BVA/BCVA JOINT RESPONSE TO ‘BOVINE TUBERCULOSIS: THE GOVERNMENT’S APPROACH TO TACKLING THE DISEASE AND CONSULTATION ON A BADGER CONTROL POLICY’

1. The British Veterinary Association (BVA) is the national representative body for the veterinary profession in the United Kingdom and has over 12,000 members. Its primary aim is to protect and promote the interests of the veterinary profession in this country, and it therefore takes a keen interest in all issues affecting the veterinary profession, be they animal health, animal welfare, public health, regulatory issues or employment concerns.

2. The British Cattle Veterinary Association (BCVA) is a specialist cattle division of the British Veterinary Association comprising 1,350 members of which approximately 950 are practising veterinary surgeons working with cattle in farm animal veterinary practice.

3. BVA and BCVA are grateful for the opportunity to respond to this consultation and would like to congratulate the TB team at Defra for providing such a well-structured, readable and informative consultation document. In formulating this response BVA and BCVA have consulted extensively with their members and specialist policy groups.

4. Before moving to the specific questions, BVA and BCVA would like to make a number of general comments:

5. BVA and BCVA have long argued that bTB cannot be controlled without measures to tackle the disease in both cattle and wildlife. Whilst we regret the killing of any wildlife species, the control of badgers through culling is necessary, in the interests of public and animal health to contain the spread of bTB to cattle from infected badgers. The number of cattle that have to be culled as a result of bTB, and the impact of the disease in both cattle and badgers, are considerations which we have taken into account in our decision to support a badger control policy.

6. It is important to stress that badger controls are just a part of the measures needed to eradicate this disease, and they will not work in isolation. We are therefore glad to see that the Government’s consultation also contains biosecurity and management proposals for cattle designed to refine and enhance those measures already in effect across England.

7. We understand that the primary focus of this consultation is on bTB in cattle and badgers. However, with increasing reports of TB affecting other species, including goats, pigs and domestic pets, the Government should consider how it will integrate any measures needed to tackle the disease in these spillover hosts with measures targeting the major reservoirs in cattle and badgers. Whilst the public health risks of bTB are well controlled and there is no evidence that bTB is currently a significant health risk to humans in the UK, we do have concerns about the public health implications of this zoonotic disease agent spreading to other...
8. species, particularly in view of the long latent period of the disease in man. In this connection we look forward to contributing to the Government’s review on camelids and other non-bovines. The BVA’s response to the Welsh Assembly Government Consultation on bTB in non-bovines is attached for information.

9. We support the Government’s approach in this consultation to coordinating a response to bTB with the farming industry and landowners. However, genuine and tangible government leadership and financial investment is still vital for UK TB control. Whilst we appreciate the circumstances that pertain in the current economic climate, the effective implementation and monitoring of the proposed policy changes must not be compromised by any financial constraints. Investing now in UK TB control will have long term benefits in the future.

10. Finally, it is the strong belief of the BVA and BCVA that the proposals outlined in the consultation document will only succeed if all the devolved administrations, government departments, agencies and independent stakeholder groups, such as private veterinary surgeons and farming organisations, are fully involved and working together to ensure a coordinated and integrated approach to tackling bTB across the UK.

Question 1: Comments are invited on the options, costs and assumptions made in the Impact Assessment.

11. We refer to the farming industry regarding the costing assumptions made.

Question 2: Do you agree with the preferred option (option 6)?

12. We do agree with a policy which combines humane culling and vaccination co-ordinated and implemented by the farming industry, provided that this is properly managed and governed, and can deliver to the same extent as a government-led programme. Whilst it is conceivable that vaccination of badgers may eventually supersede the need for badger culling, we do not believe that this is possible at present.

Question 3: Do you agree that this approach, of issuing licences to farmers/landowners, is the most appropriate way to operate a badger control policy?

13. There is no doubt that a centrally controlled, government-led cull along the lines of that advocated by the Welsh Assembly Government would give a better land coverage than can be achieved by the system proposed. However, as mentioned above we accept that given the financial circumstances in which Defra and the industry are operating, issuing licences to farmers/landowners is the most appropriate way to operate a badger control policy in England. We also accept that a properly managed, targeted and audited industry-led cull could be as effective as a one led by government.

