



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

How is bovine TB detected at slaughter?

Information update and facts
relating to Bovine Tuberculosis (bTB)



www.agriculture.gov.ie



How is bovine bTB detected at slaughter?

All cattle slaughtered for human consumption in Ireland must undergo a post-mortem inspection carried out by a vet in the abattoir as part of the food safety system. This includes checking the animal for visible signs of bTB infection.

After each animal is slaughtered, a selection of its glands (also known as lymph nodes) are cut open with a knife and examined by eye by a vet. The lungs, the internal lining of the chest cavity and the abdominal organs are also inspected. If any damage, of the sort caused by bTB is seen this is recorded and the animal is said to have suspect bTB lesions.

What is a bTB lesion?

A bTB lesion is an area of damage caused by the bTB bacteria (*M. bovis*) in the tissues of an infected animal. During the early stages of infection, the bacteria invade the animal's own cells, usually in the glands of the head, neck and lungs. Even using a microscope, it is very difficult to see them at this stage. As the infection progresses, the bacteria multiply and damage the tissue around them. This damage may be seen using a microscope. As the



disease continues, the areas of damage get larger; eventually they reach a size where they can be seen by eye when the glands are cut open. In severe cases, these areas of damage (called lesions, or tubercles) can be found in the glands of the head, neck and lungs and in the rest of body as the animal gets sicker.

What do the results of the post-mortem mean?

When suspect bTB lesions are seen in an animal which was not thought to have been infected (it was not a skin test or blood test reactor), this means the animal may or may not have had bTB. There are some other diseases which can cause tissue damage that can sometimes look like bTB. For this reason, the suspect bTB lesions are sent to a laboratory for further testing. These laboratory tests can either confirm that bTB was indeed present, or rule out bTB and designate the animal as non-infected.





How effective is the post-mortem at detecting bTB?

Inspection at slaughter is not as successful at detecting bTB infection as the skin test programme. However, it is still a vital part of the bTB surveillance system and detects many infected herds each year. There are several factors which can affect it:

- Post-mortem inspection can only detect bTB if the disease is at a stage where the tissue damage caused by bTB is substantial and visible to the naked eye. Recently infected cattle will not be detected as the bTB bacteria are too small to be seen. The rate at which infected cattle develop bTB lesions varies.
- The more advanced the stage of bTB, the more likely it is that inspection at slaughter will detect it.
- Sometimes the immune system of an animal is damaged and post mortem testing is the only way to detect the disease.

Cattle which have bTB lesions detected at slaughter, where the lab confirms disease, always have bTB infection; in other words, the laboratory test is 100% accurate.





What are the average lesion detection rates?

- 30% of skin test reactors will have visible lesions at post-mortem inspection.
- 15% of Gamma Interferon reactors will have visible lesions at post-mortem inspection. (This figure relates to cattle, in herds with high risk breakdowns, which are in the same groups as cattle that were skin test reactors).

Why did my reactors not have lesions at slaughter?

The tests for bTB in cattle are very effective at detecting infected animals; yet when these cattle are sent for slaughter as reactors, only a minority will have visible lesions of bTB. This can cause some herd owners to wonder if the animals really had bTB at all.

It actually means that the disease has not yet developed to the stage where the damage caused by bTB is so large that it can be seen by the naked eye during post-mortem inspection.



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If very few reactors in an outbreak have visible lesions, this can indicate that infection has been detected relatively early. If a majority of reactors in an outbreak have visible lesions, this is a sign that disease has been present for some time and more animals in the herd may have been infected.

Further information is available at

<https://www.agriculture.gov.ie/animalhealthwelfare/diseasecontrol/bovinetb/>

