

Control of Bovine Tuberculosis (bTB) - Part 1

A BRIEF HISTORY

Human TB became a serious problem in Victorian England as industrialisation crowded people together in insanitary conditions in large cities. To add to this, many of the dairy herds that were kept in and around the cities to provide fresh milk were infected with bovine tuberculosis (bTB). The milk was a potent source of infection for many people, particularly children, many of whom died. A law was therefore passed making it illegal to sell tuberculous milk and the tuberculin test, which could identify infected cattle before they showed symptoms, was developed. It was seen to have the potential to eradicate the disease. A scheme to achieve this was developed and the Attested Herd Scheme was introduced in 1935.

Once a certain proportion of the herds in an area were in the scheme compulsory eradication could start. This involved regular compulsory testing of all cattle herds and the slaughter of TB reactors, just like what happens today. Eradication finally got going in 1950 and was a great success. By the end of the 1960's TB in cattle had almost disappeared. By the mid 70's, all the cattle herds in the UK had been cleared of bovine TB, but, unfortunately, not all at the same time. In two areas in particular – Cornwall and Gloucestershire – herds that had been cleared of the disease continued to have further outbreaks of confirmed bovine TB. This situation continued at a low level throughout the 1970's.

Unfortunately during the 1980's the number of cases started to rise again. This increase in number and geographical area has continued ever since so that TB in cattle is once again widespread in England and Wales. Because of this, there have been a number of changes in policy in recent years and this has led to changes in the legislation, which are still on going. This bulletin therefore covers the position at the present time (July 2010), but a number of policies are under review and may change shortly.

Year	Significance
1920's	The Government develops the tuberculin skin test to enable the routine testing of cattle for bTB.
1935	Pasteurisation of milk largely protects humans from bTB.
1935 - 1937	Ministry of Agriculture first introduced the Tuberculosis – Attested Herd Scheme.
1950's	Compulsory TB testing introduced

	– which progressively reduced the number of reactors.
1960	All cattle in the UK tested at least once and all reactors removed.
1970's	South West is identified as having a higher rate of incidence. TB first discovered in Badgers in 1971.
1973	Badgers Act first introduced to protect badgers against baiting.
1975 - 1981	Strategic culling using gassing started. Thornbury badger clearance trial eliminated TB in cattle herds for 10 years.
1980 - 1982	1980 Temporary halt to culling during Zuckerman Report No culling. 1981 Gassing stopped.
1982 -1986	Clean ring policy. 1986 Dunnet Report - clean ring policy stopped and replaced by partial trapping policy / interim strategy.
1987	Outbreaks begin a year on year rise which has continued until the present day.
1992	The Protection of Badgers Act introduced.
1996 - 1997	Krebs Review – in 1997 culling suspended.
1998	Randomised Badger Culling Trial (RBCT) (a.k.a. Krebs Trial) started, run by ISG.
2001	Tuberculin testing suspended due to Foot & Mouth disease (FMD).
2003	ISG/Krebs – reactive component stopped early due to an increase in TB incidence in the reactive culling areas.
2008	Jenkins shows that two years after the RBCT/Krebs trial there was a large reduction in TB in cattle.
July 2008	The then Secretary of State, Hilary Benn, ruled out a badger cull except under exceptional circumstances.
May 2010	Coalition statement: “As part of a package of measures, we will introduce a carefully managed and science-led policy of badger control in areas with high and persistent levels of bovine tuberculosis”.

Fig 1: Table showing significant dates over the last century in relation to bTB.

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RECENT HISTORY

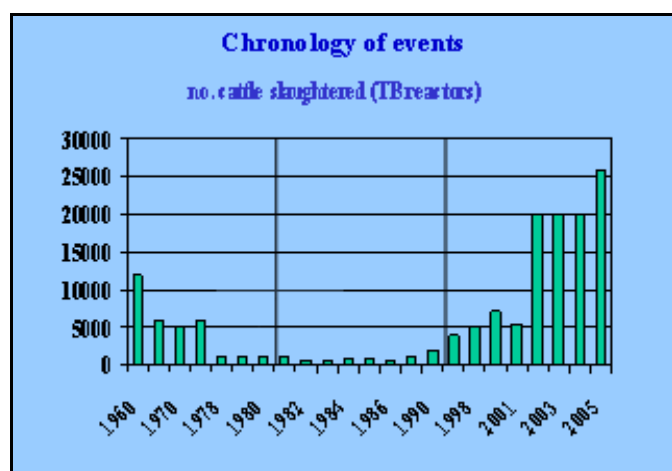


Fig 2: Graph showing the number of TB infected cattle slaughtered during the years 1960 – 2005/6.