14. We believe that licensing procedures should be transparent, open to scrutiny and in so far as is possible, based on a standardised formula defining eligibility with regard to TB prevalence. There will be some instances where the criteria cited will not be proven, and a risk-based approach will be necessary. Natural England will need to be provided with robust guidance to support them in making these decisions and there should be an appeals mechanism available to those who have their licence refused.
15. We understand that some applicants will have concerns about security, liability and confidentiality when making applications and steps should be taken to mitigate these concerns. Education, training and co-ordination will be key to ensuring that individuals come forward with applications.

16. There will be obstacles to overcome with regard to licences that may cover a large group of farmers or landowners. For example, the Government should consider in detail how changes in ownership and/or land use could affect existing licences. Would the new landowner or user be obliged to continue or could they block the action? In addition, how will any sanctions affect the group if it is only one individual that has failed to comply?

17. We agree that compliance with licensing requirements should be monitored and enforced with penalties if necessary. Once again, an appeals mechanism should be provided for those who may have their licences revoked. The use of incentives to encourage compliance should also be considered.

**Question 4: do you agree with the proposed licensing criteria for culling and vaccination?**

18. As a general principle, the rules and conditions for issuing licences should be clear and robust, but the licensing conditions should not be too onerous and therefore prohibitive. Whilst we agree with the principles behind most of the proposed licensing criteria, we are slightly concerned that without further guidance some criteria could lend themselves to a prohibitive interpretation by the licensing body.

- **The area has high and persistent levels of TB in cattle**

19. We support the rationale behind this criterion, but we believe that more guidance should be given as to what constitutes a ‘recognised established reservoir of the disease in badgers’ and how this would be met. In reality we suspect that this would be difficult to judge objectively, especially because there is no real means of accurately determining an infected from an uninfected sett in the field. PCR, serology and gamma IF tests have sensitivity profiles and practical aspects of deployment that make them of questionable use beyond localised research use in the field. It should also be noted that because infected badgers often survive for long periods of time, surveys/assessments of mortality may not be indicative of the prevalence of the infection.

20. Since the reassessing and extension of the annual testing areas in the Interim Testing policy, Parish Testing Intervals alone are too blunt a measure for assessing badger involvement in cattle herd incidence. We know from the findings of the ISG that where cattle herd incidence is high (of similar magnitude to those in the RBCT ‘triplets’) the implicated role of the badger is also high (suggested as up to 40% in the ISG Report). By extension, using a similar herd incidence should be appropriate in terms of the licensing criteria.

- **The area is at least 150km$^2$ in size**

21. We agree that the size of the area represents the best assessment to achieve 97% confidence of a beneficial effect.
• There is land access for culling for over 70% of the area

22. We agree that this is logical, but ‘gaps’ and differing land uses may cause difficulties in practice.

• Where possible, the area will have boundaries or buffers to mitigate any possible negative effects in neighbouring areas caused by perturbation of badgers’ social groups and increased disease transmission

23. The following points should be borne in mind when considering applications for licences:

a) The increase in the incidence of bTB seen in the periphery of the proactive cull areas during the RBCT’s that was attributed to perturbation, disappeared over time.

b) The benefits of a proactive cull as conducted during the RBCT’s were sustained well beyond the cessation of any culling activity, with the most recent data indicating a 28% reduction in the incidence of bTB without any apparent negative effects in the perimeter. These benefits were seen without the use of ‘hard boundaries’ in the original RBCT’s.

c) Different boundary types will have differing degrees of permeability to the movement of badgers. The term hard boundary implies impermeability to movements, which is misleading.

   o For example, whilst coastline to an edge of an area could be defined as a ‘hard boundary’, the use of roads or even rivers, are not absolute barriers to the movement of badgers.

   o In that context, it is more difficult to clearly define such boundaries or to assess the reduction in risk associated with using such boundaries to the edge of areas applying for licences.

d) The minimum size of an area and the percentage of land uptake required for any application have been defined in the consultation document so as to maximise the benefit in the form of reduced incidence in bTB and to reduce the risk of any detrimental effects in the edge areas.

   o The relative importance of ‘hard boundaries’ is likely to vary depending upon the total landmass included in any licence application. For example, the relative importance of hard boundaries might be greater for smaller areas than for large areas, where the perimeter would form a smaller proportion of the total land mass included within any application.

