Public Consultation on Controlling the Spread of Bovine Tuberculosis in Cattle in High Incidence Areas in England: Badger Culling

A Report on the Citizens’ Panels
### List of Abbreviations

This report uses the following abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>bTB</td>
<td>Bovine Tuberculosis</td>
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<tr>
<td>BME</td>
<td>Black &amp; Minority Ethnic</td>
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<tr>
<td>BSE</td>
<td>Bovine Spongiform Encephalopathy</td>
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<tr>
<td>Defra</td>
<td>Department for Environment, Food and Rural Affairs</td>
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<tr>
<td>FMD</td>
<td>Foot and Mouth Disease</td>
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<tr>
<td>PrMT</td>
<td>Pre-Movement Testing</td>
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<tr>
<td>RBCT</td>
<td>Randomised Badger Culling Trial</td>
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<td>TB</td>
<td>Tuberculosis</td>
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Executive Summary

Background

1. From 15\textsuperscript{th} December 2005 – 10 March 2006) Defra held a public consultation\textsuperscript{1} on the possibility of introducing a badger culling policy in order to help control and reduce Bovine Tuberculosis in cattle in England. As part of its consultation, Defra also wished to consult members of the public proactively on this complex topic.

2. This report summarises the outcomes from the citizens’ panels. For the summary of the written public consultation see ‘Public Consultation on Controlling the Spread of Bovine Tuberculosis in Cattle in High Incidence Areas in England: Badger Culling. Summary of Responses’.

3. The objectives of this specific piece of public consultation were:

   - To enable members of the public to decide whether a policy to cull badgers should form part of the approach to help control bovine TB in high incidence areas
   - To look at the different cull options and culling methods, and explore the relative advantages and disadvantages of each
   - To explore the reasoning behind their conclusions

4. Participants attended two workshops. The first was a scoping workshop to introduce the issues and gauge spontaneous views. A two-hour scoping workshop was held in each of three locations: York (low bovine TB incidence area), Brighton (medium bovine TB incidence area) and Cheltenham (high bovine TB incidence area). All participants then came together to attend a one day workshop. The day was structured to enable participants to work in small mixed groups to deliberate the evidence and to hear from different voices in the debate via a panel discussion.

5. Participants received briefing notes on the evidence and the debates to read between the two workshops.

6. The sample in each location was designed to be representative of that area in terms of gender, age, working status, socio-economic group, urban/ suburban/ rural areas, and ethnicity.

7. It should be noted that this research method is a qualitative methodology. This approach does not provide quantitative data, which would determine the prevalence of the findings within the wider population of members of the public in England.

\textsuperscript{1} Controlling the Spread of Bovine Tuberculosis in Cattle in High Incidence Areas in England: Badger Culling.
Main Findings

8. Despite mixed levels of awareness of the issue, participants are highly engaged in the issues from early on.

9. In initial workshops most participants instinctively question a cull and explore whether there are alternative solutions to the issue. However, they accept that the scale of the problem means something has to be done, and nearly all remain open to debate.

10. Nonetheless, initial exposure to the debate raises many questions in participants’ minds, and they are keen to scrutinise and understand the evidence base.

11. From early on, participants feel the public has a real stake in the issues, particularly given the cost to the taxpayer, and the impact on our countryside and food chain.

12. In the one-day deliberative workshop, participants were asked to consider explicitly how a cull could be implemented in order to inform debate on whether a cull should go ahead or not. Participants deliberated the cull options (general cull, versus targeted cull, versus individual licensing) and the proposed methods of culling.

13. There is some confusion over differences between the general and targeted cull options, so participants generate a set of general principles on which to base a decision. These include effectiveness, co-ordination and control, government involvement, level of farmers’ involvement and cost implications.

14. Based on these general principles, participants feel a general cull is most likely to be effective, though a more targeted approach is also seen as beneficial. There is no public support for individual licensing.

15. Participants feel the mode of cull should be the most effective and humane, be most suitable for gathering data, and enable easy disposal of carcasses.

