



A response to the Bovine TB strategy review (The Godfray report)

October 2018

Introduction

The Veterinary Association of Wildlife Management is moved to respond to the latest review published by DEFRA (October 2018) chaired by Sir Charles Godfray,

Background

The TB situation in the National Herd has deteriorated to what it was over 60 years ago. The policy of test and slaughter of increasingly larger numbers of cattle is not controlling the numbers of TB herd breakdowns. This despite the recommendation of the so called Independent Scientific Group, that bearing down on the disease in cattle would alone reverse the annual 15% rise in incidence

MAFF veterinarians found almost 50 years ago that the badger had become a serious host of the causal agent *Mycobacterium bovis* and the reservoir of this infection for other species. Whilst finding this problem in such an iconic animal presented problems in its control, Ministers chose too often to take none, or merely compromised action to address the problem. The consequence is that tuberculosis has made unfettered progress throughout badger populations in the South West, parts of Wales, the West Midlands and several other areas, all now put back onto annual TB testing.

The National Herd has been consistently Tuberculin tested since October 1950 under the Minister's Eradication of Tuberculosis in Cattle Orders which has resulted in cattle being fully susceptible to TB infection to this date. As a result we are still seeing predominately early infection cases in herd outbreaks. But at the same time nothing has been done to control populations of badgers with overt and florid clinical disease. With badger populations having increased by 77% (Mammal Soc. data) in the first decade since the Badger Act was introduced, so also has the problem.

Considerable emphasis has been given to tuberculin test sensitivity. But it should be remembered that this is the test which has been used in all countries which have eradicated TB. Indeed by 1960 we had eradicated TB from 98% of our National Herd and had reached a point where only c.60 herds were affected.

Our concerns

1. That great emphasis appears to be put on cattle control measures, despite that fact that increasingly stringent cattle controls introduced over the past 10 years have failed to halt the continual rise of bovine tuberculosis in cattle.
2. That vaccination of both badgers and cattle appears to be a major part of the control strategy when a proven effective vaccine against bovine TB currently does not exist, and vaccination trials in both cattle and badgers have to date been ineffective in reducing bTB in both species.
3. That little reference is made to the future of badger culling, since nothing should deflect the Government from the necessity of removing the huge burden of infection that presently exists in large parts of the badger population.

None the less we are heartened that the review concludes with the statement that "Today, bovine TB incidences in England, are at best roughly stable. This cannot be allowed to continue".

Cattle to cattle transmission

In 1995 the then CVO declared on the basis of detailed (TB99) field studies that 90% of herd breakdowns were badger related. This declaration is supported by several studies detailed by Gallagher and Sainsbury in their paper to BCVA in 2008:

1. The same spoligotypes cluster around outbreaks. If cattle to cattle transmission were a major factor there would be a wide spread of different spoligotypes around outbreaks.
2. Herd breakdowns seldom involve more than 2-3 animals indicating that the disease does not readily spread horizontally through the herd. Greater numbers of reactors are probably due to multiple exposures to infected badgers
3. It is extremely difficult to transmit the disease experimentally to naïve susceptible animals placed in close contact with clinically diseased animals over several months (Costello and others 1998).
4. Two large trials in which nasal mucous from reactor cattle was serially cultured for *Mycobacterium.bovis* were all negative. (Vordermeier, 2007).

A knowledge of the contrasting pathology of the disease in cattle and badgers, as described by Gallagher and Clifton Hadley (2000) explains why this is so (2, 3, and 4 above). Cattle tend to wall off the organism within fibrous tubercles, particularly in lymph nodes, whereas in badgers the disease is more diffuse or florid leading in the terminal stages to massive excretion of bacteria in urine, faeces and from the respiratory tract.

At the outset the review states that “Bovine TB is an infectious disease that spreads between cattle that is unlike any other endemic disease afflicting the livestock industry in England” and in chapter 5.1 it states that “Movement of infected cattle onto previously uninfected premises is a significant source of spread of bovine TB”. So what has changed? The nature of the disease will not have changed. And we are not aware of any new evidence to show that it has. Of course under certain conditions cattle may spread the disease. But this is not the norm, observation 2. above is the norm and is the basis for the individual removal of reactors from a herd breakdown, were it not so the logic would be to remove and slaughter the whole herd.

