2.6 Clinical Disease

- Any disease condition in an animal six months of age or older that might be attributable to Johne's disease must be investigated by the herd's Veterinary Surgeon. This includes all animals that may have diarrhoea, weight loss or both. If the Veterinary Surgeon is satisfied that the condition is not Johne's disease, then no further action need be taken within the Johne's programme. If the Veterinary Surgeon cannot rule out Johne's disease, then a blood sample and faeces sample must be collected from each affected animal and tested.

- The affected animals must be isolated from the herd until the results of the laboratory tests are known.
- Animals that die before blood or faeces samples are collected and are subjected to postmortem examination should have the ileocaecal junction and draining lymph node examined histologically and by PCR.

2.7 Added Animals – from R5 herds and herds not participating in the Johne's control programme

- The risk of introducing Johne's disease to the herd by purchasing animals from herds of unknown Johne's status should be assumed to be high and purchase of such animals is not advised.
- If this risk is taken, then all animals, irrespective of age, must be sampled by blood and faeces before introduction to the herd. This may be done on the farm of origin within one month of movement and whilst in isolation, or once in isolation on the purchaser's farm. (If the purchased animal is to be subjected to a pre-movement SICCT test (PrMT) then, assuming a negative result, it is permissible for blood to be collected for Johne's disease antibody testing on day 1 of the PrMT.)
- Animals must remain in isolation throughout the testing process and can only enter the herd once tests are negative.
- Note that animals are more likely to test positive for antibodies to Johne's disease if they have been subjected to pre-movement TB testing. Positives that arise in this situation may be retested as described in 1.4 (although they should continue to be regarded as high-risk) and the same constraints in relation to R1* remain. During the follow up testing they must continue to be held in isolation.

2.8 Added animals – from herds with risk level 2, 3 and 4

The testing and isolation requirements for animals purchased from any herd participating in the Johne's Disease Risk Level Certification Programme and hold Risk Levels R4, R3 or R2 are as for those herds that are not participating in the programme (2.7).

2.9 Added animals – from R1 and R1* herds

Animals that are purchased with a valid R1 or R1* status are exempt from the testing requirements as described in 2.7. Note that the isolation and added animal testing requirements for any other CHECS disease programme that the purchaser's herd participates in must still be followed.

2.10 Selling on animals that are not homebred

Non natal animals are described on sale certificates as 'not homebred' and cannot be sold with a herd status, with the exception of animals added with a valid R1 or R1* status, when appropriate evidence of this is provided to their health scheme provider.

2.11 When an animal added from a herd of status R1* to R3 tests positive by faecal PCR within 6 months of sale

Where an animal tests positive in the herd blood test or is detected in any other way as antibody positive within six months of purchase, it should be subjected to a faecal PCR test. If the result is negative for MAP by PCR R1* status cannot be achieved, but the purchased antibody positive animal will not otherwise count in the calculation of the purchaser's risk level.

If the purchased animal tests positive by faecal PCR, then the purchaser of the positive animal must inform their health scheme provider whom the vendor was and also inform the vendor of the result. The vendor must in turn inform their health scheme provider. The positive result will then be added to the latest herd test of the vendor, which may lead to recertification of the herd risk level.

In cases of dispute the following protocol must be used. Animals may be retested after one month. They must be placed in an isolation pen free of faecal contamination from other animals and with no nose-to-nose contact with other animals. Faecal samples must be collected on day 7, 14, 21 and 28 of isolation for PCR testing. Faecal samples must be collected per rectum by the herd's Veterinary Surgeon. If the animal tests positive on any one of the four occasions it is confirmed as a test positive animal.

2.12 Shows and Sales

If cattle from a Johne's disease risk level certified herd have been away from the herd at a show or sale for a period not exceeding seven days and contact with other cattle, particularly their manure and soiled bedding, has been minimised, then these cattle can re-join their herd of origin without the need for Johne's disease testing. Note that the isolation and added animal testing requirements for any other CHECS disease programme that the purchaser's herd participates in must still be followed. (If the period away from the herds exceeds seven days all returning cattle must be tested as added animals.)

3. Mandatory Control Elements of the Johne's Disease Risk-Level Certification Programme

3.1 Test Positive Animals

- All test positive animals must be placed in isolation (see general rule 14) with any follow up testing, if appropriate, being carried out as soon as is practical.
- Members should be aware that any animal that leaves the herd or dies before the results of the herd test are known, may have a positive antibody result. Therefore, to ensure that such animals can have further screening carried out you should arrange for your vet to collect and store a faeces sample from these animals before they leave the holding. This can be managed for animals that have been subject to emergency slaughter, culled for some other reason, sold, or otherwise died. In the event of these animals having a positive antibody result the dung samples can be tested if required.

3.2 Test positive animals and their offspring

- Notwithstanding the requirements for separation of test positive animals in 3.1, all animals confirmed as test positive animals must be removed from the breeding herd as soon as is practical and may not be sold as breeding animals.
- Any calf that has been reared by a cow since the time the cow was recognised as a test positive animal must not be retained for breeding or sold as a breeding animal. See also 4.7.
- Where cows are in late pregnancy or rearing calves, they may be retained until the calf can be weaned but must be separated from other youngstock, breeding animals or animals intended for breeding.
- If the test positive animal is kept at pasture no breeding animal or animal intended for breeding can graze that pasture for 12 months following the removal of the test positive animal.
- The faeces from test positive cattle must be kept away from other cattle and where possible only spread on land that will not be grazed by livestock for a period of at least 12 months following spreading.

3.3 Health Plan

A health plan covering the control of Johne's disease must be in place and must be provided to the Health Scheme provider within a week of being requested. It must be updated annually, and it must be signed off by both the herd's Veterinary Surgeon and by the herd owner or manager. The health plan must cover the mandatory control elements (3.1 to 3.3), and the advisory measures listed in the guidelines (4.1 to 4.7) The herd's Veterinary Surgeon must detail in writing within the health plan why any particular guideline has not been followed.

3.4 Failure to adhere to mandatory requirements

Should a herd fail to adhere to all points under section 1 and 2 of the Johne's risk level certification programme and to any of the points 3.1 to 3.3 then it will immediately lose status and be categorised as level R5. Furthermore, failure to provide a current and signed off health plan within one week of it being requested by the health scheme provider will result in the immediate loss of status and the herd will be categorised as level R5.

3.5 Re-accreditation

Herds that have lost status as detailed in 3.4 can only regain their previous status following all mandatory requirements being satisfied and after the next herd test.

