

Badger interventions on Chronic TB Breakdown premises

Recommendation

It is recommended, where we view badgers as contributing to the persistence of disease in chronic herd breakdowns, we trap and test badgers on the breakdown farm and remove test positive animals by humane killing.

Background to recommendation

These proposals to remove badgers are dependent on a trap side test that will provide results in real time. The Chembio® Dual-Path Platform VetTB trap side test (DPP test) has an evaluated sensitivity of 55%, though it is expected that sensitivity increases with the weight of infection, so the more severely infected animals will be more likely to provide a positive test result. It is also expected that a proportion of infected animals will give a false negative result. We recognise that if we choose this more conservative approach we may allow disease to remain within the population. If we go down the more aggressive route and remove all badgers associated with a CHB holding following a single test positive one, this is likely to result in the removal of some uninfected animals. It is worth noting however, whatever approach is taken some infected animals may remain at large in the area, because trapping is not 100% effective.

The sensitivity of testing can be improved by applying a panel of laboratory based tests. Badgers giving a test negative result at the trap side but a positive result from the panel of laboratory tests could be removed if recaptured, (though we are unlikely to recapture all badgers). Wildlife groups and badger ecologists have generally accepted the removal of individual test positive badgers as a reasonable and proportionate policy. Even though the farming industry and unions believe that nothing less than wide scale proactive culls will eradicate the disease, and will continue to lobby for these, they acknowledge that the removal of infected badgers on chronic breakdown farms is a positive measure.

Our proposal is significantly different to the approach currently being applied in England, but there is a risk that we will be legally challenged if we choose to remove all badgers on the affected premises. (Some Badger Trust Cymru members have already withdrawn their initial support for any badger removal intervention, following our announcement that we might remove groups as opposed to individual test positive animals). The findings from the RBCT reactive culls may be cited as evidence criticising our proposal.

This in turn could delay or even prevent the delivery of any sort of badger removal operation which would potentially delay progress in dealing with CHBs. Also, experience from the IAA would suggest that we would lose co-operation from the breakdown farmer required to undertake other measures included in the action plan.

It is recommended that we continue to work with wildlife groups to consider further the merits of both options being considered. By using the panel of test results, including PME and culture results on removed badgers, we will increase the overall sensitivity of our testing regime and continue to evaluate the performance of the DPP

trap side test. These data will also allow us to review and adapt our badger removal policy if the resulting evidence deems it necessary.

Rationale

Background

Although the measures applied to date are bearing down on the level of TB across Wales, there are a relatively small number of chronic herd breakdowns (CHB) which remain particularly difficult to resolve. These can be categorised as either “Persistent Herd Breakdowns” that remain under restrictions for an extended period of time, or “Recurring Herd Breakdowns” that repeatedly breakdown again shortly after coming off previous restrictions.

Herds that have been under TB restrictions for 18 months or more are classified as Persistent Herd Breakdowns and are subject to a policy of enhanced management measures determined by the Animal and Plant Health Agency (APHA). There are currently between 50 – 60 such herds which account for approx. 10% of all breakdowns in Wales. The enhanced measures aim to eliminate infection and reduce the risk of wider disease spread by identifying the factors contributing to the persistence of disease and implementing targeted interventions.

The enhanced case management process involves:

- Detailed epidemiological investigations including an analysis of testing history and cattle management systems,
- Case meetings with herd owners and their Official Veterinarian, who are consulted for local knowledge and herd health issues that may be of significance;
- The action plans can include additional cattle movement restrictions, additional testing requirements, improved biosecurity measures and methods of separating cattle and badgers as ways of breaking the routes of transmission.
- Once prepared by the case vet all action plans are examined by a scrutiny panel to ensure all actions are appropriate and proportional to the disease situation on the farm. The panel is made up of senior APHA vets, Welsh Government veterinary advisors and policy officers.

Once a plan has been cleared for action, and we have undertaken a badger activity survey, we will still have a selection process, certainly in the first round of farms chosen. Because our trapping operations will be restricted to the breakdown farm, it may not be practical to do this where we do not have direct access to the setts, i.e. they are located on neighbouring land. Those farms where we view we will achieve best results could be where:

- We have direct access to the setts to have best trapping possibility;
- The farmer is fully co-operating with the other actions;
- As few contiguous cattle herds as possible to minimise any possible harmful effects.

Where it is believed that badgers are contributing to the persistence of TB in chronic breakdown herds, measures need to be implemented to break the badger to cattle route of transmission. The Cabinet Secretary for Environment and Rural Affairs made an Oral Statement on the refreshed TB Eradication Programme and

consultation in October 2016. The statement included a reference to the chronic breakdown herds,

“There is evidence in some chronic herd breakdowns, wildlife is involved in the disease transmission process. I have asked officials to engage with vets and wildlife experts to develop ways to break the transmission cycle in chronic herd breakdowns where it can be demonstrated badgers are contributing to the problem”.

