



Brucellosis: Cattle Abortion Investigations

Training for Collection of Samples by Official Veterinarians who do not hold Official Controls Qualification (Veterinarian) - Statutory Surveillance (OCQ(V) - SS)



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Background and Aim

- Previously, cattle abortion investigations were fully completed by Official Veterinarians (OVs) with the OCQ(V) – SS qualification on behalf of APHA.
- In order to help with the cattle abortion investigations done by OCQ(V) - SS holders, it has been agreed that an OV who does not hold the OCQ(V) - SS can also collect samples and background history.
- To be able to do this, OVs must have had adequate training on cattle abortion investigations when brucellosis is a possible diagnosis.



Roles and Responsibilities

OCQ(V) - SS holders are expected to:

- cascade this training to other OVs where there is a requirement to provide additional practice support for abortion investigations
- supervise the overall quality and adherence to sampling and despatch of samples procedures
- sign the Brucellosis Report on Investigation of Abortion or Calving (BS07) as the person with ultimate responsibility over the process
- liaise with APHA if further investigation is required



Roles and Responsibilities

OVs are expected to:

- attend this training in the four years prior to the date of sampling
- action abortion enquiry requests
- collect background disease history about the animal and herd
- collect the samples available in accordance with instructions
- adhere to biosecurity and Health and Safety procedures
- ensure samples are correctly packaged and despatched
- liaise with the OCQ(V) - SS holder



Policy and Surveillance

- Brucellosis is controlled in Great Britain by the respective Brucellosis Orders of England, Scotland and Wales. The Orders underpin the statutory powers to control *Brucella abortus*.
- Suspicion of *Brucella abortus* must be reported to APHA in the same way as other notifiable diseases.
- The legislation requires anyone in charge of bovine animals to report any abortion or premature calving (<271 days after service or <265 after implantation whether calf is dead or alive) within 24 hours.
- The laboratory isolation of any species of the genus *Brucella* must also be reported under The Zoonoses Order 1989.



Surveillance Strategy

The Brucellosis surveillance strategy in Great Britain includes:

- Post-import checks, including tests done post-calving of imported cattle
- Regular bulk milk testing of dairy herds (at quarterly intervals in England, Scotland and Wales)
- **Investigation of cattle abortions**
- Annual check blood testing of eligible animals (mainly beef herds)
- Breeding bull monitoring, including bull hirers



Disease Overview

- Brucellosis of cattle was eradicated from cattle in Great Britain in 1979, which became Officially Brucellosis Free (OBF) in 1985. There is always a risk of reintroduction of infection, as demonstrated by an outbreak in Cornwall in 2004 and in Scotland in 2003 (linked with cattle import).
- Infection is characterised by abortion in late pregnancy, premature calvings, abortion storms in susceptible herds and subsequent high levels of infertility.
- Large numbers of *Brucella abortus* bacteria are present in the foetus, placenta and uterine fluids of infected animals which can then infect in-contact cattle and people dealing with calvings. The organism is also excreted in milk, and disease can be spread through infected semen.



Health and Safety

- Brucella is a zoonotic agent.
- Advice should be given to owners regarding appropriate precautions required to minimise the risk of infection.
- During brucellosis testing, precautions should be taken to minimise the risk of infection through ingestion, contact through cuts, self-inoculation or inhalation. Use personal protective equipment such as obstetric gloves, eye shields or face masks when examining products of abortion in known infected or suspected animals, herds or imported cattle.
- It is the cattle owner's responsibility, under the Brucellosis Orders, to gather, restrain and present animals for testing. OVs should not, therefore, proceed with testing if they consider the facilities provided to be unsafe, and should not agree to any request from a farmer to provide extra staff to assist with handling.



Instruction of Enquiry

- Cattle owners must notify APHA of any cattle abortion or premature calving within 24 hrs.
- APHA will assess if an abortion enquiry is required.
- If an enquiry is required, APHA will instruct the OV to carry it out on the same day.
- An OV authorisation number will be issued by APHA.
- If the enquiry is outside normal working hours the authorisation number may be sent on the next working day.
- APHA will automatically serve a Restriction Notice (BS26/BS26(Welsh)) to prohibit the movement of the animal off the premises if enquiry required.



Equipment for Collection of Samples

OVs must supply and use the equipment below when carrying out abortion/calving enquiries:

- One suitable packaging container (such as a bio-bottle)
- One plastic milk tube
- One vaginal swab
- One plastic envelope for enclosing the Report on Investigation of Abortion or Calving (BS07/BS07(Welsh))
- Evacuated Blood Collection (EBC) tubes (red top, no anti-coagulant), needles and labels



Animal Identification and Isolation

- All animals to be tested must be identified by the official ear tag numbers as required by the relevant Cattle Identification Regulations.
- If not already in isolation, the investigating OV must advise the owner to isolate the animal(s) immediately and retain the foetus and afterbirth for sampling.
- APHA will issue the official restriction notice on confirming that an investigation is required.



Biosecurity

- Ensure on arrival that the vehicle, protective clothing and footwear are clean and disinfected in order to minimise the risk of transmission of disease between premises.
- Before leaving the farm, thoroughly clean and disinfect all protective clothing and footwear.
- Carry sufficient disinfectant. Use an approved disinfectant at the appropriate dilution for this purpose from the list on the Defra website.
- Advise the owner of good biosecurity practices and emphasise that the foetus and afterbirth must be disposed of in compliance with the Animal By-products Regulations.