24. In summary the incorporation of hard boundaries should be encouraged as a means of mitigating the risk of increased incidence of bTB in cattle herds on the periphery of an area and in the hope that it might improve the overall beneficial effects of culling on the incidence of bTB in a licensed area.
25. It should not, however, for the reasons outlined above, be a prerequisite of any individual licence application. Careful guidance will be necessary for the licensing body when considering this aspect.

- Culling will be carried out effectively and humanely by competent operators. Culling will be permitted by cage trapping and shooting and shooting free-ranging badgers.

26. It is particularly important that culling is carried out effectively and humanely and more detail is needed as to how this requirement can be fulfilled. For example, what will be necessary to establish a ‘competent operator’? What training will demonstrate this?

27. With regards to free shooting, there is no scientific evidence to support the use of free shooting in badgers as a method to achieve the level of culling required to match the effect of the RBCT. Despite this, free shooting may be used in conjunction with cage trapping and shooting in an attempt to achieve the best possible removal rates. Culling operatives should have adequate training and guidance to ensure that they have the skills to assess which measure is the most appropriate in the circumstances.

28. We will discuss these points further in our response to question 5.

- A commitment to sustaining culling over the area at least annually for a period of 4 years

29. We agree that a commitment to sustaining culling for at least 4 years is important in helping to ensure the long-term success of the programme. As mentioned above, consideration needs to be given as to the sanctions for those who fail in this commitment or breach one of the other conditions.

- Culling will achieve badger densities low enough to reduce TB transmission but not to lead to local extinction.

30. We understand that in advocating a 70% cull rate it is likely that the Government will use an estimate of the badger population based around typical densities as regards land type. This estimate should obviously be as accurate as possible to ensure culling efficiency but also to prevent extinction of the local badger population. This estimate is likely to be contentious and will therefore need to be able to withstand careful scrutiny. Lessons should be learned from Ireland which has regular assessments with regard to the Bern Convention conditions with respect to their badger culling operations.

- A closed season to protect dependant cubs will operate during late winter/early spring

31. We support the proposal for a closed season to operate to protect dependent cubs and also to safeguard the welfare of badgers trapped in cages in inclement weather. We expect that different closed seasons may be appropriate depending on the method of control (e.g. free shooting, cage trapping and shooting, vaccination) and to allow for the strategic deployment of vaccination ahead of a cull if used as proposed in the consultation document (e.g. to fill gaps in the land coverage in any licence application or for ring vaccination as a means of mitigating any risk associated with perturbation).
• Arrangements are in place for carcases to be removed in accordance with legal requirements

32. We believe that a state funded collection service should be put in place to allow efficient recording of culls and surveillance of badger carcases.

• Culling will be co-ordinated locally across the area covered by the licence

33. This is essential to achieve an effective control policy.

• The role of vaccination in reducing the perturbation effects from culling has been fully considered and culling is coordinated locally with any vaccination taking place on neighbouring land

34. We believe that more guidance should be given as to what is meant by ‘fully considered’. We have some concerns that this could be interpreted to imply that vaccination is essentially a further condition to obtaining a licence to cull. However, coordination between any vaccination and culling programme in terms of times and locations is essential.

• Before a cull begins there is comprehensive awareness and compliance with existing TB control measures.

35. We believe that this requirement is absolutely critical to reducing the incidence of bTB in both cattle and wildlife. The impact of a badger control policy will be significantly reduced if it is not accompanied by co-ordinated and simultaneous measures in cattle. Thus the requirement to ensure that measures are already in place such as good biosecurity and husbandry is welcome.

Question 5: Do you agree that the proposed methods of culling are effective and humane?

36. At the current time, we believe that cage trapping and shooting is the preferred option for an effective and humane cull. We agree that free shooting is also acceptable provided that it is carried out in a controlled manner. On its own, we do not believe that free shooting would be able to guarantee a high enough culling efficiency and therefore it should be used in conjunction with cage trapping and shooting.