16. In considering whether a cull is appropriate, all participants acknowledge several key facts:
   - Badgers are a host for bovine TB and they pass it on to cattle
   - The problem is severe, and likely to get worse
   - A decision to cull will involve extensive action - ‘half-hearted’ implementation is unlikely to work or may worsen the situation due to perturbation effect
   - The science is inconclusive
17. There are several disputed facts. How participants interpret these influences their final decision. These include:

- Whether associative evidence is enough of a basis for a decision of this magnitude
- Limited evidence about the extent to which badgers are responsible for bovine TB in cattle
- Value of preserving cattle compared with the value of preserving badger lives
- Humaneness of cull methods contrasted with the humaneness in controlling disease amongst badgers
- Likely effectiveness given likely perturbation effect, practicality and the presence of other bovine TB sources
- The potential effects of a cull on biodiversity
- The weight placed on likely threat to human health
- The value placed on supporting the farming industry
- Whether there is an underlying political motivation driving a decision

18. Beyond these elements, participants feel that lack of evidence on the cost effectiveness of a decision either way adds further uncertainty. Particular questions include the economic value of the farming industry to the UK and the costs of implementing a cull compared with increasing testing and compensation costs if there were no cull.

19. Participants do not reach a decision easily or lightly, firstly because of the lack of conclusive evidence, and secondly because of the scale of impact of a decision either way. Indeed, some had still not made up their minds at the end of the process.

20. When pushed to come to a decision, there is marginal support for a cull in the context of the workshop when participants are requested to come to a consensus decision. However, this is a reluctant decision and is heavily caveated.

21. Additionally, participants are equally split between pro- and anti- cull positions when expressing an individual point of view. Most participants on both sides of the debate are still open to new evidence and reconsidering their viewpoint.

22. Those who support a cull do so because they see it as the most pragmatic option. They feel that action is imperative given the likely increase in bovine TB cases in cattle and the associated cost to tax payers and farmers. They also believe that the science will never deliver a clear cut answer.

23. Those in support of a cull see it as a temporary measure until a badger vaccine and better cattle vaccine become available. They also believe it is not an option not to deal with the reservoir of disease in the badger population if the industry is simultaneously taking other measures to control bovine TB.
24. Lesser considerations include protecting the future of farmers (including as custodians of the countryside) and the potential increase in the risk to human health.

25. However, those supporting a cull only do so if it is part of a cohesive, multifaceted strategy. This strategy must involve:
   - Central co-ordination, training and monitoring to ensure maximum effectiveness and to avoid abuse
   - The farming industry taking responsibility for better biosecurity and husbandry
   - Continued and/or intensified research into more sensitive testing, a better cattle vaccine and a badger vaccine
   - A thorough system for collecting data on bovine TB levels in cattle
   - Gathering more conclusive background evidence on number of badgers, number of cattle and the relative effect of badger to cattle transmission

26. If these conditions are not met, those in favour will withdraw their support for a cull.

27. Those against a cull feel the evidence is not strong enough to support a cull. They feel:
   - The role of the badger in transmitting disease to cattle has not been quantified
   - The evidence suggests a cull might not be effective, particularly given the potential for perturbation and possible lack of participation/consent from landowners. They are also concerned that the methods themselves do not guarantee effectiveness and that other wildlife hosts could become principal reservoirs for bovine TB
   - There has not been a chance to gauge the impact of other measures such as pre-movement testing
   - There is a potential risk of a negative impact on biodiversity

28. In communicating the final decision, whatever that is, it is important that key messages should reflect the most resonant arguments i.e. the reasons participants cite for their decisions following in-depth deliberation. Communications should also explain the components of the broader strategy in place to control bovine TB in cattle.

29. Participants want the message to come from an authoritative and credible body and feel it is important that all parties to the debate appear to be working together towards the solution, rather than against each other.
Introduction

Background

30. Controlling the spread of Bovine Tuberculosis in cattle is a significant issue in some areas of England. It has wide ranging implications in terms of animal protection, destruction and compensation, as well as public health. Defra’s recent public consultation\(^2\) focused on the possibility of introducing a badger culling policy in order to reduce, and ultimately eliminate, the background presence of Bovine Tuberculosis amongst wildlife. However, there is substantial debate on whether this is the most appropriate measure to take in order to contain and reduce the disease, and also how widely to target any potential cull.

31. As well as engaging with those directly affected by the issue via an open consultation, Defra also wished to consult members of the public proactively on this complex topic.

32. This report summarises the outcomes from the citizens’ panels. For the summary of the written public consultation see ‘Public Consultation on Controlling the Spread of Bovine Tuberculosis in Cattle in High Incidence Areas in England: Badger Culling. Summary of Responses’.