As you can see in figure 2 (above), good progress was made in the first 50 years of TB control with the numbers of reactor cattle down to reasonably low levels by the late 1970's. Something however then changed. From 1986/87 the numbers of reactors started to rise, with a year on year increase of around 18% in the 1990's, rising to a 24% increase and 40,000 reactors per year in 2008 across GB.

It is only logical to assess all the factors that may have contributed to this result. Firstly it should be noted that badger culling changed to an interim reactive strategy which lasted longer than was planned and this could have caused social disruption and dispersal (perturbation) and spread disease. Secondly there was a small increase in TB reactors in 1975 following the change from mammalian to Weybridge tuberculin, but otherwise the test used and the person carrying out the test has essentially remained the same.

The cessation of TB testing in 2001 during the Foot & Mouth outbreak has been shown to have led to an increase in reactors in following years; a further factor was the industries approach to restocking post Foot & Mouth. Increased TB testing (e.g. pre-movement testing), and the 'zero tolerance' rule for overdue tests introduced in 2005 will have had an effect on reactor numbers, as will an increase in the sensitivity of new tests used such as the gamma interferon test which was introduced in 2002. More testing equals more reactors identified suggesting an increase in herd size is considered a risk factor. This said there are currently far fewer livestock holdings than 40 years ago (i.e. in the late 1970's when TB was almost

eradicated), and there are now far fewer livestock markets and fewer batches of livestock moved between farms.

The three reports to Government quoted above in figure 1 (Zuckerman, Dunnet and Krebs) all came to the conclusion that the badger is the most important wildlife reservoir and is involved in the maintenance and transmission of disease to cattle. In fact the last line of paragraph 56 of the 1985 Dunnet report reads - "We believe that it is not necessary, and would be a waste of resources, to seek further confirmation for the transmission of tuberculosis from badgers to cattle".

THE LEGAL FRAMEWORK

The European Commission (EC) requires the control of cattle tuberculosis across all member states. This is laid out in Directives that specify routine testing and surveillance to detect the disease with the ultimate objective of achieving officially TB free (OTF) status for the country. The directives are complex and are not an easy read. To read/view the directives please - [Click here](http://www.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/tb/abouttb/legis.htm). <http://www.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/tb/abouttb/legis.htm>.

The principal act that makes provision for animal diseases is the Animal Health Act (1981) which has been amended several times since it came into force. To read / view the act - [Click here](http://www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810022_en_1). http://www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810022_en_1.

THE TB ORDER ENGLAND

The current Order covering bovine TB in cattle in England is - The Tuberculosis (England) Order 2007 (or TB Order). To read the Order - [Click here](http://www.opsi.gov.uk/si/si2007/uksi_20070740_en_1). http://www.opsi.gov.uk/si/si2007/uksi_20070740_en_1.

The Order covers TB in all bovine animals – which include cattle, buffalo and bison. The Order defines what is meant by tuberculosis and gives the Secretary of State for Agriculture powers to slaughter any animals that are considered to be infected with TB.

There is currently no compulsory testing, slaughter or compensation for any other species (e.g. goats, farmed deer, wild boar and Alpacas etc), even though they are all susceptible farmed species. There is however provision for putting any mammal (except man) under movement restrictions.

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TB in all farmed mammalian species (i.e. cattle, sheep, pigs, goats etc) is a notifiable disease. Since 2006 anybody who identifies suspect lesions or possible TB abscesses in any mammalian carcass must report the suspicion of TB to Animal Health. This requirement includes pets as well as farm animals, so a practice vet will have to notify Animal Health if TB is found in a cat, or dog, for instance (and several have been in recent years).

Abattoirs are also required to notify signs of TB found at meat inspection; this will trigger an investigation from an Animal Health veterinary inspector who will discuss the situation with the owner. If required, testing of other species (and removal of test positive animals) is conducted with the cooperation of the farmer / owner.