4.0 Guidelines for the Johne's Disease Risk Level Certification programme health plan

4.1 Hygiene programme

Detailed herd specific instructions must be in place to reduce the amount of faecal contamination that stock are exposed to. The main focus for this is to keep cows in the

immediate pre-calving period as clean as possible and to ensure that faecal contamination of any calving area, post-calving housing and for young calves sucking their dams is minimised. It should include guidelines on slurry and manure management.

4.2 Feed and water delivery systems

A cleaning schedule for feed and water delivery systems with the objective of reducing faecal contamination should be defined in the health plan.

4.3 Water provision at grass

Wherever possible mains water should be provided. Herds on extensive grazing which are at least 50 hectares are exempt from this requirement but note that enclosed grazings (in-by) are not exempt.

4.4 Natural water sources

Ponds and other areas that allow cattle to defecate into them and then drink from them should be fenced off. Extensive grazing is exempt from this requirement.

4.5 Co-grazing with other ruminant species

Other ruminants can be a source of infection for cattle and should not co-graze with cattle. This applies to all but extensive hill grazings.

4.6 Rabbits

Rabbit populations can become infected with MAP and should be considered as a potential source of pasture MAP contamination and be a potential infection risk to cattle.

4.7 Offspring of female test positive animals

The mandatory requirement of 3.2 that any calf that has been reared by a cow since the time the cow was recognised as a test positive animal must not be retained for breeding or sold as a breeding animal, should be extended to include her previous calf.

The Johne's Disease Risk-Level Reduction Programme for Dairy herds

Objectives

To reduce the detrimental effects on herd productivity caused by Johne's disease and to reduce the prevalence of the disease in the herd. Unlike the Risk Level Certification Programme, the removal of test positive animals is not a strict requirement. For those seeking certification, participation in the Johne's Disease Risk Level Certification Programme (beef and dairy) is recommended.

5.0. Dairy Johne's Disease Risk-Level Reduction Programme (dairy) –Test programme

5.1 Initial herd test

All animals two years or older must be either blood tested annually, or milk sampled quarterly. Any animals aged two years and older that have not had a milk sample tested as part of the herd screen, must be blood sampled, including any cows not being milked and bulls. If all samples in the initial herd blood test or first year of quarterly milk samples are negative, then this can be the first clear test for the Johne's Disease Risk-Level Certification Programme, providing the rules of the scheme are adhered to and the mandatory requirements (3.1 to 3.4) are satisfied.

Where herds are using this programme, they may progress to the Certification programme once a complete clear herd test has been attained and the mandatory elements of the Certification programme are being followed. As with the conventional testing system there is the option to carry out faecal testing on samples collected from animals which have given a positive milk antibody test result (defined in 1.3 above). Having achieved a clear 12-month period, they may then enter the Certification programme at Risk Level 2, providing the other requirements detailed (3.1 to 3.4) have been met. These subsequent clear herd tests may be based on either continued complete 12-month cycles of quarterly milk testing with the addition of all bulls and other eligible non-milking cattle as defined in 2.2 or annual whole herd tests as defined in 2.1.

5.2 Managing test positive animals and their offspring

It is advised that all calves delivered by any test positive animal and any calves reared by the test positive animal following detection should not be retained for breeding.

All confirmed positive animals should be removed from the herd as soon as is practical. It is advised that calves delivered and/or reared by confirmed positive animals should not be retained for breeding.

In the case of quarterly individual cow milk testing, a management strategy for high and medium risk cows, as defined by the laboratory carrying out the testing, should be agreed between the vet and the farmer. Where possible, no high-risk cows should remain in the herd at calving. Medium risk cows should be isolated at calving to reduce the risk of infecting young stock.

5.2.1 Definition of High-Risk Cow

A cow is identified as high risk if she has tested positive on two consecutive quarterly milk antibody tests or on one blood antibody test. High-Risk cows should have no contact with young stock and their colostrum must not be fed to calves from any other cows.

5.2.2 Definition of Medium-Risk Cow

A cow is identified as medium risk if she has tested positive on one occasion in a quarterly milk sample during her current lactation. Cows that have been identified as medium risk on the last milk sample of their current lactation should be further blood sampled after one month and before the animal calves. Should she test positive on blood she will be categorised as high risk.

5.2.3 Definition of Low-Risk Cow

A cow is low risk if she has had more than two consecutive milk antibody tests or a single blood antibody test in the negative zone, including the most recent result, irrespective of previous testing results.

5.3 Routine herd test

Routine annual testing (testing all eligible animals over two years old) and/or quarterly individual cow milk testing (testing all eligible animals in milk over two years old at each test) continues and management procedures to reduce the exposure of cattle to infection are implemented.

5.4 Antibody positive results following intradermal tuberculin testing in milk antibody testing schemes

An increase in the number of animals that test positive for antibody to MAP may be seen following the herd skin test (SICCT test) for tuberculosis. Although this may reflect a reduced specificity of the Johne's disease antibody test during the anamnestic period following a SICCT test there is a much greater effect enhancing the sensitivity of the Johne's disease antibody test; most of the animals displaying an increase in Johne's disease antibody results when tested during the anamnestic period following a SICCT test will be true positives but ones which are detected earlier than they otherwise would have been, with only a minority of these now positive results being 'false' positives. In most cases these 'false' positive antibody results will return to negative within three months and before the next round of Johne's disease antibody testing. Provision is made above to address this possibility.

6. Vaccination

If the number of positive animals at a herd test is such that a culling policy cannot be pursued, herd vaccination may be considered. There is no licensed Johne's disease vaccine currently available in the UK, but the use of an imported vaccine may be authorised, and the herd's Veterinary Surgeon can advise on this. Antibody tests cannot distinguish between vaccinated, non-infected cattle and infected cattle; therefore, discussion should be had with your health scheme provider before enrolling a vaccinated herd on a disease reduction programme. Vaccination will not prevent infection but may delay the onset and reduce the severity of clinical signs of disease. Management procedures to reduce the exposure of cattle to infection should be implemented. Vaccination continues until no clinical Johne's disease occurs for a period of at least two years. At this point, vaccination can cease and progression towards Johne's disease risk level assessed status can begin.

Neospora Programmes

Neospora Risk-level Certification Programme (beef and dairy)

Objective: To provide an assessment of the risk of neosporosis being present in the herd and to provide a control programme that achieves a reduction in the risk of neosporosis within the herd and to allow the marketing of cattle with an accredited risk level by identifying test positive animals and removing these from the herd in order to reduce the impact of the disease. Known test-positive female animals will not be used to provide a source of female breeding replacements in the herd.