Objectives

33. The objectives of this research programme were:

- To enable the public to reach an informed conclusion on whether a policy to cull badgers should form part of the approach to help control bovine TB in cattle in high incidence areas
- To explore the reasoning behind their conclusions
- To look at the different culling coverage options, and culling methods, and explore the relative advantages and disadvantages of each

\(^2\) Controlling the Spread of Bovine Tuberculosis in Cattle in High Incidence Areas in England: Badger Culling.
Method

34. Given the complexity of the evidence and the range of views on this debate, Defra agreed that a deliberative approach was most suitable.

35. Deliberative research involves providing participants with information, and giving them time and space to absorb information and arguments. Small breakout groups are used to enable participants to discuss and exchange points of view. The principal benefit of using a deliberative approach to consult on complex policy is that it enables participants to reach informed, considered viewpoints at the end of the process.

36. It should be noted that this research method is a qualitative methodology. This approach does not provide quantitative data, which would determine the prevalence of the findings within the wider population of members of the public in England.

37. Participants attended two workshops:

- The first was a scoping workshop to introduce the issues and gauge spontaneous views. A two-hour scoping workshop was held each of three locations: York, Brighton and Cheltenham. Scoping workshops took place in the week of 27th February 2006. 16 participants attended each of these workshops.
- All participants then came together to attend a one day workshop in London on Saturday 11th March 2006. The day was structured to enable participants to work in small mixed groups to deliberate the evidence. The day also involved a panel discussion involving four panellists, one each from the scientific, veterinary, wildlife and farming perspectives. Details of the panellists and their presentations are included in the appendices to this report. 48 participants took part in the reconvened workshop.

38. Participants also received briefing packs to read in the interim period between workshops. The briefing packs included a ‘must read’ pack of fact sheets about the issues. There was also extra information on the topic in the form of newspaper articles, Defra publications and literature from The Badger Trust and NFU. A full list of the information provided in participants’ briefing packs can be found in the appendices to this report.

Sample

39. Opinion Leader Research held scoping workshops in Brighton, York and Cheltenham. These locations were chosen to reflect varying incidences of bovine TB: low incidence (York), medium incidence (Brighton) and high incidence (Cheltenham).
40. Each workshop comprised participants recruited according to a range of demographics:

- Gender: 8 males, 8 females
- Working status: 6 full time, 4 part time, 6 not working/retired
- Area lived in: 4 urban, 4 suburban, 4 rural

41. Age, ethnicity and socio-economic status were based on the demographics of each of the three regions. The breakdown in each area was as follows:

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<th>Cheltenham workshop</th>
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<td><strong>Ethnicity:</strong></td>
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<td><strong>Total participants</strong></td>
<td>16</td>
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Main Findings
Early Responses to the debate

Awareness & Engagement

45. Awareness of the issues around badgers and bovine TB is mixed between the different research locations. Participants in the Cheltenham workshop had greater awareness at the start of the process than in other locations. Their awareness comes predominantly from national and local media coverage, and they recall stories on Sheilagh Kremers and Prince Charles and a storyline in The Archers. Some also attribute their awareness to the fact that there is a higher incidence of bovine TB in their area.

“I do remember when I was young on TV when they were talking about badger culls and gassing all the setts… Because it was relatively local to here as well, it would make it twice on the news, you’d get it on the national news and then on the local news”
[Male, Cheltenham workshop]

“I sort of remember a TV programme about a vet going round and vaccinating the cows and then one lady wouldn’t allow her cows to be vaccinated”
[Female, Cheltenham workshop]

“David Archer had it. It was a big thing on the Archers”
[Male, Cheltenham workshop]

46. There was some awareness in the York workshop, particularly amongst older participants and those with a connection to the farming community.

“I’ve just read from time to time about the disease… and the possibility of a correlation between the badgers and the cattle”
[Male, York workshop]

“I’ve seen it on Countryfile, which is a farmers’ news bulletin every Sunday morning”
[Male, York workshop]

47. There was limited awareness in the Brighton workshop

“I had an awareness, a vague thing to do with cows and badgers, but it didn’t make any sense to my head, so I just ignored it”
[Male, Brighton workshop]

“I was completely unaware of It”… “Yeah it just seemed to wash over me”…
“Same with me”
[Group discussion, Brighton workshop]
48. In spite of mixed awareness levels, participants immediately engage with the issues and the information, and there was active debate in all locations.