Sampling Cattle for Brucellosis: First Enquiry

A full range of samples is required. Collect :

- a) a blood sample into a 7ml barcoded red top vacutainer.
- b) if available, a composite milk sample from all four quarters into a clean, dry receptacle. Identify the sample with the animal's official identification number, as per eartag, and record on the Report on Investigation of Abortion or Calving (BS07/BS07(Welsh)).
- c) vaginal mucus or discharge. Cleanse the vulvar region, insert swab into the vagina taking care to avoid contamination before insertion and after removal. Place the swab into its container and identify with a number as per b) above.

Blood samples must be taken in barcode labelled 7ml Evacuated Blood Collection (EBC) tubes. These are available in Defra-approved blood collection kits which are available from veterinary suppliers.



Sampling Cattle for Brucellosis: First Enquiry

What happens if a full range of samples is not available?

- Every effort must be made to obtain a full range of samples at the first enquiry, but if the full range is not available, the laboratory will prioritise the use of samples received.
- In particular it may not be possible to obtain a milk sample from every animal e.g. they may not be producing milk.
- If the full range of samples is not available the foetus must also be sampled if available (see following slides).



Sampling Cattle for Brucellosis: Foetal Sampling

A plain vacutainer **sample of foetal stomach** contents should be taken as follows:

- wash the skin over the abdomen of the foetus with clean water
- make a small incision about 5 to 8cm through the skin and abdominal wall over the site of the abomasum
- draw the abomasum through with forceps and collect a sample using an evacuated red-topped blood tube and needle
- dispose of, or sterilise, the needle holder after use and place the needle in an appropriate receptacle for disposal
- dedicated scalpels and forceps must be used for this procedure and sterilised or safely disposed of after each use

Send samples to the local APHA or SRUC laboratory, and the Brucellosis Report of Investigation of Abortion or Calving (BS07) should state that they are from an unidentified foetus.



Unidentified Foetus Procedure

- If it is not possible to identify the animal which has aborted, collect a sample of foetal stomach contents.
- If available, take a placental smear by swabbing two cotyledons. Replace the swab in the container, avoiding contamination.
- Advise that all animals in the group are isolated from the remainder of the herd. APHA will serve restrictions on all animals in the group.
- APHA may request blood samples from all animals that could have produced the foetus as a check test.
- Submit blood samples to **APHA Weybridge** accompanied by a Blood Sample Report (BS05) and Continuation Sheet (BS05a), noting the test type as 'check test'. This can be completed and signed by the sampling OV or OCQ(V) - SS holder.



Sampling Cattle for Brucellosis: Second Enquiry

- APHA may require a second blood sample which should be taken at least 14 days after the initial test.
- These second blood samples should be sent to APHA Weybridge with a completed Brucellosis Report on Investigation of Abortion or Calving (BS07), indicating that **triple testing is required**. This indicates that three serological tests are required:
 - RBPT
 - CFT and
 - SAT
- APHA may request other samples at the second enquiry.



Sampling Cattle for Brucellosis: Despatch of Samples

- Samples are classified under ADR Regulations as UN3373 BIOLOGICAL SUBSTANCE CATEGORY B (refer to ADR part 2 clause 2.2.62) and must be packed according to P650 packing instruction (refer to ADR part 4 pages 146 and 147).
- OV's must follow the Quick Reference Guide to ADR and Sample Packing for OV's (GEN04).



Document Completion

- A Brucellosis Report on Investigation of Abortion or Calving (BS07) must be completed and submitted with all samples to the relevant laboratory. This form can be downloaded from the APHA Vet Gateway.
- This must be reviewed and signed by the OCQ(V) - SS holder.
- The exception is the 'check test' in the case of an unidentified foetus - a Blood Sample Report (BS05) and Continuation Sheet (BS05a) is required. This can be completed and signed by the sampling OV or OCQ(V) - SS holder.



Document Completion: Brucellosis Report on Investigation of Abortion or Calving (BS07) Certification

- The OCQ(V) - SS holder must certify that the OV taking the samples has received this training or revalidated it within four years prior the sample collection date and has collected and submitted the samples as per instructions.
- The OCQ(V) - SS holders must ensure that they are fully satisfied that they have the supporting evidence for this certification in accordance with the RCVS Principles of Certification.
- There must be a robust training audit trail in place, which must be kept up to date to provide OCQ(V) - SS holders with the supporting evidence. The practice must keep these training records for at least five years.



Reference Material

- APHA Vet Gateway for OV instructions:
http://apha.defra.gov.uk/External_OV_Instructions/Brucellosis/Updates/index.htm
- Improve International for OV training: <https://improve-ov.com/home/>
- Defra Approved Disinfectants:
http://disinfectants.defra.gov.uk/DisinfectantsExternal/Default.aspx?Module=ApprovalsList_SI
- Quick Reference Guide to ADR and Sample Packing for OVs (GEN04): <http://apha.defra.gov.uk/external-operations-admin/library/documents/anthrax/GEN04.pdf>