Animal and Plant Health Agency

Guidance on camelid TB testing in England

November 2025

Scenario	1. 'Private testing: voluntary routine TB surveillance as part of a scheme promoted by the industry and endorsed by Defra, including private pre-/post-movement testing test (e.g. shows, purchases or mating)	2. Suspicion of TB at post mortem examination reported to APHA	3. Statutory skin and antibody testing of co-located and contiguous, non-breakdown, camelid herds
Action	Carry out one of the available blood tests, i.e. Enferplex (interpretation with statistical package), or combined DPPVetTB - IDEXX (using **serial** interpretation)[2,4]. This will achieve a diagnostic specificity close to 100%. Surveillance TB blood test are arranged and paid for by the camelid owners. Irrespective of the type of antibody test used, Defra and APHA recommend that any voluntary antibody test for TB in camelids be preceded by a skin test (single intradermal **comparative** l tuberculin test) 10 to 30 days before blood sampling. If the owner chooses not to perform a full skin test before blood sampling, then Defra and APHA recommend that the animals are at least injected intradermally with bovine tuberculin 10 to 30 days before the blood test. This enhances the sensitivity of blood testing by helps boosting the antibody response to *M.*	APHA imposes precautionary herd movement restrictions pending the Polymerase Chain Reaction (PCR) results (or culture results, in the absence of PCR results). A check skin test (single intradermal **comparative** cervical tuberculin (SICCT)) may be conducted after the detection of typical lesions[5] of TB and before identification of *Mycobacterium bovis (M. bovis)* by PCR (or culture). In exceptional cases, where there is strong evidence of infection, a check blood test may also be carried out to avoid delay that may exacerbate the problem. Ideally, this should be carried out 10 to 30 days after the skin test. In such cases, the owner has a choice of which tests are used - 4-antigen Enferplex or a combined	Where a camelid herd **contiguous** to (i.e. shares a common land border) any holding with *M. bovis* infection confirmed in farmed animal species is identified by APHA, each camelid in that herd will require an antibody blood test at the Government's expense. The camelid owner will be able to choose the type of blood tests that are to be used, i.e. a 4-antigen Enferplex test or a combination of IDEXX and DPPVetTB tests in serial interpretation[2,4]. Additionally, in this particular scenario only **a single intradermal injection of bovine tuberculin must be administered 10 to 30 days prior to the blood test**, but the

	bovis in infected animals without significantly affecting the specificity of antibody testing in non-infected animals. Recommended frequency: Annually across GB to start with and for at least two years, given the uncertainty around the TB status and prevalence in most camelid herds in GB. Thereafter, owners of herds situated in the Low Risk Area of England may choose to revert to four yearly testing after two or more rounds of annual herd tests with negative results, unless they regularly bring in animals from herds outside the scheme. Eligible animals: the blood test should be performed on all camelids on the premises for herds containing up to 200 animals. In larger herds, a statistically significant and random sample of animals will be selected for testing. Additionally: Scheme members should undertake veterinary post-mortem (PM) examinations of all unexplained casualties in their herds and, as required by law, notify any TB suspect cases to APHA without delay. The installation of sound biosecurity measures to reduce the risk of bTB is also strongly recommended.	IDEXX and DPPVetTB test in serial interpretation[2,4] In cases where *M. bovis* infection is subsequently confirmed in the herd by PCR testing or culture, APHA will reinterpret the results of this initial blood test (or tests), so that further animals may be removed to increase the diagnostic sensitivity. Even if its results are negative, this initial skin 'check test' will not qualify for the purpose of withdrawing the movement restrictions (as the skin test was performed <90 days after the death/removal of the index case on the premises). However, any animal that reacts to a check test should be isolated and removed and, if the subsequent PCR (or culture) result is negative, (i.e. full parallel testing is not triggered) the herd will be subjected to a comparative skin test at least 90 days after the removal of the last test reactor. If that follow up skin test is negative, APHA will then lift the herd movement restrictions. If *M. bovis* is identified in the laboratory by PCR or bacteriological culture, APHA will contact the keeper to confirm the restrictions and arrange single bovine intradermal tuberculin skin tests of all the remaining	skin reaction will not have to be read 72 (+/- 4) hours after the injection as its only purpose is to boost the specific antibody response to *M. bovis* in any TB-infected camelids in the herd (thus increasing the sensitivity of the ensuing blood test). If the camelid owner so wishes, APHA may instruct the private vet to carry out a full comparative tuberculin skin test instead of the intradermal injection of bovine tuberculin for priming only, but in that case the skin test reactions to the avian and bovine tuberculins must be read, recorded on the Tuberculin Test Chart for Non-Bovine Animals (TN52A) and Non-Bovine - Tuberculin Test Report and Certificate of Clinical Inspection (TN52B) and acted upon if an animal is deemed an SICCT test reactor. Where APHA identifies a camelid herd as being **co-located** with or as a **back-tracing traced** from a herd affected by a laboratory-confirmed TB incident with *M.*, all the animals in that camelid herd will be screened using the