**Preliminary responses to the concept of a cull**

49. Most participants instinctively question the need for a cull when first exposed to the debate. Many have a natural affinity for the badger and/or for British wildlife as a whole, and demand to know why a badger cull is being considered.

“It always seems to be the finger’s pointed straight at the badger” [Male]

50. Some (especially in the Brighton workshop) have suspicions around the farming industry and they question whether farmers are calling for a cull as an easy way out. They have particular concerns regarding intensive farming methods, including herd sizes, cattle density when over-wintering and the use of antibiotics and chemicals. There are some perceptions that farmers tend to look for the easiest option and that, whatever the outcome, they will be well compensated anyway. Some also report having seen negative press on the way farmers treat their animals.

“The farmers used to be on a gravy train” [Female]

“If you’re a farmer though you’ll clutch at [any solution] won’t you? You’ll think, ‘Well it could be them so let’s get rid of them’. Now I’m thinking, if someone could tell me 100% that it was the badgers that started it all then I would maybe think differently but as I look at it now I don’t think they are saying that. Nobody can say 100% that it is” [Female]

“Does the way that we treat our cattle now, pumping them with chemicals and hormones to get them to market quicker, affect their immune system to diseases? Is the reason why it’s increased the way that we treat our animals and the conditions we keep them in?” [Female]

51. Participants also question a cull because they have low trust in state co-ordinated culls, particularly in light of the response to Foot and Mouth Disease (FMD) and BSE, which they feel were distressing and poorly organised.

“We’ve had the Foot and Mouth and it just seems to be one [thing] after the other. And it always comes across that it’s just a knee jerk reaction that we go through. From what I hear from the paper, they say ‘Right, OK, we’ve got to go in and we’ve got to kill this lot’, and the last [cull] – it was horrific” [Male]

“We haven’t learned the lesson from CJD, Mad Cow, and Foot and Mouth… We just stumble in and kill loads of cattle… then a couple of years go by, we get a new disease, kill a whole lot more cattle. Are we getting to the situation now that the TB is so bad that are people going to see burning cattle and… get people like that woman [Shelagh Kremers] holding our animals to ransom?” [Female]
“They always seem to want to cull something. Like I go in the park sometimes and I see all these little grey squirrels and there’s loads of them now and I think they’re really nice and then I go home and I read in the paper they want to kill them!” [Male]

“I don’t think that the answer is always, ‘Oh let’s kill that thing because maybe that’s the problem’” [Male]

52. While they question a cull as a solution, all participants appreciate that this is a serious problem. In particular, they are struck by the cost to the tax payer of compensation and the (rising) number of cattle slaughtered. Those with more sympathy for the farming community are also concerned by the effect of increasing bovine TB in herds on farmers, particularly financially.

“Farming’s their business, that’s their livelihood. Everyone just assumes that farmers carry on, but they don’t do they? It’s an awful lot of pressure on one person, with everything else, with everything else going round and then saying you have to foot the full bill for it or you can’t sell your product” [Male]

53. As a result, most participants remain open minded following the initial scoping workshops.

54. Only a minority adopt more entrenched positions at this point in the process. Some of these feel a cull is necessary – they have less emotional attachment to badgers and feel that our food chain is currently adversely affected. Others who have made up their minds against a cull feel the evidence is not strong enough to support a cull.

Questions raised

55. All participants call for more information and conclusive evidence, and they raise many questions, including:

- Whether badgers transmit bovine TB to cattle, and if so, the extent to which they are responsible for the disease in cattle herds
- Whether there are alternative explanations for the increase in bovine TB in cattle, and in particular:
  - The extent to which other species carry and transmit bovine TB
  - Cattle-to-cattle transmission
  - Whether there is a link to more intensive farming methods and increasing herd sizes
  - Whether other countries face the same problem, and if so, how they have dealt with it
• Whether there are alternatives to culling. Participants are particularly interested in whether a cattle inoculation/vaccination exists and imagine that a cattle or badger vaccine would be a good solution to the problem. Participants also query whether there is better testing for cattle and whether it is possible to test and treat infected badgers. In addition, many wonder whether it is possible to better separate badgers and cattle to ensure they do not come into contact with each other.
• Level of spend on researching the cause of the problem, testing and vaccination, compared to the amount spent currently on compensating farmers for slaughtered cattle.
• The likely effects of a cull on badger populations and the ecology (including how it will affect other wildlife species).
• The likely effects of no cull on the farming industry and its contribution to the UK economy.
• How a cull would be implemented. Participants ask whether all badgers would need to be removed, and if not, how a decision will be made on which badgers to cull. They also query the methods of cull and whether farmers would be involved in culling.

