‘The badger cull policy is not evidence based’

National bovine TB policy is based on the outcome of a single unblinded trial and we need stronger evidence that badger culling is appropriate, argues **Tom Langton.**

AS a result of the Government’s 2014 bovine tuberculosis (bTB) strategy, mass badger (*Meles meles*) culling in England has pursued a reduction of local badger populations by around 70 per cent in parts of many counties in the west of England, from Cornwall to Cumbria. This has been done despite their protection in 1973 from systematic human persecution (now the Protection of Badgers Act 1992) .

Over 67,000 badgers have been shot since culling began, costing in excess of £50 million, as well as vast amounts of police time spent trying to keep protestors safe and allowing gunmen to continue shooting. Badgers are shot in cages and from a distance using ‘controlled shooting’ – a method the BVA has said it cannot support because it has not been demonstrated that it can be ‘carried out effectively and humanely’.[1] An estimated further 40,000 badgers are to be killed in autumn 2019, licensed by Natural England. Yet the scientific evidence regarding the role of badgers in bTB is based largely on the results of a single field trial.[2] This evidence has both design and analysis limitations and rests on untestable assumptions.

Any scientific support for the cull is very unimpressive when compared to the far more rigorous and repeatable evidence that is required for other areas of government policy; for example, the evidence gathering that goes into the ban of a harmful substance or approval of a biological test or treatment. Implementing a national policy on the results of one trial is unprecedented. Some might point to the handful of trials in England and Ireland since the 1980s, but these were so uncontrolled in process and variables that they led to the recognition of the need for the first field trial (which took place between 1998 and 2005) – the Randomised Badger Culling Trial (RBCT).[2]

The RBCT produced data from 10 ‘triplet’ regions in the west of England; triplets were comprised of one ‘reactive’ cull area, one ‘proactive’ cull area and a ‘control’ area. Each triplet was chosen so that the three areas were geographically close to each other and similar in terms of variables that were not explicitly measured in the study (eg, weather, soil type, herd type). However, the ‘reactive’ badger culling triplets, at or within a short distance of a new herd breakdown (NHB), were abandoned before full completion of the study, due to concerns regarding escalating breakdowns. Thus, analysis of culling was based on 10 treatment pairs (proactive culling or control) rather than triplets.

> **Implementing a national policy on the results of one trial is unprecedented**

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The only response variable measured in the RBCT was the number of NHBs. An NHB was indicated by ‘standard’ positive interpretation of a single intradermal comparative cervical tuberculin test, together with identifying visible lesions or by isolating *Mycobacterium bovis* in laboratory culture at postmortem examination to establish ‘confirmed’ reactors.

A major design issue with the trial was its lack of blindness. Blindness has long been recognised in scientific research as an important experiment design requirement. A double-blind medical trial is where neither the researcher nor the patient knows which treatments are being administered (thus removing any subconscious bias from the researcher and, more importantly, any bias or placebo effect from the patient). The RBCT was not blind to the farmers involved – they would have been well aware of whether culling was or was not taking place on their land – and it is conceivable that farmers would behave differently in terms of risk management strategies depending on whether they were in a ‘cull’ or ‘control’ area.

The raw data from the trial showed that there were fewer NHBs in the cull areas than the control areas for six of the 10 regions.[3] Conversely, in four of the 10 regions, there were fewer NHBs in the control areas than in the cull areas. Therefore, even with the blindness design flaw, evidence for the benefit of culling is low. The evidence for the effect of culling was only boosted by using statistical modelling to incorporate further explanatory variables (eg, herd density and precull breakdown records),[3] and it disappears when ‘unconfirmed’ reactor breakdown data is included.[2] The RBCT found no significant relationship between badger culling and all bTB reactor cows (ie, those confirmed to have bTB).

While the modelling work that has been done is not disputed, there needs to be far stronger basic evidence that badger culling is appropriate before implementing such a destructive, devastating and distracting policy.

Put another way, I believe that the level of certainty that was attached to the RBCT modelled data, which was used to make the decision to cull badgers, was not sufficient to validate the badger cull policy.[4]

References

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