MYCOBACTERIUM BOVIS

If *Mycobacterium bovis* (*M. bovis*) - the bacterium that causes bovine TB - is found in samples from a mammal by any laboratory in this country, it is sent to the Veterinary Laboratory Agency (VLA) to be tested.

They then forward the information on to the local Animal Health Office who will then locate the origin of the samples and decide what further action needs to be taken.



Fig 3: TB testing - Vet injecting avian tuberculin.

TB ORDER – TESTING / PrMT

The TB Order requires keepers of cattle herds to have them routinely TB tested at frequencies depending on the level of reactors in the area.

Pre-movement testing of cattle over 6 weeks of age that are kept in a 1 or 2 year testing area before they can be moved to another premises is also laid down within the Order.

Once tested, the pre-movement test remains valid for 60 days. The keeper of the cattle receives a copy of the TB test charts so that they can prove that the cattle have had the test.

The Order also lays down the rules for establishing various types of specialist markets and units where cattle from restricted farms can go under certain circumstances (AH licence these according to strict criteria). The aim is to provide opportunities for TB restricted farmers' to continue to trade without compromising disease controls.

Vaccination of cattle against TB is prohibited by the Order, as is treatment if they are thought to be infected with TB.

Some aspects of bio-security are also covered by the Order; notices can be served to prevent any infection of other stock which could be caused by contact with infected cattle or slurry, and also to cover cleansing and disinfection of anything that could harbour bacteria.

THE CATTLE COMPENSATION ORDER

The Cattle Compensation (England) Order (which brought in the same valuation system for brucellosis and enzootic bovine leucosis as bovine tuberculosis) came into force in February 2006. The Order introduced table valuation. The values of the animals to be slaughtered are looked up on a published table of average values according to their category – male or female, beef or dairy, pedigree or non-pedigree, age group and whether females have calved etc.

The values in the table are calculated from cattle sales data collected across GB and are published monthly on the Defra website.

To view the tables please - [Click here. http://www.defra.gov.uk/foodfarm/faranimal/diseases/atoz/tb/control/compensation.htm](http://www.defra.gov.uk/foodfarm/faranimal/diseases/atoz/tb/control/compensation.htm).

Sometimes there is inadequate sale data for an average valuation to be valid (e.g. if categories of cattle, like breeding bulls, only appear at cattle sales in very small numbers for instance). In such circumstances either a table valuation for a previous month will be applied or compensation will be determined by an independent valuer. Individual valuations are carried out under another Order – the Individual Ascertainment of Value (England) Order 2005.

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WELSH AND SCOTTISH LAW

Wales and Scotland have got their own legislation for governing / dealing with TB, although this is made under the same Animal Health Act (1981) as England.

The Welsh principle Order is The TB (Wales) Order 2006 and this is essentially the same as the Order for England. Valuation is carried out however under the Brucellosis and Tuberculosis (England and Wales) Compensation Order 1978, which has been amended so that it still applies to Wales. Compensation is based on the market price of the animal which is determined by using a valuer.

The Scottish Order is, unsurprisingly, the TB (Scotland) Order 2007. This differs from the English legislation in that it requires post movement TB testing of cattle that come from an area of high TB incidence (subject to one or two yearly testing) between 60 and 120 days after movement, as well as the required pre movement test. There are no provisions for finishing units and collection centres, and the mechanism for compensation is laid down in this Order. As in Wales, compensation is the market price of the animal which is determined by using a valuer.

RESTRICTIONS

Infection with bovine TB is usually detected by carrying out a tuberculin skin test and finding reactors, but it may also be found in a carcass at an abattoir or, very rarely, it may be suspected in a sick animal. If TB is suspected in a herd, through the disclosure of reactor cattle for instance, the herd is put under movement restrictions to prevent spread of the disease (i.e. TB2 movement restrictions).

If TB is suspected in only one animal (an inconclusive reactor or an animal traced from a reactor herd, for instance) then a different restriction is put in place (TB34 notice). This notice not only restricts the animal but may also confine it to isolation from other cattle.

(Note: TB2 restriction notices may also be issued for herds where the routine test is late. Movement restrictions are imposed to reduce the risk of disease spread as the herds TB status is unknown).

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