Method: Herds may progress from risk level 5 to risk level 1 as they progress in controlling the disease. In addition to adhering to the CHECS rules there are mandatory requirements that support the control and prevention of neosporosis within this programme (detailed in section 3 below). Herds will be CHECS accredited for the four risk levels (1-4) within the programme. Herds may choose to test animals but not adhere to the mandatory requirements. These herds and any herds not testing will be risk level 5 and will constitute the highest risk of being a source of Neospora infected stock. This programme of risk accreditation can be used in both beef and dairy herds.

Definition of levels within the *Neospora* Risk-Level Certification Programme:

To progress to the next level, testing cannot be sooner than 12 months after the previous test. In addition testing may be carried out at intervals through the year to fit in with management purposes. However progress to the next level will occur at 12 monthly intervals only, after all eligible animals have been screened, and on a defined annual assessment date. When assigning a herd risk level, all test positive female animals identified during the previous 12 months must be included in the calculation to determine the risk level. The percentage used to calculate the risk level is defined as the percentage of test positive female animals identified in the herd by the date of the annual assessment, out of all the eligible animals on that date. Eligible animals are defined as all female animals aged two years and older, plus any females between one and two years of age which are intended for breeding, plus any purchased females intended for breeding. All eligible animals must be tested in order for the herd to qualify for this risk level certification programme.

Accreditation of herd for levels 1 to 4: The date the herd achieves a particular level will be included on the Certificate of Accreditation. Should a herd, having reached a particular level, fail to meet the standard and drop down a level but subsequently regain the original level, the date on the certificate will be when the particular level was regained.

Level 1: Herds must have had three consecutive clear annual herd screens. Level 1 will be further defined by stating the year in which the herd achieved level 1 assessment. This is associated with the lowest risk of neosporosis in relation to buying breeding stock from participating herds.

Level 2: This applies to all herds that have had an initial, or two consecutive clear tests, but are yet to achieve level 1 status. Level 2 will be further qualified by the number of consecutive clear herd tests that have been achieved (e.g. Level 2, one year clear; Level 2, two years clear).

Level 3: These are herds that have test positive animals identified within the herd, but the number of test positive animals does not exceed 5% of the herd eligible for testing in the Neospora programme at the most recent test.

Level 4: These herds have more than 5% of eligible animals identified as test positive animals at the most recent test.

Level 5: These herds may be carrying out a testing programme but are not adhering to the mandatory requirements of the programme.

1 Essential points on testing methods

1.1 Samples: Samples taken during the course of this protocol should be either blood collected in plain (red top) vacutainer tubes without anticoagulant (clotted) or individual milk samples with preservative. Advice on this can be obtained from your cattle health scheme provider.

1.2 Definition of a test positive animal: Any animal that is positive to the antibody test is a test positive animal. There will be the ability to retest occasional animals at the discretion of the scheme provider

1.3 Added animals – Non-accredited: Under no circumstances should any sero-positive female animals or female offspring from sero-positive added female animals be retained to introduce into the breeding herd.

When added animals cannot be obtained from accredited herds, it is strongly recommended to sample and test them for antibodies to Neospora on the farm of origin. Where possible the dams of prospective purchased heifers should also be blood sampled and tested. If any are positive, the animals or their female offspring cannot enter the herd and there will be considerable savings in time and expense.

2 Testing Methods

2.1 Annual herd tests: These are carried out on all female animals aged two years and older, plus any females between one and two years of age which are intended for breeding and any purchased females (see 1.3). An annual herd test can only count as clear providing 12 months have passed since there was a herd test with any test positive animals and providing no other test positive animal has been identified in the herd in those 12 months.

2.2 Biennial herd tests: Once a herd achieves Risk Level 1 status and has subsequently had two further clear annual herd tests testing of homebred animals may be carried out biennially rather than annually.

2.3 Definition of a clear test: For a herd test to be clear, there must be no test positive female animals. Females with positive antibody results are considered to be test positive animals and the herd may drop down a level or levels depending on the percentage of test positive animals.

3. Mandatory Control Elements of the Neospora Risk-Level Certification Programme 3.1-3.6.1

3.1. Offspring of female test positive animals: Any female calf born to a cow since the time the cow was recognised as a test positive animal must not be retained for breeding or sold as a breeding animal.

3.2. Removal of test positive animals: To make maximum progress test positive female animals should be culled or removed from the breeding herd at the end of their productive period (i.e. the end of the current lactation). These animals must not be sold for breeding. In some herds there is a desire to retain high genetic merit test-positive animals to breed bulls or for the flushing of embryos. If doing this the herd cannot progress above level 3 until the test positive animals are removed. When assigning a herd risk level, all test positive female animals identified during the previous 12 months must be included in the calculation.

3.3 Health Plan: A health plan covering the control of neosporosis must be in place. It must be updated annually and it must be signed off by both the herd's Veterinary Surgeon and by the herd owner or manager. The health plan must be available to the health scheme provider on request. The health plan must cover the seven mandatory elements listed 3.1 – 3.6.1 and the six advisory measures listed in the biosecurity guidelines (4.1 - 4.6). The herd's Veterinary Surgeon must detail in writing within the health plan why any particular advisory measure has not been followed.

3.4 Failure to adhere to mandatory requirements: Should a herd fail to adhere to any of the mandatory requirements then it will immediately lose status and be categorised as level 5. Furthermore, failure to provide a current and signed off health plan within one week of it being requested by the health scheme provider will result in the immediate loss of status and the herd will be categorised as level 5.

3.5 Re-accreditation: Herds that have lost status as detailed in 3.4 can only regain their previous status following all mandatory requirements being satisfied and after the next herd test.

3.6 Maintaining Accreditation: Following accreditation at level 4 upwards, annual screening of all eligible animals is required. Once level 1 is reached and two further clear annual tests have been achieved, biennial testing of all eligible animals may be carried out (2.2). In addition, at any risk level, any animal that aborts, was pregnancy diagnosed as in calf but subsequently did not calve, gives birth to a stillborn calf or where there is unexplained calf mortality within 24 hours of birth must have a full investigation according to section 3.6.1.

3.6.1 Abortion/further investigation: The minimum requirement is sampling and testing the aborted cow for antibodies to *N. caninum* by ELISA at the time of abortion. As well as being a statutory requirement to report abortions, it is good practice to fully investigate abortion events by submission of the aborted foetus and placenta to your regional APHA/SAC/AFBI laboratory and this is strongly recommended.