“There’s nothing about the results from the other countries, what they’ve found to do about it” [Male]

“I was surprised at how long it’s going to take to come up with a vaccine as well. Why take another ten years away?” [Male]

“Is there not an inoculation that can be done like we do our children?” [Female]

“Why aren’t all calves given the BCG?” [Female]

“What about rabbits? They live in the same terrain. Why haven’t they been tested?” [Female]

“I am disappointed that there’s not more thought to how to keep the two animals apart from each other” [Male]

“I’d find it far easier to come down on the decision of agreeing with the cull had I thought that more thought had been put to other alternatives” [Male]

“Are we looking for scapegoats all the time as an easy solution to an answer that we’re not prepared to throw a bit more money at? Research it a bit more and find out the right answer” [Male]

“‘It always seems to be the answer, as soon as an animal is ill, you kill it and burn it or whatever. And that costs a lot of money to obviously recompense the farmer. Has anybody thought about treating the animals, like you do with a human? Is that possible, or is that far too costly?’” [Male]
“Do more research into the area of what actually causes it. Let’s put the money in that area. Let’s get some more experts in that area” [Male]

“Could farmers concentrate on new methods of farming that will help to combat the spread of this disease?” [Male]

Participants’ approach to their role in the debate

56. Overall, members of the public feel they have a real stake in the debate, particularly since the issue concerns our countryside and wildlife, involves taxpayers’ money, affects the food chain and has potential to affect human health.

“It’s our natural surroundings. We take it for granted that the badgers are there” [Female]

“I think it’s upsetting. But I still think it’s very relevant” [Female]

“We all pay taxes, it’s relevant to all of us” [Male]

“I think it must be relevant to us all as taxpayers, if we are taxpayers, because it must be our money that compensates the farmers at the end of the day. So in that way it’s relevant to everybody” [Female]

“It’s the food chain and it affects everybody” [Male]

“It’s our food chain that’s being affected” [Male]

57. As a result, the public are engaged with these issues and take their role in the debate seriously. All adopt a measured and considered approach to the evidence, and by the time of the reconvened workshop, all had read the core briefing pack. A number had researched the issues in greater depth by reading materials in the further reading pack and by going onto suggested websites.

Deliberation of policy questions

58. In the one-day reconvened workshop, participants deliberated three key areas of policy in detail. Participants considered options for implementing a cull (general cull vs. targeted cull vs. individual licensing) and culling methods. It was necessary for them to understand and debate these options in order to inform their decision of whether a badger cull should be included in a strategy to control bovine TB in cattle in high incidence areas.

At this point in time, participants had not been asked to come to a decision on whether they would support a cull or not.
Response to the cull implementation policy options: general cull vs. targeted cull vs. individual licensing

Considering the Options

59. While participants understand the concept of individual licensing, they have some difficulty distinguishing between the general and targeted cull options. More specifically, they struggle to understand the likely size of areas the respective options cover and the difference between them in terms of co-operation between landowners and co-ordination by the state. Some also confuse a targeted cull with the 'clean ring' strategy used in the 1980s. There are also participants who mistake a general cull for a national cull, and a targeted cull for a county-wide cull.

60. In spite of this confusion, participants come up with a number of key principles which they feel must form the basis of a decision between the options.

61. If a cull were to go ahead, effectiveness is the central criterion, and nearly all other principles relate back to effectiveness. Based on the evidence from the Randomised Badger Culling Trial (RBCT), participants feel the likely perturbation effect is a key factor determining effectiveness of each of the options.

“It’s got to be really effective and the idea of culling just a small percent or even 50% won’t produce any positive results” [Male]

“Whichever method of culling you use, you’ll always get the ripple [perturbation] effect, won’t you?” [Female]

62. Participants also query the coverage of each of the options, firstly regarding the number of infected badgers within the area that are likely to be culled, and secondly, where there is lack of consent from landowners within the prospective cull area.