Diagnosis and detection of organisms has much improved in recent years for example the new Actiphage test has the potential to reveal more and more infected cattle but this does not endorse cattle to cattle transmission nor does it reveal whether these animals are infectious for other cattle.

Vaccination

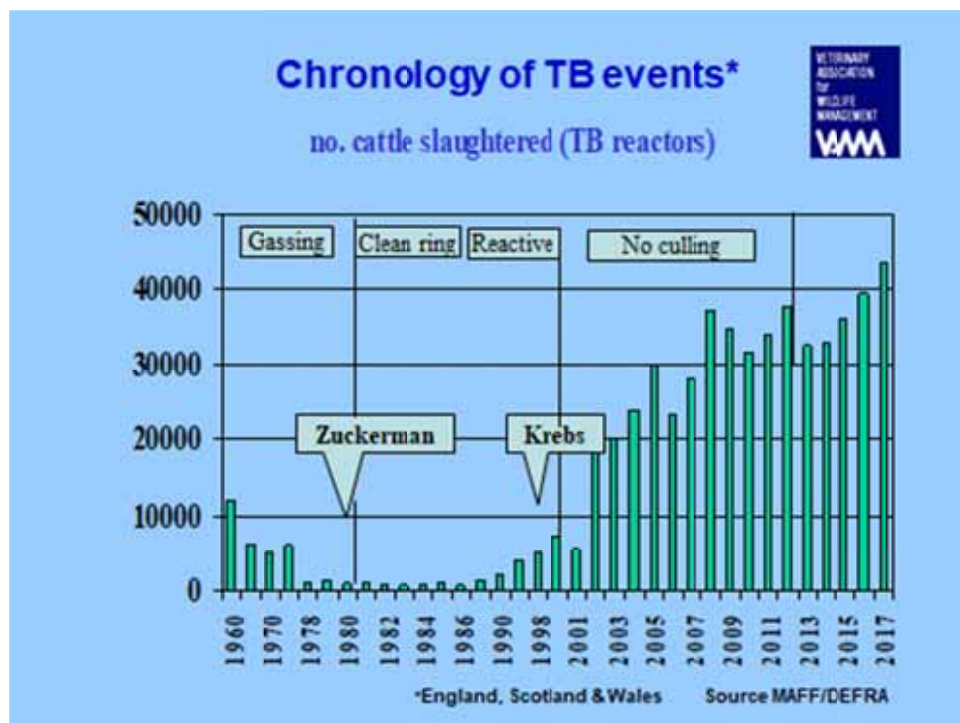
Historically the record of vaccination against TB is not encouraging. The only vaccine available, the Bacillus Calmette-Guérin (BCG) vaccine is not a reliable or efficacious vaccine in man and other mammals (only 70% efficacy in man) It has been in existence for nearly a century and attempts to improve it over the years, particularly recently, have not met with success.

The Badger BCG vaccine, which was granted only a Limited Marketing Authorisation in March 2010, has no proven efficacy against bovine TB in the field. And even in challenge experiments with naive, uninfected badgers in the laboratory it fails to protect solidly against the infection (Lesellier and others 2011). To expect such a vaccine to protect against the huge burden of infection currently present in large parts of the badger population can therefore only be described as highly speculative, Nevertheless various bodies such as the National Trust have deployed the vaccine on their farms in the south west over some years with no apparent benefit; on the contrary several herd breakdowns have been reported. Similarly in a 5 year comparative badger vaccination trial in Gloucestershire no reduction in bovine TB was observed in associated cattle herds (O'Connor and others, 2017)

Badger culling trials

Except for reference to the seriously flawed Randomised Badger Culling Trials (seriously flawed because of the inadequate culling rates achieved in the culling triplets) the review surprisingly makes no comment on badger culling trials, particularly those currently being conducted in Somerset and Gloucestershire. Badger culling was resumed in 2012 by the then Secretary of State, Caroline Spellman, it having been compromised in 1980 following the Zuckerman report and suspended in 1997 by the incoming Labour Government on the recommendation of Sir John Krebs.

