

Application of the gamma interferon (γ -IFN) blood test for diagnosis of bovine tuberculosis

Background on the new policy for application of γ -IFN

In August 2006, Defra and the Welsh Assembly Government announced proposals for the mandatory use of the gamma interferon (γ -IFN) blood test for the diagnosis of bovine tuberculosis (bTB) in certain prescribed circumstances. The blood test will be used as a parallel test alongside the skin test, as required by European legislation. Using both tests in parallel can speed up the resolution of confirmed TB breakdowns by identifying as many infected cattle as possible at the earliest opportunity. The new policy will apply from **23 October 2006**.

What is the gamma interferon (γ -IFN) blood test?

The gamma-interferon (γ -IFN) test is an in vitro laboratory based blood test developed in Australia, in the late 1980s, for the diagnosis of bovine TB. Gamma interferon is an immunological hormone that is produced after the stimulation of blood cells with antigens such as bovine tuberculin.

The gamma interferon test has marginally better sensitivity than the skin test, appears to detect infected animals earlier than the skin test and can be repeated as often as necessary without the need to wait 60 days between tests. Most importantly, the tuberculin and gamma-interferon tests appear to identify slightly different sub-populations of infected animals, which means that maximum sensitivity is achieved when they are used together.

When will the gamma interferon blood test be applied?

As a part of ongoing efforts to improve the bTB-testing regime in cattle, from 23 October 2006 Animal Health have extended the deployment in the field of the gamma-interferon test. The gamma-interferon test is not replacing the tuberculin skin test, which continues to be the primary screening test for bTB. However, Animal Health will, as a matter of course, apply the gamma interferon test to improve the chances of detecting infected cattle (and thus speed up the resolution of TB incidents) in the following circumstances:

- On tuberculin test-negative animals in all confirmed new TB incidents in 3 or 4 year testing parishes;
- On tuberculin test-negative animals in severe TB incidents, to inform decisions around whole or partial herd slaughter;
- On tuberculin test-negative animals in herds with persistent, confirmed infection that fail to resolve through repeated short-interval tuberculin tests and have taken basic herd bio-security precautions; and
- On inconclusive reactors that fail to resolve at their first tuberculin retest in herds in 1 and 2 yearly testing parishes.

Additionally, Animal Health may sometimes decide to use the blood test to reduce the probability of a false positive result:

- In chronic, unconfirmed TB incidents in 2, 3 or 4-yearly testing areas, where non-specific cross reactions to tuberculin are suspected; and
- For re-testing of tuberculin test reactors with abnormal skin responses or where interference with the skin test is otherwise suspected.

The γ -IFN test will work on samples collected from the second day of the TB skin test up to the first date of the next TB skin test. The urgency of sampling will be determined by Animal Health. It may be possible to combine the γ -IFN test with day 1 of the next TB skin test.

Practical arrangements for testing

The herd owner will have to gather the cattle in the same way as for a brucellosis blood /TB skin test.

Outcome following positive test result, and future testing

The Tuberculosis Orders provide for compulsory slaughter of animals failing any diagnostic test for bTB. The arrangements for compensation for any gamma-interferon test reactor will be no different to those when only the tuberculin test is used. In England, the 'relevant date' for valuation of a gamma interferon test reactor is that on which the animal had the blood sample taken.

Where γ -IFN reactors are disclosed as a back up to the TB skin test the normal breakdown herd testing routine will be followed. γ -IFN may be used at these follow up skin tests.

Who will carry out and pay for the gamma interferon tests?

Where use of the gamma interferon test is prescribed by Animal Health, blood samples will be taken by Animal Health officials and submitted to a laboratory of the Veterinary Laboratories Agency. Testing costs will be met by the Government.

Further Information

To discuss the gamma interferon test further, please contact your local Animal Health Divisional Office :

<http://www.defra.gov.uk/animalhealth/about-us/contact-us/animal-health-offices.htm>

Additional information on the roll-out of the wider use of the γ -IFN test is available online at :

<http://www.defra.gov.uk/animalh/tb/control/gamma.htm>