		camelids on the holding, followed 10 to 30 days later by antibody testing of skin test-negative animals with parallel[3] interpretation to enhance the sensitivity of TB testing. The owner will be able to choose which two antibody tests are to be used, out of Enferplex (2-antigen), IDEXX and DPPVetTB[4]. For APHA to lift the TB movement restrictions, the whole herd must complete two consecutive rounds of single (bovine only) intradermal tuberculin skin testing with negative results at a minimum interval of 90 days after the removal (or effective isolation) of the last test-positive animal/confirmed clinical case in the herd. These skin herd tests must be supplemented by at least one round of antibody parallel testing arranged and funded by APHA[6]. Any **spread tracings** instigated by APHA from herds with confirmed *M. bovis* will also be subjected to TB testing at the Government's expense. This will comprise: (i) one single bovine intradermal tuberculin skin test; and (ii) if the tested camelids are negative, the owner's choice of two antibody blood tests, from blood taken 10 to 30 days after the skin	**comparative** tuberculin skin test. Comparative skin test-negative animals will receive an antibody blood test 10 to 30 days later at the Government's expense. The owner will be able to choose which antibody tests are used, i.e. a 4-antigen Enferplex or a **serial** IDEXX and DPPVetTB test[2,4]

				test, using parallel interpretation The owner has a choice of which two of the three (Enferplex (2-antigen), IDEXX and DPPVetTB antibody tests are used[4]. Only the traced camelids will be subjected to the skin and antibody tests and only if one or more tracings becomes a test reactor will the rest of the destination herd be tested. If all the test-positive tracings prove PCR (or culture) negative to *M. bovis*, one comparative skin test on the rest of the herd, carried out at least 90 days from the removal of the test-positive tracing camelid, with negative results is required to lift restrictions. If at least one of the traced camelids is *M. bovis* positive on PCR or culture, the usual procedure for a confirmed TB breakdown will follow. All contact and movements must be declared by the owner of the index premises at the time of the breakdown and APHA will endeavour to complete all tracings within six months of confirmation of *M. bovis* infection.			
Test outcome	A: All test results negative	B: Any test inconclusive (Enferplex only))	C: Any test positive, in any tested herd	All tests negative	Any test positive	All tests negative	Any test positive

	A negative pre-movement test result will be considered to be valid for 90 days						
What happens next	Schedule next voluntary private test of the herd after 12 months - See above.	Any camelids that are positive on the 2-antigen Enferplex test, but negative on the 4-antigen test, will be isolated and then privately retested with Enferplex within 30 days. The exception is where the proportion of **2-antigen** results exceeds the	Any camelids that are positive on the 4-antigen Enferplex test will be notified to APHA without delay. APHA will restrict the herd, remove the test positive animals with compensation and arrange for post-mortem examination (PME) and laboratory testing (PCR or culture) at Defra expense.	No further action	Isolate and remove from the holding, as soon as practicable, all skin or blood test positive camelid(s) for Post Mortem (PM) examination. Once *M. bovis* infection has been confirmed in a herd, APHA may not carry out PM examinations and PCR tests of every test-positive	No further action	See Scenario 2