Any test positive animals identified will be included in the risk level calculation and the herd may drop down a level or levels depending on the percentage of test positive animals identified during the preceding 12 months.

If neosporosis is confirmed to have been involved in the abortion by any of the above testing the dam will be considered test positive. Further investigation is advised to quickly identify other animals that may have been infected at the same time. This involves immediate sampling for Neospora ELISA of all female animals in the same cohort as the aborted cow. The cohort is defined as all animals which are due to calve or have calved from one month before to one month after the due date of the aborted cow.

4. Advisory Control Elements of the Neospora Risk-Level Certification Programme 4.1-4.6

Below is a list of biosecurity measures that are specific to the control of neosporosis. It is important that herds participating in CHECS Neosporosis programmes conform to these in addition to the general CHECS rules on biosecurity.

4.1. All dogs should be prevented from having access to the calving or lambing areas on the farm and any bovine or ovine carcass material or placentae. This includes farm dogs, visitors' dogs, dogs belonging to members of the public and fox hounds.

4.2. Placentae, stillborn calves and carcasses should be removed from the calving accommodation/paddocks as soon as possible to a secure location ready for removal by fallen stock contractors. Dogs should be prevented from gaining access to potentially infected material.

4.3. Feed storage facilities, both 'straights' and forage, must be dog-proof to prevent contamination with dog faeces. They should also be vermin-proof.

4.4. Suppliers of feed should provide assurance that measures are in place to prevent contamination of feed by faecal material from dogs.

4.5. Access of dogs to pasture used for cattle grazing or for the production of cattle forage should be kept to a minimum because it increases the risk of cattle becoming infected with *N. caninum*.

4.6. Where practical, the public and dogs should not have access to paddocks used for calving.

Appendix 1

The Diseases

Bovine Viral Diarrhoea (BVD)

BVD virus (BVDV) is closely related to the viruses that cause classical swine fever in pigs and border disease in sheep. BVDV causes a complex of diseases in cattle, the most important of which interfere with reproduction, affect the foetus and can lead to persistent infection and mucosal disease. BVDV can also cause enteritis, which is usually mild but is occasionally severe enough to kill even adult cows. BVDV infection causes significant suppression of disease resistance and contributes to disease complexes in calves such as pneumonia and neonatal diarrhoea.

Many European countries have eradicated BVD virus (BVDV) or are well advanced in their national control programmes. Ireland, Northern Ireland and Scotland fall into this second category and England and Wales are considering national initiatives. The CHeCS programmes have been based on the Scandinavian approach to control and are now incorporating elements of the Swiss and German programmes. That such effort has been made underlines the benefits of BVDV eradication at the herd level through improving fertility and in particular improving the health and welfare of younger cattle.

Infection with BVDV immediately before or during the breeding season will reduce conception rates in the affected group of cattle and cause early death of embryos. Infection at any stage of pregnancy can result in abortion. The virus can also cause deformities in the calf. However, of particular importance is infection of developing calves during the first 120 days of pregnancy. Calves that survive such infection remain persistently infected (PI) with the virus. It is these PI calves, once born, which provide the major source of BVDV for new infections.

In general PI calves do not produce antibody against BVDV. They often appear normal but they shed virus continuously throughout their lives. The majority of PI animals develop a fatal enteritis known as mucosal disease before they reach maturity. When mucosal disease is acute, affected animals are extremely unwell; they have severe diarrhoea, quickly lose body condition and soon die. In some the disease may progress more slowly and these animals will appear unthrifty compared to their contemporaries in the herd. However, significant numbers of PI animals maintain their health and survive into adulthood. A PI cow will always produce a PI calf and a PI bull, although often infertile, can cause widespread disease if introduced into a BVDV-free herd.

Despite the significant impact that infection has on breeding cattle, in most cases the infection of any animal after birth will usually result in a short-lived infection that may go unrecognised. This is termed a 'transient infection'. During transient infection, disease resistance of the animal is compromised and susceptibility to other diseases increased.

When bulls are transiently infected, BVDV may be passed in the semen for a variable period of time, and they may suffer reduced fertility for periods up to two months after infection. An extremely rare occurrence is for bulls that encounter transient infection at around the time of puberty to become antibody positive, but to persistently produce virus in their semen. Laboratory tests are available to screen semen for the presence of BVDV.

In theory other ruminant species, such as sheep and deer, can be a source of infection for cattle, although sheep are at greater risk from cattle than vice versa. Contaminated needles and other equipment can also spread virus from animal to animal and herd to herd. Therefore, careful herd biosecurity and quarantine are essential parts of control.

Where possible, control by identification and removal of PI animals is advised, with subsequent exclusion of any potential sources of re-infection. As with the other diseases antibody detection tests are used on milk and blood but, unlike the situation with IBR and *L. Hardjo*, these antibody positive animals only serve as an indicator that there has been exposure to a PI animal and that there may be a PI animal in the herd. If groups of calves older than nine months are screened for antibody and found to be negative this shows that there is no PI present in those groups of calves. This is the Check test, and it is central to the BVD accreditation system. Similarly, if the bulk tank milk is negative for antibody there is no PI animal in the adult herd and unlikely to be a PI in the younger animals.

For those herds where infection has been shown to be present the main tests for BVDV are to show the presence of the virus. This can be done using virus antigen ELISA to detect a particular part of the virus in blood or tissue or by using a test for the genetic material of the virus (reverse transcriptase- polymerase chain reaction (RT-PCR)) test in blood, tissue or bulk milk.

Herd vaccination can be used in both the eradication of BVDV and the prevention of BVDV outbreaks. Vaccination should be seen as part of a series of measures employed in a herd to control and maintain freedom from BVDV infection. The use of the vaccine does not prevent a herd from participating in the BVD accreditation programme.

Infectious Bovine Rhinotracheitis (IBR)

IBR is caused by bovine herpesvirus 1 (BoHV-1). This virus causes an acute upper respiratory tract disease which can lead to fatal pneumonia. Infection can also cause severe and prolonged drop in milk yield, reduced fertility and abortion, however, on occasions, the disease can be so mild that newly infected animals are not seen to be affected. The virus is mainly shed in secretions from the nose, but can also be spread in the semen of infected bulls. An important characteristic of the disease is that once an animal has become infected, it remains infected for life. This is termed 'latent infection' with the virus surviving in neural tissue. Reactivation and shedding of the virus can occur at periods of stress. The experience of transport and introduction to a new herd is a common trigger for reactivation of the virus, leading to new infections in

the herd. Vaccination is an effective means of preventing the disease but does not stop infection nor does it stop infected animals from shedding the virus at a later date.

