



# A response to the Government's consultation on a Strategy for Achieving "Officially Bovine Tuberculosis-Free" Status for England

September 2013

## Summary

The thrust of the draft strategy whereby England would be divided up into three TB risk areas appears sensible and logical. But three major concerns are raised:

1. Since cattle to cattle transmission is not a major factor in the epidemiology of bovine TB the newly introduced cattle control measures, whilst prudent, cannot be expected to have any significant impact in controlling the spread of disease.
2. Deployment of the unproven Badger BCG vaccine can only be regarded as highly speculative.
3. The pilot shooting trials will only provide information on the feasibility of shooting as method of culling. They may be expected to show that shooting is intrinsically fallible and inefficient.

None of the three concerns above should deflect the Government from the necessity of removing the huge burden of infection that presently exists in large parts of the badger population.

A substantial reduction in the national badger population would radically mitigate the risk of transmission of bovine TB from badgers to cattle.

## Introduction

The Veterinary Association of Wildlife Management is moved to respond to the latest consultation announced by DEFRA (July 2013) on their proposals for achieving an officially TB free (OTF) status in England

In general we found the thrust of the draft strategy whereby England would be divided up into three TB risk areas to be sensible and logical although we doubt it merited a large scale and expensive consultation. However we are concerned on three counts:

## Our concerns

1. That great emphasis appears to be put on cattle control measures, since it is known that cattle to cattle transmission is not the major factor in the epidemiology of the disease.
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.
3. That the current pilot badger shooting trials seem to be regarded as critical in deciding whether or not to "roll out" more widespread culling of badgers.

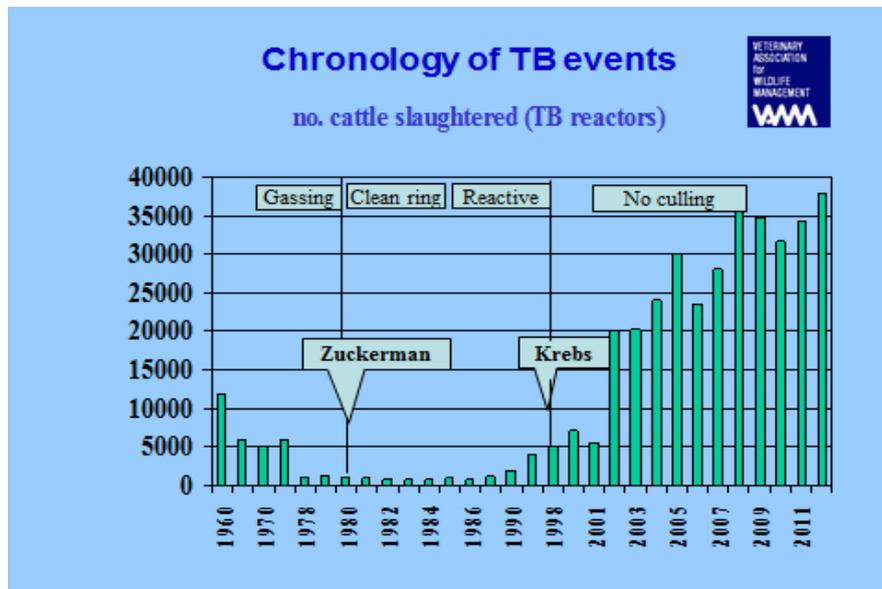
### 1. Cattle to cattle transmission

As long ago as 1995 the CVO, on the basis of recorded field outbreaks, ascribed 90% of herd breakdowns to be of badger origin and this situation won't have changed since then. This statement was based on several complementary pieces of evidence:

- a. 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.
- b. Herd breakdowns seldom involve more than 2-3 animals indicating that the disease does not readily spread through the herd.
- c. It is extremely difficult to transmit the disease experimentally to naïve susceptible animals placed in close contact with clinically diseased animals over several months. 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. 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 to massive excretion of bacteria in urine, faeces and from the respiratory tract.

The chart below shows vividly how bearing down solely on the disease in cattle since 1997 has not been effective in controlling the disease. Furthermore if cattle to cattle transmission was the major factor in the epidemiology of the disease it begs the question of why were the new cattle control measures announced in August this year not put in place 20 years ago when the disease started to take off. And why was the disease nearly brought under control in the 1980s with the cattle control measures of the time?