“What happens if a farmer is violently opposed to killing any wildlife on his farm within an area that’s designated for culling how do you get over that?” [Male]

63. There are questions around durability, too, and how long an area will remain free of badgers with bovine TB given the different cull options.

“My main concern with any type of cull at the moment is that we’ll never get all of the badgers that spread Bovine TB unless you absolutely get rid of all the badgers. [A cull] may do something temporarily, but in the long term whichever badgers are left will breed, will spread, will visit the cattle again and the same problem I think will happen, however it’s dealt with right now, however they cull” [Female]
64. Participants feel co-ordination and control is important, particularly in ensuring effective coverage. However, participants are also keen that, if a cull were to go ahead, the implementation of a cull should enable monitoring and data collection. They feel it is important to gauge the effects of a cull on both the levels of bovine TB in cattle and badgers, and on biodiversity.

“So if we’re going to cull them, and we’ve got the carcasses there, we might as well use that to get some continued feedback to find out how successful the cull is” [Male]

65. In addition, people feel co-ordination is necessary to link up a cull with other aspects of control, such as cattle testing, research and vaccine development.

66. Participants are also eager that the cull itself is overseen, to protect the system from abuse, and ensure that infected carcasses are properly disposed of.

“Things are always going to be abused and so I think if it’s going to be done, it needs to be done as tightly as possible” [Female]

67. Given the desire to see a level of co-ordination and control, people support a policy that involves state control – they wish to see a centralised body to oversee and monitor the process. However, participants also feel it is important the state is seen to be supervising a cull as they feel this is an issue that affects everyone, not just farmers, wildlife and the countryside. Therefore the level of government involvement implied in each of the three options also influences participants.

“I would hope that the culling would be much more effective and professional if done by a properly organised government body” [Male]

“If it is a policy of our [Britain’s] agriculture, I would want the Government and the people who make the policy, to actually stand behind it. I don’t want that responsibility to be off laid onto the farmers, [so the Government can say,] “Nothing to do with me guv, he did it”” [Female]

“I think that the culling has to be the responsibility of the Government and the taxpayer to make sure it’s done correctly and humanely” [Male]

“I think everyone would feel a little bit more comfortable if it was a more heavily regulated body was carrying out the action” [Male]

68. Participants raise questions over the level of farmers’ involvement in each of the cull options. Part of this concern relates to effectiveness: there is some debate over, if farmers had primary responsibility for culling, whether they would have the time and money to carry out a cull effectively. Alternatively, some argue that it is necessary for farmers to be involved to ensure they have some sense of ownership over this part of the solution.
“You’re putting more pressure on the farmer. If you say, ‘Right, you have to do it, it’s all your responsibility’, the ones that’ll get up at the crack of dawn, they can’t be up in the middle of the night roaming around, when they’ve got to get up at ridiculous o’clock, to make sure that the rest of their jobs get done” [Female]

69. There are also concerns over abuse on the part of the farmers. Those who are more mistrustful of the farming community worry that farmers may not act with complete propriety. However, many are also concerned that farmers may be in danger of retribution from animal rights activists if they are involved in a cull.

“I wouldn’t want the farmers to be doing it, ‘cos as I’d say, they could go out and do it however they want and it’s not really humane” [Male]

“I’m not keen on the farmers being in charge of it all. It’s not really regulated, it’s almost like, well farmers get on with it, we’ll close our eyes, you just deal with it… you deal with it how you want and we don’t really know how you’re going about doing it” [Female]

“I would have thought that there’s a danger that farmers are so anxious to get rid of these things, they won’t be over fussy about the humane methods of killing. They’ll just go out there and kill them” [Male]

“Who is going to protect [farmers] from the Animal Liberation Front, who are going to be violently against this? Are we then going to employ the Territorial Army as a safeguard? The costs go on” [Male]

“I’d hate to be the poor farmer who got a license, because people would find out and they would target that farm. It wouldn’t be their cattle, they’d get all their buildings burned” [Male]

“Who is going to protect them from the Animal Liberation Front? I can tell you, there is going to be one hell of a lot of resistance” [Male]

70. There is some feeling that teams of ‘professionals’ would avoid these potential problems. To some extent, this reflects the desire to see central control if a cull was decided on.

“I would rather see teams of people who were employed to specifically to go out to areas what needed doing” [Female]

71. Cost implications are the final consideration. There are a number of questions around how much a cull would cost, both per se and compared to the amount spent slaughtering cattle and compensating farmers.