Infected animals can be detected by testing either milk or blood for antibody to BoHV1. The available tests cannot differentiate between antibodies stimulated by the naturally occurring virus and those stimulated by conventional BoHV-1 vaccines. However, in 2001, BoHV-1 marker vaccines were introduced into this country. Central to the marker vaccine system, is an antibody test that can distinguish marker vaccinated animals that have not been infected from marker vaccinated animals that have been infected. Marker vaccines can now be used in an infected herd where the long-term objective is to achieve freedom from infection with minimum culling. However, it must be recognised that the marker vaccine test is less able to detect infection than the standard test. The consequence of this limitation is that marker vaccinated bulls are not accepted onto AI studs and may not be accepted for import to some countries.

IBR is endemic in the UK and in many parts of the world, but some countries are free of infection and there are moves in other EU countries to eradicate the disease. Despite the effect this disease has on animal health and productivity, its main significance is as a barrier to the export of live cattle to other regions or countries within Europe where the disease has already been eradicated. In future, in order to gain access to these markets, herds will have to be able to prove freedom from BoHV-1 infection.

Leptospirosis

Leptospirosis is an important cause of illness in humans throughout the world with infection being contracted from the urine of infected wildlife or livestock. Most mammals have their own *Leptospira* organism or organisms that are adapted specifically to them, some of which cause very little disease in their natural host. In cattle leptospirosis is caused by two organisms collectively referred to as *Leptospira* Hardjo (*Leptospira borgpetersenii* type hardjobovis and *Leptospira interrogans* type hardjoprajitno).

When new infections occur in cattle, the outcome can range from no adverse effect through milk drop to infertility and abortion and the birth of weak calves.

After infection *L. Hardjo* localises in the kidneys and urinary tract as well as in the reproductive tract of both males and females, but for transmission of infection localisation in the urinary tract is of great importance. The urine of infected animals is the most important medium for the spread of infection.

Some animals shed the organism continuously for a short time in their urine and then stop; others shed either continuously or intermittently for life. Infection due to *L. Hardjo* arises from contact with infected urine or from water or pasture contaminated with urine. Disease is usually introduced to a herd by the purchase of infected cattle. Antibiotic treatment has been used to reduce the number of organisms an animal is shedding, but it will not necessarily clear the infection.

L. Hardjo has been recovered from the urine of sheep and sheep are therefore a potential source of infection. It is recommended that contact between cattle and sheep is kept to a minimum. As leptospira organisms do not tolerate drying or exposure to sunlight, a rest period of two months after grazing by sheep or infected animals should make pasture safe for uninfected animals.

The biggest risk to humans is where there is exposure to urine from infected cows. Clearly people milking cows are at highest risk in this respect. In humans infection with the cattle leptospire results in flu-like symptoms and severe headaches. Herd owners must therefore be aware of their responsibilities under the Control of Substances Hazardous to Health (COSHH) regulations.

Once cattle have been infected they produce antibody to the leptospire within two to four weeks. This antibody can be detected in the blood and milk with the *L. Hardjo* antibody test. Where infection has been demonstrated in a herd, vaccination may offer the best means of control. However once animals have been vaccinated they are likely to test positive for life. Therefore, when antibody positive animals are detected in a herd test, it is important to consider the results carefully to assess if the infection is active or is the result of previous vaccination. In those situations where infection is considered to be unlikely the situation can be monitored by annually testing the animals that tested negative to confirm no new infection has occurred. Where no new infection is detected and the number of positive animals is less than 5% of the herd, the status of *L. Hardjo* Monitored Free can be gained.

Where testing shows no evidence of the disease, breeding stock from such a herd can be considered to be free of infection and sold and purchased safely. Accreditation of freedom from *L. Hardjo* infection is a useful tool in safeguarding the health and breeding performance of cattle and in preventing the infection of people working with cattle.

Johne's Disease

This disease is a chronic, progressive, wasting condition that affects ruminants. It is caused by the organism *Mycobacterium avium* subspecies *paratuberculosis* (Map). The infectious agent is shed in faeces, can cross the placenta and can be found in colostrum and milk. Animals are generally infected by ingesting the agent and young animals are considered to be the most susceptible to infection. However, clinical signs of diarrhoea and weight loss usually do not occur until sometime after 18 months of age. In heavily infected herds this leads to a high rate of wastage in cattle mostly in the three to five years age range. Infection is nearly always introduced to a herd by purchasing infected replacement breeding stock, including bulls.

It has been suggested that the causal organism of Johne's disease may be implicated in the human disease of the bowel known as Crohn's disease, although no direct link between the diseases has yet been shown to exist. However, both the Food Standards Agency and Defra have advised that the precautionary principle should be observed and that measures should be taken to minimise the number of Map organisms that

enter the food chain. This can be achieved by having a herd Johne's disease control programme.

Tests carried out on blood or milk samples to detect antibodies and on faeces samples to detect Map are valuable procedures for the diagnosis of Johne's disease. However, they can only be reliably used to detect infected animals in the later stages of infection in the short period before clinical disease becomes apparent. This means that infected animals may test negative on several occasions at annual tests before they test positive. Testing individual animals at the point of sale may be of very limited value. Nevertheless the tests are a good indicator of herd infection. If a herd repeatedly tests negative for the disease at annual intervals, the herd can be categorised as low risk with regards to Johne's disease.

As the diagnosis of the disease is difficult and because the organism survives well in the environment, control and eradication of Johne's disease is more difficult than for the other diseases in the CHECS portfolio. However, for the reasons given above, an effort should be made to eradicate the disease from an infected herd. A simple test and cull programme is not sufficient. It must be supplemented by the removal of offspring of any test positive dam from the breeding herd, as these are at particularly high risk of developing the disease, and by a hygiene programme designed particularly to reduce calf exposure to faeces from adults and more generally to reduce the amount of faecal contamination for all ages of breeding stock. It will take a minimum of three years before progress can be appreciated and at least a further three years before the disease is removed from the herd. In many herds removal of the disease from the herd may take considerably longer.

Map infection is not limited to cattle, and sheep flocks can be infected and be a source of infection for cattle. Rabbit populations on farms where there are infected cattle herds have also been shown to be infected with Map. These potential sources of infection must be considered in any control programme.

In heavily infected herds, particularly where there are barriers to introducing the control programme, vaccination may be used to reduce the number of clinical cases of Johne's disease and possibly to reduce the amount of infection in the environment. However, vaccination will not remove the infection from a herd and the use of vaccine is not recommended for herds that are selling breeding stock.

