Keeping up to date with bovine TB

**THE WEBINAR VET** organised for
John Blackwell, at the time the senior vice-president of the BVA, to deliver a webinar updating vets on the current bovine TB situation.

This discussion was based on a briefing given to MPs shortly after last year’s general election and offers an overview of all aspects of bovine TB, including the controversial badger culling.

**Bovine TB** is a chronic infectious respiratory disease caused by the bacterium Mycobacterium bovis and is closely related to TB in humans. John explained it is a complex and zoonotic condition with maintenance hosts, cattle and badgers, and other spill-over hosts including humans, cats, dogs and various other mammals such as deer and camels.

*M. bovis* does pose a risk to human health but with fastidious abattoir checks and the pasteurisation of milk, the risks are low. The disease has low morbidity in cattle but has a direct effect on production by reducing efficiency. Indirectly, it can significantly affect business viability for farmers in the face of disease outbreaks and also affects trade within and beyond the EU, with EU law demanding a control and eradication plan for bovine TB.

Historically, there was a high incidence of bovine TB in the 1950s which reduced when control measures were implemented. There was an upsurge in 2001 partly due to the foot-and-mouth outbreak where testing was stopped. From then on numbers have fluctuated but the general trend has been upwards, particularly from 2010.

John cited figures which helped demonstrate this, stating that 235 cattle were slaughtered in 1986 because of bovine TB but in 2010 28,000 cattle were slaughtered for the same reason.

These figures have remained at around 30,000 with some parts of the country being worse affected than others. Areas of the UK are now categorised into high-risk areas (9% prevalence), low risk areas, and edge areas (1% prevalence).

**How does it spread?**

The randomised badger culling trial (RBCT) in 2007 showed that maintenance hosts, badgers, contributed significantly to the spread of disease in cattle. It also stated, however, that cattle to cattle transmission is also very important in high incidence areas and is the main cause of spread in new areas.

Spread of the disease is categorised into three types: transmission, where spread is from cattle to cattle or badger to cattle; translocation, where the spread of disease is by movement locally or to a greater distance; and amplification, where disease is seeded in by wild animals or via new animals entering into the herd.

TB testing in cattle plays a significant role in control and the tuberculin skin test is the test of choice. It involves injecting a bleb of both the avian and bovine antigen into the mid region of the neck and measuring any difference in skin thickness after a period of time to determine if there has been a reaction.

The severity of the reaction will decide if the animal is a reactor, or is inconclusive and requires a retest. John explained that this test is not perfect but is currently the best we have. There is a quality assurance system where vets performing the test are audited and validated. The frequency of testing is a policy decision dependent on the region.

Other forms of control include risk-based trading where farmers can restock appropriately by checking the testing history of a herd in an attempt to mitigate the risk of translocation. Surveillance by means of meat inspection within the slaughterhouse is also key.

John went on to demonstrate the importance of biosecurity by showing us several videos of badgers regularly coming into contact with cattle, with both animals happily co-existing. For this reason it is imperative to limit contact points between wildlife reservoir hosts and cattle.

Vaccination of cattle would also be a very neat solution to the problem but the current available BCG vaccination is unfortunately not fully protective. It only limits the severity of the disease and does not stop lesions developing.

It is currently not possible to differentiate infected from vaccinated animals and for this reason is currently illegal to use this vaccine in cattle within the EU.

**Control in badgers**

The culling of badgers is an area of controversy but the RBCT carried out between 1998 and 2006 showed that proactive culling reduces the incidence of bTB in cattle herds. The key conclusion from a meeting of scientific experts held at DEFRA in 2011 demonstrated that four-and-a-half years post culling a net benefit of 16% was gained in reducing the incidence of bTB in cattle.

Other measures of controlling badgers include biosecurity, vaccination and contraception. Contraception is difficult as badgers undergo delayed implantation and only the dominant sows go on to have cubs.

Vaccination can also be achieved by using the same BCG vaccine available for cattle but once again it has not been proven to fully protect against infection. Vaccination of badgers requires cage trapping and current badger capture rates sit at only 50-70%. The costs are also very high at £600 per vaccination delivered per badger and as yet there is no evidence demonstrating the impact on bTB in cattle.

Currently there is also a world shortage of BCG vaccines so any badger vaccination programmes have been suspended for the time being.

A comprehensive approach to control in other species such as pigs, dogs, cats, deer and camels also needs to be taken by implementing biosecurity, testing, notification and compulsory slaughter.

**Policy approaches across the UK**

As stated previously, policies in place will vary across England, Wales, Northern Ireland and Scotland and the differences are stated clearly within the webinar.

Current cattle controls in England include annual herd testing in high-risk areas and edge areas and four-yearly testing in low-risk areas. There is also a requirement for pre-movement testing in high-risk and edge areas and post-movement testing.

There is also the targeted use of an interferon-gamma assay blood test to diagnose cattle which is currently being applied in three- to four-yearly testing parishes in an attempt to ensure infection in such areas does not become established in wildlife or cattle.

In 2013, two pilot badger cull areas were put in place in England to aid badger control and test the method of culling in terms of safety, efficacy and humaneness. The culling of badgers in the previous 2007 RCBT trial was carried out only by cage trapping and shooting, whereas the 2013 test involved a combination of methods, caging and shooting and the use of controlled shooting which involves the shooting of free-ranging badgers.

An independent expert panel was asked to review this test method of culling for safety, humaneness and efficacy after one year. The panel found these criteria were not met after one year of culling and made recommendations to DEFRA to implement in year two in an attempt to attain these criteria. However, after another review by the IEP following year two, it was again shown the criteria for safety, humaneness and efficacy were not met.

**The BVA position**

The BVA believes that badger culling has a role in controlling bovine TB but it must be targeted, effective and humane. After the most recent review from the independent expert panel reviewing the 2013 pilot cull, the BVA withdrew support for the use of controlled shooting but supported the use of cage trapping and shooting and called for a wider roll out of culling in carefully selected areas.

The BVA was later asked to revisit this policy but as the evidence base had not changed and there had been no new significant evidence, the BVA was unwilling to change its policy at this time.

Having stepped out of mixed practice many years ago, my knowledge of bovine TB and what is actually happening right now is limited. However, there are times when people ask my opinion on the subject, especially as the culling of badgers can be an emotive subject often viewed negatively by the press and general public.

This webinar offers an excellent base from which to gain a rounded view on the current situation with bovine TB and to fully understand the BVA’s policy on badger culling, so if necessary, those awkward questions can be answered in a logical and informed way.

John Blackwell, BVSc, MRCVS, was president of the BVA in 2008-09, having served as a BVA council member for 12 years, and was BVA president in 2014-15. For the last few years he has been an external lecturer on emergency slaughter of cattle for the veterinary public health module at the Nottingham veterinary school. He is also a member of the British Animal Rescue and Trauma Care Association, sitting on the education committee.