Thus the new cattle control measures may be regarded as prudent but they should not be expected to have a significant impact in controlling the spread of disease.

## 2. Vaccination with BCG

We are seriously concerned that the Government is presenting vaccination using the BCG vaccine in badgers as a realistic option in its own right as an alternative to culling. BCG 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.

More particularly a proven vaccine against bovine TB either for badgers or cattle does not currently exist. 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. 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, driven it would appear largely by perceived public opinion rather than scientific reality and is, not least hugely expensive. The CVO of Wales estimates the cost at over £650 per badger.

However there is one possible application of vaccination, if an effective oral vaccine delivered in bait could be developed for badgers, this might have a role in suppressing the disease after the huge burden of infection currently present in the population has been removed by culling. This would be particularly relevant if culling was targeted to infected setts by PCR testing leaving uninfected setts untouched.

Finally we do not believe that a vaccine for cattle is either a desirable or realistic option for controlling the disease in cattle. The objective should be to eradicate the disease from both cattle and badgers not merely to suppress it by vaccination.

### 3. The pilot badger shooting trials

These trials were presumably designed simply as a feasibility study for the method of culling chosen, namely shooting. They cannot be expected to provide any meaningful additional data to the culling trials carried out in England and Ireland (summarised below)

	Area (sq km)	culling	Outcome/herd outbreaks
Thornbury	104	100%	Clear for 10 years
Steeple Leaze	12	100%	Clear for 7 years
Hartland Point	64	>80%	80-90% reduction – 10y
East Offaly	738	>80%	88% reduction – 7y
Four Counties	100 x 4	>80%	60-80% reduction
RBCTs	100 x 10	30 – 70%	19 -23% reduction inside 22- 29% increase outside

In all 5 of the trials noted above, prior to the Randomised Badger Culling Trials (1998-2005), culling rates in excess of 80% were recorded and a dramatic reduction (80-100%) in the incidence of bovine TB in associated cattle herds. The Thornbury trial in 1975 eradicated bovine TB in cattle for 10 years before the area was allowed to recolonise with badgers and the disease returned. In contrast the RBCTs recorded hopelessly inadequate culling rates (32-77%) in the proactive culling zones. Given these inadequate culling rates it is thus hardly surprising that badgers missed that is not culled, migrated into surrounding areas to infect more cattle and more badgers. But notwithstanding this even the seriously flawed RBCTs recorded a significant reduction (23%) of bovine TB in cattle in the proactive culling zones.

The criticism, first by Krebs (1997), of the 5 earlier trials that they carried no scientific control zones whilst strictly true is naïve and misplaced. Adjacent endemically infected areas in the rest of the country provided an entirely adequate and statistically significant control zone. The 5 trials collectively thus contribute a substantial body of evidence to show that culling of infected badgers is an effective method of controlling the disease. As stated above even the seriously flawed RBCTs recorded a 23% reduction of disease in the proactive culling areas.

More recently manipulation of the data from the RBCTs has concluded that a 16% reduction in disease will follow culling of badgers in endemically affected areas.

As already stated the current pilot shooting trials cannot be expected to add any meaningful data to the evidence above. They may be expected to confirm that shooting is an extremely inefficient, intrinsically fallible and labour intensive method of culling. The badger is probably one of the easiest large mammals to cull since it lives underground by day in communal, identifiable setts. Not to exploit this fact can only compromise the effectiveness of culling.

Conclusion: None of the three concerns raised above should deflect the Government from the necessity of removing the huge burden of infection that presently exists in large parts of the badger population. This will inevitably involve culling, ideally targeted by PCR testing.

### **Reduction of the overall badger population**

The consultation document mentions “Research into alternative badger control strategies”. 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. This would give a population of 450,000 adult animals in 1997 from the earlier figure of 250,000 in 1988 and assuming a similar rise in the last decade it seems reasonable therefore to estimate current numbers to be not less than 800,000.

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 populations 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.

### **Footnote**

Most of the points made above, including the need to reduce the overall badger population, were contained in our earlier submission; *A response to the Government’s consultation on bovine TB and badger culling* to DEFRA in December 2010, which may be found on our web site at:

[www.vet-wildlifemanagement.org.uk](http://www.vet-wildlifemanagement.org.uk)

L.H.Thomas, Secretary  
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