Badger Cull

About bovine TB

- Bovine TB is caused by the bacterium *Mycobacterium bovis* (*M. bovis*), which can also infect and cause TB in badgers, deer and other mammals.
- Although it is possible for humans to contract bovine TB, the primary route of infection is from drinking unpasteurised milk and it is not considered a significant threat to public health.
- Bovine TB was a serious problem in the early 20th century, but slaughtering infected herds in the 1950s came close to eradicating the disease by the 1960s. It has been steadily on the rise since the 1980s.
- Clinical signs of bovine TB include weakness, coughing, infected udder tissue and loss of weight.

About badgers

- Badgers are acknowledged as a reservoir for bovine TB in large parts of Britain and Ireland, but the relative contribution of badgers on the incidence and spread of the disease is hard to quantify and generalise since the disease is very patchy in its distribution and can also pass from cows to badgers and between cows in the same herd.

Routes of infection

- Badgers are thought to pass on the disease to cattle through their urine, faeces or through droplet infection, and via contamination of cattle food in troughs or stores in the farmyard or in cattle pastures.
  - There is still uncertainty about the exact mechanisms by which transmission takes place.

Options for dealing with bovine TB

The government’s ‘TB Eradication Programme for England’ includes various measures for controlling bovine TB including culling, vaccination and farm management.

Culling

Trials

Much of the data on badger culling comes from the Randomised Badger Culling Trial (RBCT) or Krebs trial.

- The RBCT lasted 9 years from 1998-2006, and monitored the effectiveness of proactive culling – where badgers were culled annually across a set area of land, and reactive culling – where badgers were culled on a single occasion on farmland close to one or more recent outbreaks of confirmed TB.
- Reactive culling did not reduce cattle with TB – it resulted in significant increases (27%).
- While proactive culling controlled TB in the cull area it temporarily increased TB in surrounding areas due to the *perturbation effect*.
  - The RBCT results indicated that 4 years of proactive culling would reduce bovine TB by 12-16% over 9.5 years over a 150km² culling area.

Reporting in 2007, the group behind the RBCT said badger culling can make no meaningful contribution to cattle TB control in Britain. Indeed, some policies under consideration are likely to make matters worse rather than better.”

In October 2009, the Bovine TB Eradication Group for England concluded the balance of scientific evidence was against a cull while indicating the importance of retaining wildlife controls as an option.
**Perturbation**

The RBCT showed proactive culling reduced bovine TB within the cull zone, but temporarily increased it outside the cull zone as badgers ranged more widely – referred to as the *perturbation effect*.

Other studies of badgers show stable populations reduce transmission of bovine TB.

Any cull strategy for Britain had to include measures to mitigate perturbation

- In the proposed pilot culls, natural barriers like rivers are to be used to prevent badger movement, This approach of finding natural barriers for cull areas was also part of the RBCT.

**Methods**

Trapping and shooting (the method used in the RBCT) is relatively expensive and difficult to carry out, but the animal welfare aspects of this method were carefully studied in the RBCT.

Shooting without trapping (the method proposed in the upcoming culls) is the easiest method, but there is potential for wounded badgers to flee causing animal welfare concerns and making the carcass a source of infection.

Gassing and snaring were used in culls during the 1970s but have been deemed inhumane and are not being considered now.

**Pilots**

The licensed pilot culls taking place will cover areas of at least 150km².

The pilot culls will be overseen by an independent panel of scientific experts – if after a year they are deemed effective at removing badgers the policy will be rolled out further. It will not be possible to estimate the impact of this culling on cattle TB on two areas in such a short time period.

**Other countries/nations**

**Wales:** Following a review of the science by an independent committee, the Labour Welsh Assembly Government halted the proposed cull and has started a badger vaccination programme.

**The Republic of Ireland:** has been culling badgers since the 1980s. One study, known as the Four Areas Project, found reductions in cattle TB incidence ranging from 51% to 68% over a five-year culling period.

**Vaccination**

Bovine TB can potentially be controlled through vaccines for both badgers and cattle.

**Cattle vaccine:**

- A BCG vaccine for cattle exists, but it is not legal to use as there is no licensed diagnostic test to distinguish between vaccinated and infected animals, and under EU law it is illegal to sell infected animals. A more effective alternative is also in development.
- There is movement towards licensing a “diva” test – differentiation of infected from vaccinated animals – which would overcome the diagnosis problem, but is still years away.
Badger vaccine:
- Badgers can currently be trapped and given a BCG vaccination by injection, using a licensed BadgerBCG vaccine. Field trials indicate a 73.8% reduction in incidence of positive blood tests in vaccinated badgers. Badgers that are already infected with TB do not receive a benefit of vaccination.
  - N.B: there is no data on how much badger vaccination might reduce cattle TB in cattle
- Trapping badgers is difficult and expensive, so an oral badger vaccine which can be left with bait is in development but is still some years away.
- Alongside a vaccination program by the Food and Environmental Research Agency (FERA), Gloucestershire Wildlife Trust, the RSPB, the Wildfowl and Wetlands Trust and the National Trust all independently vaccinate badgers by injection.

Farm management
- Slaughtering chronically infected herds is effective in reducing the spread of TB, but damaging for farmers
- Approximately 26,000 cattle were slaughtered for TB control in England in 2011
- Biosecurity measures which prevent contact between badgers and cattle are a cost-effective way of attempting to reduce potential TB transmission but require investment.

Pre-movement testing reduces the risk of spreading bovine tuberculosis through movements of cattle.
- All cattle over 42 days old moving out of a 1 or 2 yearly tested herd must have tested negative for bTB within 60 days prior to movement.

Sources / further information
Badger Culling - Commons Library Standard Note, October 2012
http://www.parliament.uk/briefing-papers/SN05873

Badger to cattle transmission

Bovine TB and Badgers - Commons Library Standard Note, February 2011 (UK Randomised Badger Culling Trial)
http://www.parliament.uk/briefing-papers/SN03751

BVA information on bovine TB
http://www.bva.co.uk/activity_and_advice/Bovine_Tuberculosis%20.aspx

Food and Environmental Research Agency (FERA) - Badger Vaccine Deployment Project
http://www.fera.defra.gov.uk/wildlife/ecologyManagement/bvdp/

FERA Q&A on Badger Vaccination

Jenkins HE, Woodroffe R, Donnelly CA (2010) 'The Duration of the Effects of Repeated Widespread Badger Culling on Cattle Tuberculosis Following the Cessation of Culling'. PLoS ONE 5(2)
http://www.plosone.org/article/info:doi/10.1371/journal.pone.0009090

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