The disease was almost eradicated by the early 1980s by a comprehensive programme of badger culling accompanied by skin testing of cattle and removal of reactors (see chart below). But as the direct result of the moratorium on badger culling in 1997 and following recommendation by the so called Independent Scientific Group in 2007 that bearing down on the disease in cattle alone would control the disease, the incidence has escalated to the present appalling level of some 35-40,000 reactors per annum. Thankfully the recently extended farmer led culling trials appear to have achieved limited success in controlling the disease albeit a levelling off not a downward trend (Brunton et al 2017 and DEFRA 2018).



We regretted at the time of resumption of culling in 2012 that the Government adopted the time consuming and inefficient method of culling, led by the farming industry, namely shooting and trapping, rather than exploiting the fact that badgers live underground by day in communal recognisable setts which could be destroyed by gassing (Thomas 2012). This was successful in the trials prior to the RBCTs at Thornbury, Steeple Leaze, Hartland Point and the Irish trials, which used stoppered snares, at East Offaly and the 4 Counties, (Gallagher and Sainsbury 2008). This would appear to be due to reluctance by Government to be directly involved in the culling exercise and a further reluctance to carry out any meaningful research into humane fumigants.

Welfare of badgers

A topic overlooked by the review. The current method of culling, trapping and shooting, have serious shortcomings concerning the welfare of the target species namely badgers. Trapping is vulnerable to neglect and interference and shooting is intrinsically fallible. Adoption of a fast acting, humane fumigant for delivery into setts underground could potentially overcome these shortcomings and improve welfare of the target species.

An effective and humane culling method will in general reduce suffering of diseased badgers particularly those in the terminal stages of the disease.

Furthermore there can be little doubt that the problem of bovine TB is hugely exacerbated by the burgeoning badger population across the country. Between the two national surveys published in 1988 and 1997 a 77% increase in numbers was identified (Wilson, Harris and McLaren 1997). This would give a population of 450,000 adult animals in 1997 from the earlier figure of 250,000 in 1988 and one may assume a similar rise in the last 2 decades.

The badger, a large mammal with no natural predators, is a classic example of a population out of control through lack of management. It is not an endangered species and no longer merits its protected status. This should be removed and similar legislation, as for deer, including a close season, put in place whereby local landowners and farmers are allowed to control the badger population resident on their properties. Such a measure would have a substantial impact not only in controlling bovine tuberculosis in both badgers and cattle, but would reduce damage to the countryside, reduce predation on vulnerable wildlife and relieve the badger population itself from the adverse effects of overpopulation, particularly starvation and disease.

Conclusion

One is driven to the conclusion that the two assumptions above on cattle to cattle transmission and vaccination are driven more by political expediency than science and one must question therefore the value of a report and strategy based as it is largely on these two assumptions.

We urge Government therefore to take direct hold of the problem and resume research into identifying humane fumigants coupled with precise identification of infected badger setts by molecular PCR testing so that a more efficient, humane and targeted strategy of culling badgers underground might be pursued. Such an approach that targeted only infected/diseased animals would clearly be more acceptable to the public in general and to the profession.

References

A complete list of references may be requested from the secretary at:
info@vet-wildlifemanagement.co.uk

Footnote

Most of the points made above, including the need to reduce the overall badger population, were contained in our earlier submissions to Government:

- March 2006 *A response to the Government's Badger culling consultation*
- December 2010 *A response to the Government's consultation on bovine TB and badger culling,*
- September 2013 *A response to the Government's consultation on a Strategy for Achieving "Officially Bovine Tuberculosis-Free" Status for England*
- January 2014 *Proposals for new bovine TB control measures: tackling transmission between cattle herds.*

which may be found on our web site at: www.vet-wildlifemanagement.org.uk

L.H.Thomas, Secretary
C.J.House, Chairman
November 2018