		threshold set by the Surefarm statistical package, in which case Surefarm will inform APHA who will decide on appropriate actions on the test-positive animals, based on the herd's location and TB testing history (see below). If the camelid(s) test positive again on the 2-antigen Enferplex retest, the animal(s) will be regarded as	There are no 'inconclusive' or 'retest' results on the DPPVetTB/IDEXX test combination that is available at APHA for private antibody testing of unrestricted camelids. So, all animals that react to both tests (serial interpretation) will be considered positive and will be slaughtered.		animal, particularly where there are large numbers of positives and PM results are not essential to establish the next step in managing the TB incident. Single intradermal tuberculin skin testing to be repeated at 90-day intervals until two consecutive herd tests with negative results are obtained. Further rounds of combined antibody		

		'inconclusive' animal (s) and the laboratory or private vet performing the test(s) will pass details to APHA. APHA will issue movement restrictions and on the inconclusive animal(s)()not on the remainder of the herd), instruct the inconclusive animal(s) to be isolated and subject them to one **comparative** intradermal skin test supplemented 10 to 30 days later by a 4-antigen Enferplex or a **serial** IDEXX			blood tests using parallel interpretation may be conducted at APHA's discretion if further evidence of residual *M. bovis* infection in the herd is found after completion of the initial antibody herd test. This evidence could be in the form of lesion[5]/PCR (or culture) positive skin test reactors or animals removed between two skin tests as direct contacts (DCs) or as clinical		

		and DPPVetTB test. These tests would be at the Government's expense. In case all tests results are negative, follow scenario 1A. In case of a positive skin test and/or blood test result, follow scenario 1C (Any test positive, in any tested herd). Note that the result of a statutory 4-antigen Enferplex test will only be read as a 4-antigen test and the result will therefore be positive or negative.			cases. As per the initial TB blood test, the owner will be able to select which two antibody blood tests are to be used[4]. Again, this additional round of antibody testing will be at the government's expense and will ideally take place 10 to 30 days after the single intradermal tuberculin test.		

APHA follow-up	No further action	Isolate and restrict the movements of individual test-positive animal(s). APHA arranges with the herd owner the slaughter of positive animal(s) from the retest for PM examination and laboratory PCR at government's expense. APHA applies statutory movement restrictions on the affected holding, pending completion of PM examination and PCR of the test reactor animal(s). Two possible outcomes: 1. If typical visible lesions[5] of TB are detected and/or a positive *M. bovis* PCR result (or culture result, in the absence of a PCR result) reported, treat as a confirmed TB breakdown, as per scenario 22. 2. If PM examination shows no visible lesions[5] and PCR results (or culture results, in the absence of PCR results) are negative for *M. bovis*, the herd will remain under restrictions until all camelids in the herd have received one government-funded comparative tuberculin skin test with negative	It is strongly recommended that herd owners carry out another round of blood testing (where owners choose two antibody blood tests using parallel interpretation) 12 months after the conclusion of the incident (withdrawal of movement restrictions) to check for residual *M. bovis* infection in the herd. This is a recommended, but voluntary measure at the herd owners' expense. In this case a single intradermal tuberculin injection should be administered 10 to 30 days prior to the blood test to 'prime' the antibody response. It is for the owner to decide if the tuberculin injection site is to be read in this case.	No further action, although voluntary private routine TB surveillance testing of the herd is recommended.	See Scenario 2

		results. If no private tuberculin test (or injection with PPDB for antibody boosting purposes) had been carried out in the affected herd, this test will be conducted at least 60 days after the removal of the test-positive animal(s), provided the TB test positive animal(s) has/have been isolated effectively and the removal of the TB test positive animal(s) from the farm has not been delayed. If private tuberculin test (or injection with PPDB for antibody boosting purposes) had been carried out in the affected herd, this test will be conducted at least 90 days after the private skin test, provided the TB test positive animal(s) has/have been isolated effectively and the removal of the TB test positive animal(s) from the farm has not been delayed. If this test is clear, a follow up antibody test is strongly recommended after 6 months to check for *M. bovis* infection in the herd.			