Officials from OCVO have held a series of meetings with vets, badger ecologists, wildlife organisations and experts in cattle husbandry systems and grassland management to discuss options for minimising the risk of contact (direct and indirect) and ways to break the transmission cycle between cattle and badgers. These discussions concluded that:

- Direct contact between cattle and badgers in the field is rare, and it is more likely the disease is transmitted in both directions by indirect means through environmental contamination (faeces, urine, sputum and pus).
- The lack of a clear understanding of how the disease is transmitted between cattle and badgers poses difficulties in developing new or novel methods to definitely break the transmission routes.
- In general, there was no objection to the cage trapping of badgers and humane killing of infected animals, i.e. test positive animals.

The circumstances leading to whether the trapping and humane killing of badgers should be considered was also discussed. The following protocol outlines the stages that will inform Welsh Government in making this decision:

- The affected cattle herd is classified as a chronic breakdown herd.
- Other measures such as enhanced cattle controls, increased sensitivity of tests improved biosecurity and other methods of separation already applied have not cleared infection.
- Badger activity has been identified on the farm by way of a specific survey (setts, latrines, well used runs or well used foraging areas).
- There is a history of reactor cattle sharing the same habitat as badgers.
- On undertaking the epidemiological investigation, the APHA case vet cannot rule out the involvement of badgers. There is a strong belief that there is transmission between cattle and badgers.
- The herd owner/land owner agrees to allow the trapping and humane killing of badgers.

Other evidence if available may support the decision to trap badgers:

- Positive badger carcasses have been identified on the farm or in the area near to the farm (to be defined e.g. within 2km of farm boundary)
- Environmental infection has been identified on the farm such as positive badger faeces samples collected from latrines located on farm during research projects.

Currently most chronic breakdown herds are situated in high TB areas of Wales, although there are a small number located in the Intermediate TB Areas.

Objective

These enhanced measures aim to eliminate infection and restore the breakdown herd to Officially Tuberculosis Free (OTF) status, reduce the risk of wider disease spread and also reduce the costs to government, the taxpayer, herd owners and neighbouring herds.

There may be a number of ways of breaking the transmission cycle within a particular or individual CHB, including improved biosecurity to separate the species, but as discussed earlier this is unlikely to resolve the issue of indirect transmission. An alternative approach is to remove badgers. The trap, test and removal operations would be restricted to the affected premises. The final decision to remove badgers would only be made on confirmation of a positive test result.

There are a number of approaches that can be applied to the removal of badgers to break the transmission route, once a test positive badger has been disclosed. These are:

- Remove all badgers subsequently caught on the affected premises
- Remove all badgers subsequently caught from the same social group
- Remove only the test positive badgers

These approaches are considered in more detail at annex 1

Appraisal

The conclusion from the Randomised Badger Cull Trial (RBCT) was that localised badger culling not only fails to control TB in cattle but can actually increase the incidence. The delivery model we are proposing for the removal of badgers is not a repeat of the reactive cull element of the RBCT. The RBCT reactive culls were stopped prematurely due to an increase in TB incidence in cattle in those areas in the short term. RBCT research showed that culling caused disruption to the social structure of badger groups:

- Their foraging ranges expanded and there was more overlap of social group territories.
- There was more frequent immigration to fill the void left from culling
- A higher prevalence of TB was found in the remaining badger population
- Lower genetic relatedness

The hypotheses based on these findings was that the increased prevalence of disease in the remaining badger population and the greater ranging could increase the opportunity for transmission and so cause the observed increase number of cattle breakdowns. Learning lessons from the RBCT and other work, our approach has been modified to optimise the benefits.

There is a view that the results from the RBCT may be unreliable and a number of papers have challenged the findings (More et al 2007)¹ - argued that the data do not provide sufficient evidence to rule out an alternative hypotheses and (More & McGrath 2015)² raised issues that warrant further discussion and study. Although this hypotheses has been questioned, the data remains the only evidence available

(this analysis included the findings of the earlier interim strategy of localised badger removal operations), and no one has been able to dismiss the conclusions as incorrect.

Although a targeted test and remove operation has not been tried before (other than small scale research - Woodroffe 1999)³, National Wildlife Management Centre (APHA) ecologists acknowledge this approach is certainly different to the reactive culls, unless we happen to have a high proportion of positives on a farm. On balance, it is a reasonable approach to test how badgers respond to low levels of removal but the outcomes of this approach remain uncertain.