Neospora

Neosporosis is the disease in cattle caused by *Neospora caninum*, a protozoal parasite with worldwide distribution. The organism is related to *Toxoplasma gondii* which causes disease mainly in sheep and similarly has a two animal life cycle, but with *N. caninum* the intestinal phase of the infection occurs in dogs.

The organism causes infection of cattle by one of two routes:

- endogenous ('vertical') infection in which the organism passes from an infected dam to its calf as it develops in the uterus

- exogenous ('horizontal') infection in which the cow ingests oocysts from dog faeces contaminating the environment, e.g. feed or pasture grass.

It is not currently possible to distinguish between the two routes of infection using available diagnostic tests. Cattle are most commonly infected via the endogenous route.

Both these routes give rise to infection of the foetus. Infection may, in turn, lead to abortion, usually between three and eight months of gestation (median six months). However, not all cases of intra-uterine infection lead to abortion; some infected calves survive and appear clinically normal but will be born and will remain infected.

Infection can enter a naïve herd either via infectious dog faeces contaminating feed or pastures or by the purchase of infected animals. It is perpetuated by vertical transmission. Dogs may be infected by the ingestion of infected dead calves or placentae. Therefore, control of the disease is by a combination of biosecurity measures and the identification and management of infected animals and their offspring.

Neosporosis is the most frequently diagnosed cause of abortion in cattle in the UK. It occurs in beef and dairy cows but at a lower rate in beef cows. The cost of abortion, which involves not just the loss of the calf but also reduced milk production and additional breeding costs, is well documented. Therefore, the cost of neosporosis to the UK cattle industry is significant.

An ELISA, which detects antibodies to *N. caninum*, is used for screening in the Neosporosis programme. Sero-positive animals are approximately six to seven times more likely to abort compared to sero-negative animals. It is important for the success of the neosporosis programme that all incidents of abortion are appropriately investigated.

Appendix 2

Certificate of Accredited Status

Issued by CHECS Licensee

This certifies that the herd owned by: Farmer

And kept at: Farm Address

Herd No.

Holding No.

is registered as

Accredited Free

of

Bovine Virus Diarrhoea since DDMMYYYY
Infectious Bovine Rhinotracheitis since DDMMYYYY

Leptospirosis since DDMMYYYY
 and has achieved

Risk Level 1* Johne's Disease Status since DDMMYYYY
(Risk Level 1 Johne's Disease Status since DDMMYYYY)

(X cattle tested at the last full herd test; of these X cattle tested antibody positive and faecal negative)
 Only home bred animals are covered by this certificate for Johne's disease

Neospora Risk Level X Status since DDMMYYYY

Bovine Tuberculosis Score X since DDMMYYYY
Only home bred animals are covered by this certificate for bTB

in the

Cattle Health Scheme

on the basis of laboratory tests

carried out in accordance with the Technical Document of
 Cattle Health Certification Standards (UK)

This certificate is valid until:

Signed:

Authorised Officer of HiHealth Herdcare Cattle Health Scheme

Name:

Date:



HiHealth Herdcare Cattle Health Scheme is Licensed by CHECS

Appendix 3

INDIVIDUAL HEALTH DECLARATIONS (PEN CARDS)

Explanatory Notes

All cattle with individual health declarations should have an A3 copy, signed by the testing laboratory, for display in the sale pen, and an A4 copy containing more detailed information to be passed on to the purchaser. Individual animals that are not from CHECS accredited herds can be sold with a pen card, however column 2 containing the Herd Accreditation boxes will be blank.

1. The diseases are listed in column (1). The TB testing interval is given beside the TB title if known.

2. Herd accreditation is shown in column (2). Herds that are accredited for BVD, IBR or leptospirosis, including BVD and IBR vaccinated monitored free (VMF) and leptospirosis monitored free (LMF) herds have a white coloured box containing the number of years the herd has been accredited. The Johne's or Neospora disease risk level is shown with the number of years the herd has been at this level. Only Johne's or Neospora Disease risk level 1 herds have a white coloured box. The number of animals tested at the last full herd Johne's screen is displayed and the number of animals with positive antibody results in that screen is given in brackets. If a herd has Johne's risk level 1* status, the number of years at both RL1* and RL1 statuses are shown. Neospora status is relevant for female animals only. The date of the last clear herd TB test for the vendor herd and individual TB test date for the animal, if different, is displayed, if available. Where applicable, the CHECS herd TB score is given in the row underneath. The CHECS TB score reflects the number of years since the last TB breakdown e.g. a herd with score 10 last had a TB breakdown more than 10 years ago.

3. Results for individual testing, if done, are shown in column (3) and are colour-coded as follows:


Antibody negative
IBR or Leptospira hardjo antibody positive
BVD antibody positive

Antibody testing, if required, must be carried out within three months of the date of sale. If not from a BVD accredited or VMF herd, BVD antibody and virus testing is required. **Bulls with positive BVD antibody titres** (green box) and no known history should not be used for 10 weeks after testing as they can carry the virus after infection. Non-accredited **pregnant females that test positive for antibodies to BVD** will not be given pen cards unless the animal was known to be antibody positive or fully vaccinated prior to service.

4. Vaccination details are given in column (4). Where marker vaccination has been given for IBR, this is indicated. Further details on vaccination are given on the accompanying A4 sheet.


5. Animals with positive Johne's results and females with positive neospora antibody results will not be given an individual health declaration. An exception to this is animals that test positive for antibodies to Johne's disease after a bTB skin test, providing they return a negative antibody result within 90 days of the bTB skin test.

Example of A3 Individual Health Declaration

Name: CHECS BEEF BULL		Ear Number: UK123456 702354	
DISEASE	HERD ACCREDITED (YEARS)	INDIVIDUAL TEST RESULT	VACCINATED
BVD	12		04-Sep-24
IBR		29-Oct-24	04-Sep-24 (Marker)
LEPTO			
TB 4	Nov-2020		Information Applies to Sale
CHeCS TB	Score 10 since 04Feb24		
NEOSPORA			KEY TO COLOURS: HERD ACCREDITED FREE OF DISEASE OR INDIVIDUAL ANTIBODY NEGATIVE IBR / LEPTO HARD/ID ANTIBODY POSITIVE BVD ANTIBODY POSITIVE This animal has tested free of BVD virus or is from a BVD accredited free herd
JOHNE'S	Risk Level 1* 04Feb25 RL1 16 yrs; 181 animals (0)	181 cattle tested at the last full herd test; of these 0 cattle tested antibody positive	
Veterinary Provider:		Date: 03-Nov-25	
		Lab Ref: N/A	