37. Operatives carrying out cage trapping and shooting and free shooting should be sufficiently skilled and accredited. There should also be a requirement for standard operating procedures and a proper audit process worked into the licensing framework. Free shooting should preferably take place in controlled sites of regular attendance by badgers (baited or natural) where closer and more accurate shooting of individuals in larger numbers may be achieved. In all cases protocols should be put in place in case of wounding and to avoid the killing of non-target species. More specific guidance is needed within the licensing criteria to ensure that cages are checked regularly throughout the day and especially in the morning, and are regularly maintained. The size, material and specifications of the cages that can be used should also be stipulated, with detail drawn from the wealth of experience of FERA staff who have undertaken trapping exercises for many years, and that gained in the RBCT exercises themselves. Work should be conducted on the most appropriate ammunition to use depending on whether close range (in cage), medium/short range (high seat) or long range shooting is being undertaken to ensure a humane kill.
38. Other methods of culling could become acceptable in the future once reinforced with scientific support. We therefore encourage more research into alternative humane methods.

**Question 6: Do you agree with the proposed use of vaccination, particularly its focus on mitigating the perturbation effects of culling?**

39. We do agree that the control of bTB in badgers should include a policy of vaccination in addition to culling. However, it is important to understand the current limitations of vaccination in badgers, in particular its practical application, true efficacy and the fact that its use in endemic areas where the prevalence of TB in badgers is high, is likely to be of limited benefit.

40. In this context, there is a real need to manage the expectations of the general public as to the potential role of vaccination. In particular:

*Experimental challenge trials:*

41. Recently published trial data indicates that intramuscular vaccination with the recently licensed BCG vaccine in badgers is associated with reduction in severity and progression of TB in badgers and a reduced excretion rate of the bacteria when challenged with high doses of M.bovis under experimental conditions.

a) It should be noted that the numbers of badgers that were included within this trial work was small.

b) It should also be noted that vaccination did not protect the badgers included in these trials against actual infection with M.bovis.

42. Despite there being poor statistical significance, these results were still regarded as important and encouraging.

*Field Trials:*

43. In these trials assessment of the possible protective effect of BCG vaccination in badgers was also undertaken. This was done by means of sampling badgers pre and (at various intervals) post vaccination and looking at a series of diagnostic indicators used to determine ‘infection’ with M.bovis in badgers.

44. In an initial analysis, the sampling data from badgers testing negative at the start of the trial period was analysed to look for any ‘protective’ effect of vaccination when compared to un-vaccinated controls.

a) Vaccination of badger populations in the trial areas was associated with a reduction in the rate of new infections with M.bovis, as determined by the diagnostic tests undertaken on the surveyed vaccinated and unvaccinated badger populations.

b) This indicated a degree of prophylactic protection but was not found to be statistically significant.

45. Additional analysis was carried out on the data in an effort to better determine the possible prophylactic effect of the vaccine.
46. The data was re-analysed but included only badgers that had tested negative to all of the diagnostic tests at the time of initial sampling. This was defined as the best way to recruit badgers most likely, but not assured, to be uninfected at the time of vaccination.

a) Reductions in the rate of new infection were also seen in the additional analysis (range 19-74% depending upon the diagnostic test used).

b) The results were found to be significant in two of the five datasets that were analysed by this means.

i) The point must be made that none of the diagnostic tests used have particularly good sensitivity for determining the presence of M.bovis in badgers, ranging from 80% for the gamma interferon to less than 50% for the stat-pak and culture.

ii) The methodology for recruitment of badgers most likely to be uninfected for both the initial and additional analysis resulted in small populations of badgers being included in the respective analyses. This fact was clearly stated as follows:

“However, the numbers of animals eligible for analysis was sometimes very small, although larger than in the interim analysis as a result of the additional observations from two further trapping campaigns in 2009. For instance, for the StatPak test, 47% of the groups analysed have three or fewer individuals. This was 45% for the Gamma and Culture test individually and for StatPak and Culture tests and all three tests combined. As a result, the scale for proportions is very coarse (e.g. 0%, 33%, 66%, 100% for n=3) and this leads to very high variability where group size is small”

So whilst encouraging, such data must be interpreted with caution at this time as more field trial work would be necessary on greater numbers of badgers to be able to assess the ‘true’ efficacy of vaccination in the badger population. The following quote from the appendix 21 of the vaccination trial work publication illustrates this perfectly when it states:

“The results of the laboratory and small-scale field studies do not lend themselves to giving a definitive figure for BCG vaccine efficacy. This could only be determined by vaccine field-testing on a large scale over a long period of time and several thousand badgers would need to be removed to allow the determination of the presence and severity of TB at detailed post-mortem.”