“What’s a bit worrying as well with this general cull [is that] there aren’t any numbers on the figures of either badgers or… what it’s going to actually cost to implement that. And also the numbers of badgers that are going to have to be removed to actually have an impact” [Male]
“We’re also talking about the success rate, the actual cost of this… we all seem to have mentioned the fact that it’s going to require a lot of regulation and a lot of policing, the actual economic cost of that is going to come back to the taxpayers. It’s going to be a big cost” [Male]

“I need to know how much those three options are going to cost, because I don’t want to kill badgers unnecessarily, but if someone told me that a general cull is going to cost me less, and the price I pay for my beef will be a lot less, but we’ll lose a number of badgers, then I may decide that is the option” [Male]

72. There are also some concerns over who would pay for a cull. Some feel that asking the farmers to bear the cost is unfair and could reduce co-operation and effectiveness.

Deciding between the options

73. Participants struggle to choose between the options, particularly given the lack of available evidence on likely effectiveness and cost implications of each.

74. On balance, though, most participants believe that a general cull is likely to be most effective on the basis of the available evidence. They feel a general cull suggests the broadest coverage (and is therefore less likely than other options to miss infected badgers), that it suggests central/ state control and co-ordination, and that natural boundaries could minimise perturbation.

“Looking at the effectiveness… a targeted cull might not be as effective as the general cull. Looking at the farmers’ side of it, they need to stop this TB and if [a general cull] is the most effective way, then maybe it is the answer” [Male]

“It seems that a general cull would be best in a way, although you’re going to lose a lot of badgers that might be healthy, it just seems like that might in the end be more effective than the others” [Female]

“I think a general cull could be effectively managed and handled and, therefore, more satisfactory over all” [Male]

75. However, participants also feel that a general cull would have the greatest impact on wildlife. They worry that healthy badgers would be included in the cull, and that there is potentially a greater threat to biodiversity.

“What percentage of those badgers that you cull are going to be perfectly healthy animals?” [Male]

“You could be wiping out a lot of badgers for no reason. Say well, what’s the numbers? 400,000 in Britain, is it? You could wipe out quite a percentage of that many and you might only get 40% of infected badgers, so you’ve just killed 60% for nothing, which is a big waste. You could say on the other flipside to that
you’re wiping out the problem… if you’re actually getting to the heart of the problem. You’re thinking right, we’ll wipe them all out, it’s going to put a stop to the TB” [Male]

76. In addition, there is some concern that non-consenting landowners would compromise the effectiveness of a general cull: pockets of infected badgers from their land onto clear land and re-infect cattle.

“If the culling area overlapped somebody else’s farm and he wasn’t compliant, he wasn’t in total agreement, that wouldn’t really solve the problem” [Male]

77. Participants are least certain about how a targeted cull would work, but some feel it could be preferable since it suggests only targeting infected badgers and the worst affected areas.

“I think I’d go with the targeted cull for at least five years, to see if it had an impact, because there’s obviously really big hotspots, which are mainly down South… and this is targeted… they got to do something, so it might as well start off with that” [Female]

78. However, there are more concerns over the effectiveness of a targeted cull compared to a general cull. Firstly, there is some anxiety that, if a targeted cull covers smaller areas defined by landholdings, it could create more perturbation than a general cull. Participants recognise, though, that if a targeted cull had similar coverage to a general cull, perturbation effect might be reduced. Secondly, participants believe that a targeted cull is unlikely to be effective without some form of state control and co-ordination. Finally, as with a general cull, people worry that non-consenting or non-co-operative landowners would leave pockets of badgers infected with bovine TB within the cull area, thereby reducing the cull’s effectiveness.

“The problem is the actual research that’s gone into it suggests that has a negative effect on the overall incidence of TB. Where you’ve actually had that [targeted] approach before it’s had up to a 29% increase in the overall TB” [Male]

79. Participants see no benefit in the individual licensing, as it goes against all the principles they consider important. Firstly, the implicit lack of co-ordination could lead to ineffective coverage and leaves the system open to abuse. Secondly, individual licensing would limit potential to monitor progress and collect data on the effects of a cull. Finally, and most importantly, participants feel there is greatest risk of perturbation with the individual licensing option, and this is likely to make the situation worse.