Notes:

1. Please note that APHA retains the discretion to require statutory TB testing of camelids in any unusual situations that may not fully fit one of the three scenarios described in this table.

2. For the combined IDEXX and DPP VetTB test with serial interpretation, both antibody tests must be positive to generate a positive overall test result and declare an animal as infected with TB. There. There is no statistically significant difference in test sensitivity or specificity between the Enferplex -4-antigen test and the combined IDEXX and DPP VetTB test with serial interpretation.

3. For the combined antibody tests with parallel interpretation, a positive readout for either of two chosen antibody tests provides a positive overall test result. There is no statistically significant difference in sensitivity or specificity between any of the parallel test combinations.

4.There are certain limitations regarding the type of statutory antibody test that the APHA laboratory will perform, depending on the number of samples to be processed from the same herd:

- the DPP VetTB test is reserved for submissions consisting of no more than 40 samples. Larger batches will be tested using the IDEXX/Enferplex ELISA test combination (parallel testing) or the Enferplex 4-antigen test (serial testing).
- an Enferplex test run requires a minimum of 10 samples. The laboratory will inform you if this is likely to cause a delay in test reporting, and may offer an alternative, equivalent test option if this is the case.

5. Post-mortem examinations are carried out to assess the stage and severity of the infection at the time of slaughter and, where required, to obtain tissue samples for PCR test, culture and DNA typing of *M. bovis* to assist with epidemiological investigations. However, TB can only be detected directly by PME if the infection has caused lesions in the infected organ(s) and associated lymph nodes that are sufficiently extensive to be visible to the naked eye.

There are three possible outcomes from a PME on a TB test-positive or suspect animal:

i. **Typical visible lesions:** tissue changes characteristic of *M. bovis* infection (with common colours and consistency) were seen. In South American Camelids, a lesion is reported as typical only if it was detected in organs of the respiratory tract (lung and associated lymph nodes).

ii. **Atypical visible lesions:** tissue changes seen cannot be definitively attributed to *M. bovis* infection, but the involvement of the bacterium cannot be ruled out either.

In South American Camelids only, the recording of atypical visible lesions indicates that TB-like tissue changes were detected at other anatomical sites, e.g. liver, head or intestinal lymph nodes, **in the absence** of visible lesions in the lungs and/or chest lymph nodes. Such lesions are subject to additional microscopical examination. If organisms with characteristic mycobacterial morphology are identified, then the lesions are reported as visible and typical.

iii. **No visible lesions:** no tissue changes visible to the naked eye could be detected.

Please note that TB skin and antibody blood tests are more sensitive than PME and may detect the immune response to the bovine TB bacterium *before* the development of any visible lesions and clinical signs of TB. In some cases, the microscopic lesions of TB in the affected organ(s) can also take a very long time to progress to larger, visible lesions, if at all. **Therefore, failure to detect TB-like lesions at PME does *not* mean the animal was free of infection**.

6. After the initial round of government-funded parallel TB antibody blood testing in camelid herds affected by *M. bovis*-culture positive breakdowns, APHA may consider, on a case-by-case basis, requests from herd keepers for additional, privately funded TB Enferplex blood tests of skin and DPP/IDEXX test-negative animals if the herd in question does not immediately qualify for a further round of antibody blood testing conducted by APHA. All TB seropositive animals in such herds will be removed with compensation, whether the blood tests were funded by APHA or the herd keeper.

Data Protection:

For information on how we handle personal data visit www.gov.uk and search Animal and Plant Health Agency Personal Information Charter.

APHA is an Executive Agency of the Department for Environment, Food and Rural Affairs and also works on behalf of the Scottish Government, Welsh Government and Food Standards Agency to safeguard animal and plant health for the benefit of people, the environment and the economy.