47. In addition, as stated earlier, the use of vaccination in populations of badgers with a high prevalence of M.bovis is highly unlikely to confer significant levels of protection in the short term nor any significant benefit as regards the incidence of bTB in cattle.

48. Consideration of the modelling work for various badger control strategies for reducing bovine Tb in England results in the following comments:

a) A figure of 70% protection when vaccination was given to 70% of a given badger population resulting in a degree of protection being conferred to 49% of badgers was
quoted in the published paper that modelled the possible impact of the various options. However:

i) This figure is likely to be the best case scenario when vaccination is applied to an uninfected badger population, as the vaccine does not appear to confer protection to an already infected badger and therefore will be of extremely limited short term benefit in endemic areas of England where the prevalence of M.bovis in the badger population may well be as high as 30-40% [Crawshaw et al] or even higher.

ii) The modelling work that supports the consultation document supports that assessment, with the estimated reduction in the incidence of bovine TB in cattle predicted to be lowest if the preferred option were vaccination of the badger population only.

iii) The highest rates of reduction were predicted to be when culling was used alongside ring vaccination to reduce the potential detrimental effects of perturbation.

In summary:

48. At the current time there is no evidence to suggest that vaccination of badgers is associated with any reduced incidence in bTB in cattle. As a result, vaccination would be better used as is proposed, to fill in gaps where culling may not be the preferred option or for ring vaccination around an area approved for culling. It may also be beneficial if used as a ‘firebreak’ in areas bordering endemic parts of the UK, although cost would again exclude the widespread application of this approach.

49. In contrast to the above, the ongoing analysis of the RCBT proactive cull areas has demonstrated that culling can be associated with significant and sustained reductions in the incidence of bTB in cattle in the absence of badger vaccination.

Timing of vaccination in relation to culling:

50. From the recent trial work, BCG vaccination of badgers has been licensed to confer a degree of protection from 17 weeks after vaccination. We note from the publication of the vaccination safety and efficacy studies that this figure has been based largely on the times of inoculation post vaccination, that being at 17 weeks in the experimental trials, and not necessarily on how soon any protective benefit of vaccination develops. Indeed, comment is made within the publications that protection may occur earlier; an assertion based upon the increased gamma interferon response seen in vaccinated badgers when compared to non-vaccinated badgers as early as 2 weeks post vaccination.

51. In light of the above and the recognition of the need to mitigate against any risk associated with perturbation, we regard the use of badger vaccination as an appropriate means of lessening that risk provided that its deployment does not delay culling activities where approved by the licensing body. As indicated in the answer to question 4, this may require differing closed seasons to be applied where both vaccination and culling might be considered together.
52. Perturbation should, however, be mitigated to some extent by the use of ‘hard boundaries’ and so in terms of limiting any detrimental effects of culling, vaccination is only likely to be of potential benefit where such hard boundaries are considered to be inadequate.

**Question 7: Should anything further be done to encourage the use of vaccination?**

53. The main objection is likely to be cost. Incentives which go some way to reducing or counterbalancing this cost would encourage vaccination. Whilst we do not believe that at the current time vaccination on its own can sufficiently prevent the spread of the disease, we do support its use as a supplementary measure to culling. In light of this, expectations of the potential benefit of any vaccination programme must be carefully managed.

54. More scientific evidence to demonstrate the efficacy of BCG under field conditions measured by noting reduction in bTB incidence would certainly encourage landowners and farmers to vaccinate in suitable localities. In addition, we ask that further research and development be conducted into the use of oral vaccines for badgers. The results of this work may eventually lead to an exit strategy being put in place with regard to the eventual cessation of any culling policy that may be introduced.

**Question 8: Do you agree with the proposed monitoring?**

55. We agree that monitoring is essential to measure effectiveness, compliance and badger demographies and also to provide transparency. We feel that it is right that the Government should take on this role.