Standard Cattle Health Certificate developed by an all industry group facilitated by NFU Scotland

Example of A4 Individual Health Declaration

Name: CHECS BEEF BULL		Ear Number: UK123456 702354	
DISEASE	HERD ACCREDITED	INDIVIDUAL TEST RESULT	VACCINATED
BVD	14-Dec-12		BVD vaccine 1st dose: 07-Aug-24 2nd dose: 04-Sep-24
IBR		Antibody Negative 29-Oct-24	IBR Marker Inactivated 1st dose: 07-Aug-24 2nd dose: 04-Sep-24
LEPTO			
TB 4	Nov-2020		Information Applies to Sale
CHeCS TB	Score 10 since 04Feb24		
NEOSPORA			KEY TO COLOURS: HERD ACCREDITED FREE OF DISEASE/INDIVIDUAL ANTIBODY NEGATIVE IBR AND/OR LEPTO HARD/ID ANTIBODY POSITIVE BVD ANTIBODY POSITIVE This animal is tested free of BVD virus or is from a BVD accredited free herd.
JOHNE'S	Risk level 1* since 04Feb25; RL1 23Feb09; 181 cattle tested <small>181 cattle tested at the last full herd test; of these 0 cattle tested antibody positive</small>		
Signed by Veterinary Provider:		Date: 03-Nov-25	
		Biobest Ref: N/A	

Standard Cattle Health Certificate developed by an all industry group facilitated by NFU Scotland

Appendix 4**The Crofter Heath Scheme: Knocknagael bull testing protocol**

33.34. The Crofter Health Scheme: Bulls moved directly from the Knocknagael stud to a Crofter Scheme Member Herd will be exempt from the General Rules of CHECS rules 14 and 15 on isolation and testing. Details of the testing required at the Knocknagael stud for these bulls is listed below. This exemption will only apply to BVD, Johne's and Neospora. An isolation period of at least 14 days is strongly advised to allow for clinical monitoring of the bull on arrival.

Table detailing Knocknagael bull testing protocol

Disease	Bulls at purchase	Annual testing / control
BVD	Purchase from CHECS Accredited herds when possible Test for BVD virus when in quarantine Full vaccine course when in quarantine	Booster vaccinated annually prior to being hired out
Johne's disease	Purchase from CHECS R1 herds when possible Test by blood and faecal culture in quarantine Only introduce test negative animals	Tested by blood and dung annually prior to being hired out
Neospora	NA (no risk from male animals)	NA (no risk from male animals)

Appendix 5

Co-Grazing Group/Knocknagael Stud Annual Declaration

Date	
Group Name	

We confirm the herds listed below collectively meet the boundary biosecurity rules of the CHECS technical document. As individuals, all added animal and mandatory control rules have been met, with the exception of the defined derogations for hired bulls from the Knocknagael stud. We have presented the correct number of animals for testing and understand that herd status will be awarded based on a combined interpretation of all eligible animals from this group. We understand that all results from all herds will be made available to the group manager on request.

First name	Surname	1st line address	CPH (main location code)	PCHS member number	Signature
Group Manager			__/__/__		
			__/__/__		
			__/__/__		
			__/__/__		
			__/__/__		
			__/__/__		

Group Veterinary Surgeon

Appendix 6



CHECS PROGRAMME TEMPLATES FOR HEALTH PLANS

Herds participating in the CHECS accreditation programmes must be abiding by the rules of the scheme, as given in the CHECS technical document, accessible on the CHECS website: <http://www.checs.co.uk> . The general section should be completed by all herds using this plan. Thereafter, the appropriate disease-related sections should be used.

Completion of health plan is compulsory for the Neospora and Johne’s schemes. These templates provide an outline of the basic rules of CHECS and more detail is required for a completed health plan.

Farmer name and farm :
 Holding number :
 :
 :
 Veterinary surgeon :
 Veterinary practice :

1. CHECS Programme General

Mandatory Elements for Accredited Herds
1.1 Herd definition – are all cattle on the holding in the accredited herd? If not, a description of herd management is required to document how the biosecurity rules of the scheme are met.
1.2 Farm boundaries – is there any contact with non-accredited cattle?
1.3 Quarantine facilities Suitable facilities are required to allow the isolation of added/other stock whilst testing is carried out. All added/returning animals that have had contact with non-accredited cattle must be isolated and tested appropriately.
1.4 Feed, bedding & water supplies – what methods are employed to prevent the spread of disease through these sources? N.B. Buying in colostrum from non-accredited sources is not allowed
1.5 Equipment & visitors - what methods are employed to prevent the spread of disease through these sources? N.B. Disinfection against Johne's disease requires use of a product suitable for bTB; see http://disinfectants.defra.gov.uk
1.6 Relevant test results & disease All testing or disease over the last 12 months relevant to accredited diseases must be documented and reviewed.

2. CHECS IBR Programme

Mandatory Elements for Accredited / VMF Herds
<p>2.1 Has annual testing (herd test of all over 12 months in a qualifying herd; statistical sample in an accredited herd) been undertaken?</p> <p>All breeding bulls, non-homebred animals and marker vaccinated breeding stock must be tested annually. In accredited dairy herds, the milking herd is monitored by quarterly bulk milk screening</p>
<p>2.2 Is the herd vaccinated with marker vaccine against IBR?</p> <p>Optional for accredited free, mandatory for at least 95% of animals over 2 years in VMF herds.</p>
<p>2.3 Have all added & returning animals been isolated and tested appropriately?</p>
<p>2.4 Has there been any clinical disease suspicious of IBR or abortion incident?</p> <p>If so, has this been investigated appropriately?</p>

3. CHECS Leptospirosis Programme

Mandatory Elements for Accredited / Monitored Free Herds
<p>3.1 Has annual testing (herd test of all over 24 months & younger animals intended for breeding and any purchased animals in a qualifying herd; statistical sample in an accredited herd) been undertaken?</p> <p>All breeding bulls must be tested annually. In accredited dairy herds, the milking herd is monitored by quarterly bulk milk screening.</p>

3.2 Have all added & returning animals been isolated and tested appropriately?

3.3 Has there been any clinical disease suspicious of leptospirosis or abortion incident?

If so, has this been investigated appropriately?

4. CHECS Johne's Programme

Mandatory Elements

4.1 Has annual herd testing (all animals over 24) been undertaken?

4.2 What happens to test positive animals and any calves at foot?

Is follow up testing carried out? Any calves at foot when reactors are identified must not be retained for breeding purposes. It is recommended that this is extended to include the dam's previous calf.