This is supported by the view that the prevalence of disease in badgers (especially in west Wales) is lower than what was found in the RBCT, and we are able to increase the sensitivity of tests on badgers by applying a panel of tests. Also our better understanding of biosecurity protocols to separate species and protect local cattle herds means we are less vulnerable to the hypothesised adverse effects caused by perturbation.

Acceptance of policy

Having met with wildlife groups, there was general consensus of no objections to individual test positive animals being removed. We have, however, already received correspondence on behalf of some Badger Trust Cymru members who are concerned that we intend to remove entire groups of badgers and have currently withdrawn their support. Discussions continue with Badger Trust Cymru and the Badger Trust, including their CEO and Chairman on this issue.

There is, however, a risk of challenge by the Badger Trust or other organisations and we have arranged further meetings to discuss the details. The test and remove approach will only be applied to a small number of farms and the number of badgers removed is expected to be minimal.

Proactive (widespread) culling as implemented in the RBCT was associated with reduced TB incidence in culled areas. Given the very high cost of proactive culling as conducted in the RBCT, and the modest benefits (including detrimental effects for large numbers of farmers), it was reported in the ISG final report that this approach was unlikely to contribute effectively to the future control of cattle TB. This approach is currently being implemented in the TB high risk area of England. No real benefits in reducing cattle incidence rates have been observed to date.

The industry and farming unions in Wales have lobbied Welsh government to implement a wide scale non-selective cull of badgers as is happening in England as the only effective badger intervention. The BVA also support wide scale non-selective culls providing they are humanely delivered. They do not support anything less than this and will quickly and strongly criticise Welsh Government if any action is delayed or prevented because of challenge, or our actions will be perceived to have caused the disease situation in the breakdown or surrounding herds to worsen.

Even though we did not consult on dealing with wildlife as part of action plans it might be useful to make reference to the comments.

In the consultation on a refreshed TB Eradication Programme, the Welsh Government sought views on the following proposal:

Explore and develop ways to break the transmission cycle between cattle and badgers where it can be demonstrated badgers are contributing to the problem in chronic herd breakdowns.

Very many respondents welcomed this proposal, but some felt there was not enough detail outlined in order to give a considered opinion and requested more information following the Cabinet Secretary's statement of 18 October 2016. Many farmers who responded believe that the '*simple answer is to cull the badger*', many vets agreed with this. Many believe that Wales simply cannot have an eradication programme unless all sources of the disease are dealt with.

Generally responses from outside of the farming industry or veterinary profession, however, felt that no cull of badgers should ever take place under any circumstances. Those who opposed badger culling stated that reductions in TB cases in cattle are falling in Wales without badger culling taking place. Many respondents provided general comments on dealing with TB infection in wildlife across Wales.

Evidence to monitor effect

There is evidence that social perturbation in badger populations happens in the wake of culling operations and it is a plausible explanation for the observed outcomes of the RBCT. However, we have little information on what perturbation looks like at the local scale and exactly how it relates to epidemiological outcomes.

Modelling work based on RBCT data (Bielby *et al.* 2014)⁴ found that it was unclear whether removal of only a few badgers per group would result in perturbation. The study could not rule out that removing even a single badger would cause detectable perturbation in the badger population, and supplied no empirical information whether this would affect incidence rates in cattle.

As part of our badger removal operation we look to gather data to:

- Examine the effect on the TB status of the chronic breakdown herd (Though this will can only be measured as a result of the combined measures applied)
- Monitor TB incidence in the surrounding cattle herds.
- Better understand the effect on the social structure of badgers i.e. local perturbation).
- Measure the effectiveness of trapping when targeting badgers using given areas of land.
- Analyse any trend in the prevalence of test positives amongst badgers trapped on the targeted farms over the course of several operations.
- Using the panel of results continue to evaluate the performance of the DPP trap side test, and review and adapt our removal policy if the resulting evidence deems it necessary.

- Wider scale evidence of infection in badgers through the badger found dead survey

We will work with colleagues in APHA to develop processes to gather data and develop systems to analyse the results to achieve this. There is also opportunity to gather a wide range of other useful information as part of this work.

References

- 1 More SJ, Clegg TA, McGrath G, Collins JD, Corner LA, Gormley E. (2007) Does reactive badger culling lead to an increase in tuberculosis in cattle?
- 2 More S and McGrath G (2015) Randomised Badger Culling Trial: interpreting the results
- 3 Woodroffe R, Frost S and Clifton-Hadley R (2009) Attempts to control tuberculosis in cattle by removing infected badgers: constraints imposed by live test sensitivity
- 4 Bielby J, Donnelly C, Pope L, Burke T & Woodroffe R (2014) Badger responses to small scale culling may compromise targeted control of bovine TB