56. We agree that it will be important to monitor badger carcases to examine whether badgers are being culled in line with licence criteria. If badgers are to be subject to post mortems for the purpose of welfare assessment, we would suggest that it would be logical to also include some assessment of bTB from badgers in any given area. This would allow for us to gain a better understanding of the disease in these animals and might provide some evidence for the presence of infection in badgers in the areas licensed for culling (as mentioned above, this would be facilitated by Government co-ordinated carcass disposal). However it is essential that communication processes are put in place to ensure that information regarding low confirmation of the rate of disease in carcases is understood as not equating to a low prevalence of infection.

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57. BVA and BCVA have a number of additional comments to make regarding the consultation:

**Cattle measures**

Regarding Paragraph 39:

58. As part of Phase 2 of the Government’s Pre-Movement Testing Review, we suggest that the age of the animal requiring testing also be reviewed.

a) Despite there being an identified risk of translocating bTB in animals under 6 months of age, Phase 1 of the review notes that the cost-benefit of subjecting these animals to PRMT is less convincing.
b) Conversely however, relaxing the testing controls in herds experiencing a breakdown (i.e. the removal of the absolute requirement to test calves under 6 weeks) may be perceived as a relaxation of controls in high risk areas.

Regarding Paragraph 41:

59. The proposed change is sensible and is consistent with the sensitivity of the intradermal skin test being greater than confirmation of M. bovis by culture, and gives greater discretion to apply more stringent cattle controls in herds considered to be high risk at the time of disclosure, but where it may not have been possible to confirm infection by means of detection of lesions or positive culture.

60. It is also accepted that the change as proposed would remove some of the inconsistency and provide greater clarity in the application of the existing cattle testing programme.

*Biosecurity and Husbandry*

Regarding Paragraph 49:

61. We recognise the need to ensure that farmers fulfil their obligations regarding disease control. Similarly we recognise the need for government and tax payers to be satisfied that existing compensation arrangements are not taken advantage of by certain individuals.

62. We also recognise and fully support the principle of linking compensation with the management of disease risk. The results of the biosecurity project in the Welsh ITA give credibility to such an approach. The project served to highlight not only the potential benefits of such an approach but also the importance of a close working relationship between the local practitioner and the farmer.

63. However, consistency, subjectivity and the possible absence of proven benefit associated with advice given in the application of biosecurity measures, are potential obstacles in linking the management of disease risk to compensation for one specific disease.

1. It is essential that any advice given is evidence based and practical.

   The difficulties in linking poor practice with reduction in compensation specifically for bovine TB is highlighted by Welsh ITA where it states ‘longitudinal (TB) status does not appear to be significantly associated with assessments of biosecurity using the biosecurity tool’.

2. What recommendations might be included?

   a) Many of the recommended measures purported to reduce the risk of ongoing transmission of infection of bovine TB such as securing feed stores, badger proofing housing, avoiding grazing pastures where badger latrines are known to be present, activating electric fences across silage clamps or shed openings at night are entirely logical and sound, as they will reduce the risk of contact between badgers and cattle, but there is little hard evidence to demonstrate a tangible benefit in terms of
shortening the duration and size of a breakdown or reducing the rate of confirmed new incidents.

b) Similarly there is little information available on the relative cost: benefit of the various risk management practices that are often recommended.

c) Should it include trading practices?

i) There is merit in linking testing schedules and compensation levels to some form of risk-based trading. For example, herds in low incidence areas buying from high incidence areas might be subject to annual testing and / or have reduced compensation payouts, if on disclosure of TB infection it could be demonstrated by means of spoligotyping that disease translocation had occurred due to high risk cattle movements.

ii) There is merit in ensuring that farmers do not try to benefit from the existing compensation arrangements by acquiring high financial value cattle unless it fits in with normal activity, herd structure or the existing farm business plan for genetic improvement.

iii) Business plans that include herd expansions may necessitate the buying in of cattle to ensure viability.

64. In summary, whilst the principle is sound and one with which we agree and should be utilised where there is flagrant abuse of the existing compensation arrangements or persistent bad practice, the issues discussed highlight the difficulties in trying to implement such a policy.

Advice and Support to Farmers

Paragraph 53:

65. We are aware that Animal Health is working with the veterinary profession to deliver focused veterinary advice to owners of long-term breakdown herds. We believe that this advice should also be extended to owners of ‘new’ breakdown herds. It is understood that this issue has now been addressed. We support measures that enable restricted farmers to maintain business viability without increasing the risk of the spread of disease.