4.3 Have any animals been added / returned to the herd and have they been tested appropriately?

Blood and dung testing is required on all added animals, regardless of age unless they have come from a risk level 1 herd.

Advisory Elements

4.4 Hygiene and calf management.

What measures are undertaken to prevent infection of young calves via faecal contamination?

4.5 Slurry management.

How is slurry / manure managed? Spreading on calf pasture to be avoided. Slurry / manure from non-accredited cattle must not be spread on pasture.

4.6 Food and water supplies.

What measures are undertaken to prevent contamination of food and water supplies?

4.7 What is the policy on co-grazing?

Cattle should not co-graze with other ruminants. Rabbit populations should be controlled.

4.8 Additional notes

5. CHECS BVD Programme

Mandatory Elements for Accredited / VMF Herds

5.1 Has annual testing (check test of each management group or calf virus test) been undertaken?

5.2 Is the breeding herd vaccinated against BVD?

Optional for accredited free, mandatory for VMF herds

5.3 Have all added & returning animals been isolated and tested appropriately?

The calves born to seropositive pregnant added animals must be screened for BVD virus.

5.4 Has there been any abortion, or clinical disease where BVD was suspected?

If so, has this been investigated appropriately?

--

6. CHECS Neospora Programme

Mandatory Elements for Accredited Herds

6.1 Has annual testing (herd test of all female animals of 2 years and over and any females between 12 and 24 months intended for breeding) been undertaken?

--

6.2 Have any test positive animals been identified?

Test positive animals and calves born to test positive cows must not be retained for breeding.

--

6.3 Have all added animals been tested appropriately?

--

6.4 Have all abortions and clinical cases been investigated?

The minimum requirement is that the aborting dam is tested for antibodies to neospora.

--

Advisory Elements

6.5 Are placentae, stillborn calves and carcasses removed to a secure location where dogs cannot access as quickly as possible?

--

6.6 Are feed storage facilities dog and vermin proof?

--

6.7 Have you had assurance from feed suppliers that there has been no contamination by dog faecal material?

6.8 Are dogs restricted from accessing pasture for cattle grazing or producing cattle forage (advisory requirement)?

6.9 Additional notes

Farmer signature:

Date:

I have discussed the general CHECS requirements and the control of specific appropriate diseases with the farmer as covered in the sections above.

Vet Signature:

Date:

Appendix 7 Summary Table of Testing Requirements for Added Animals from Non-Accredited Herds

Disease	Requirement	Pre-purchase screening (advised)	Post purchase screening (compulsory)	Post purchase Isolation requirements (compulsory)	Additional requirements for purchased individual or groups of animals	Comments
IBR	Antibody (or gE antibody) negative	Blood test for antibodies to IBR.	Blood test for antibodies to IBR after 28 days quarantine	Minimum 28 days isolation plus time taken for test results to come back.	<ul style="list-style-type: none"> If all animals in the group are negative for antibodies to IBR or leptospirosis, as appropriate, they can enter the herd. If there is a mix of antibody positive and negative animals, the positive animals cannot enter the herd. The negative animals must be separated off and remain in isolation for a further 28 days before re-testing. If all remain negative, they can enter the herd. If further antibody positives are identified, separation, quarantine and re-testing are repeated until there is no further evidence of seroconversion. 	Adding non accredited IBR test negative animals into a herd can still present a low risk of introducing IBR infection as latently infected animals can be seronegative.
Leptospirosis	Antibody negative	Blood test for antibodies to L. Hardjo.	Blood test for antibodies to L. Hardjo after 28 days quarantine	Minimum 28 days isolation plus time taken for test results to come back.	<ul style="list-style-type: none"> If all animals in the group are negative for antibodies to IBR or leptospirosis, as appropriate, they can enter the herd. If there is a mix of antibody positive and negative animals, the positive animals cannot enter the herd. The negative animals must be separated off and remain in isolation for a further 28 days before re-testing. If all remain negative, they can enter the herd. If further antibody positives are identified, separation, quarantine and re-testing are repeated until there is no further evidence of seroconversion. 	Adding non accredited L. Hardjo test negative animals into a herd can still present a low risk of introducing L. Hardjo as carrier animals may be seronegative.
BVD	Virus negative. Antibody testing.	Blood sample and test for BVD virus and antibody.	Blood test for BVD virus and antibody at least 28 days after entry into isolation.	Minimum 28 days plus time taken for test results to come back. Further isolation may be required for antibody positive	<ul style="list-style-type: none"> In a group of animals with mixed antibody results, the animals must be held in isolation and the seronegative animals re-tested after a further 28 days. If no seroconversion, the animals can enter the herd. If seroconversion, isolation and retesting are repeated. Animals can only enter the herd 28 days after the last seroconversion. 	

				pregnant cattle – see additional requirements.	<ul style="list-style-type: none"> • Seropositive pregnant cattle must be kept in isolation until the calf is born and tested BVDV negative, unless the cow was fully vaccinated against BVDV or seropositive prior to service. Then the cow may enter the herd and the calf tested as soon as possible after birth. 	
Johne’s disease (applies to animals from RL2-5 herds & animals without RL 1 status e.g. non-homebred in a RL1 herd)	Antibody negative & dung negative.	Blood test and dung test irrespective of the age of the animal. Further blood sampling is not required if a negative antibody result is obtained in a sample taken at the time of pre-movement TB testing.	Blood & dung test all animals on arrival irrespective of age.	Isolate until negative results for both blood and dung samples are obtained.	<ul style="list-style-type: none"> • Recent bTB testing may cause cross-reactivity with the Johne’s antibody test (for details see CHECS technical document (TD)). • If a purchased animal with a certified risk level has a positive dung result within six months of purchase this test result is included when calculating RL for both the vendors and the purchasers herd. There is an isolation and testing protocol detailed in the TD in cases of dispute. 	Introducing animals is associated with a significant risk of introducing disease. Non-homebred animals are considered to be RL5 unless there is appropriate evidence, deemed acceptable by the health scheme provider, to confirm an alternative status.
Neospora (applies to females from RL2-5 herds)	Antibody negative.	Blood test females & dams of prospective purchased heifers for antibodies. If positive, they, or their offspring cannot enter the herd.	Blood test female animals for antibodies. Seropositive female animals or their offspring cannot enter the herd.	Isolate until negative results are obtained		Adding non accredited neospora test negative animals can still present a low risk of introducing neospora into a herd as infected animals may be seronegative.