“I think the individual licensing thing sounds a bit lawless. It just sounds like it’s going to be a load of vigilantes running around” [Male]
Response to cull implementation policy options: methods of cull

Considering the options

80. Participants feel they are not best placed to decide on the cull method options, but they list a number of factors they consider important in deciding between the options:

- Effectiveness is key. Participants are keen that, if a cull were to go ahead, the method used must be as effective as possible: it should ensure that all infected badgers are removed.

“If we’re going to go down those routes, some quite nasty deaths, we’ve got to be absolutely 100% sure that what we’re doing it an effective way to do it” [Female]

“It has to be a very effective and quick: there’s a badger, dead” [Male]

- Participants also prioritise humaneness and would want the chosen method to avoid badgers suffering.

“It’s got to be absolutely spot on, no suffering” [Female]

“I’m not actually happy to discuss ways of, let’s substitute the word culling for killing, but if you are going to do it, then just make is as painless as possible for the badgers and that’s it, it’s as simple as that. Painless as possible. Nothing else comes into it, in terms of money and who’s going to do it, just as painless as possible. Because they’re creatures and they’ve living creatures” [Male]

- Must be suitable for gathering data on the effects of a cull and on the number of infected badgers.

- Should enable easy disposal of infected carcasses. Participants insist that the method should enable infected carcasses to be collected and effectively disposed of in order to avoid further spreading of the disease.

Deciding between the options

81. There is little consensus over the best method to use, were a cull to go ahead, although cage trapping and shooting is ruled out as infeasible because of handgun laws.

82. Participants wonder if gassing would be more effective than other methods because it is likely to reach more badgers at once. However, there are arguments that gassing could be less effective, since it is likely to leave infected carcasses in the ground. While some think it may be more humane if badgers fall asleep before dying, there are concerns that gassing might not be a fully
effective way of killing badgers, and that they may simply become paralysed or comatose instead.

“It’s carbon monoxide, so they go to sleep, the same as in one of the [programmes where] it shows like old ladies in front of a fire where the gas is leaking, and they don’t know anything about it” [Female]

“I think that makes a difference, knowing that they go to sleep” [Female]

“If it’s not a lethal enough dose, then you’re just sort of harming them and not actually killing them, and also retrieving the badgers, we need to get rid of the carcasses. If they’re underground, how are you going to retrieve all the carcasses?” [Male]

“If you gas them they’re going to be left in setts and therefore it goes into the soil and who knows?” [Female]

“To me, [gassing] is the most humane way of doing it. And the point is that you’re getting the whole sett, whereas shooting, snaring – it’s individual and it’s frightening [Female]

“If you wanted to kill a whole sett I think the only probably effective way to do it would be to gas them” [Male]

83. People acknowledge that the body snare is potentially more humane if it does not harm the badger. However, many feel that this method is unsuitable as they do not believe that snares would be checked every four hours.

“There’s probably going to be times where there would be badgers snared for a long time… I think I’m not comfortable with that” [Female]

84. A number of participants feel that shooting free-running badgers could prove the best option if it is heavily policed. People assume that shooting badgers is a quick and humane culling method and that it seems more effective than some of the other options. There is also some feeling that shooting is more acceptable because it is a common practice in culling other wildlife species (such as rabbits, foxes, pigeons).

“I think shooting’s the best thing, then you know for certain” [Male]

“[Shooting –] it’s a sure thing” [Male]

“It’s effective and they’re killed instantly hopefully” [Female]

85. However, participants less trusting of the farming dislike the idea of farmers having control over firearms and are concerned this option is open to vigilanism and lawlessness.
“They get some farmers that are really trigger happy” [Female]

86. There are also some concerns that shooting badgers one by one might not be as effective as, for example, gassing a sett.

“...They wouldn’t get them all by shooting them individually” [Female]
Response to the policy options: whether a policy to cull badgers should be part of the approach to help control bovine TB in cattle in high incidence areas

Considering the options

87. A deliberative approach means that participants are able to identify the most resonant facts and debates. Towards the end of the process, it was clear that there were a core of accepted facts in the debate and a number of areas of dispute.

88. The core facts acknowledged by all participants based on the evidence they have considered include:

- Badgers are a host for bovine TB and that they pass it on to cattle. Following exposure to the evidence, participants accept the badger plays a role in transmission, despite having questioned this in initial discussions.
- The problem is severe and likely to get worse, based on the charted progression of the disease in the cattle population over the last ten years.
- The decision will involve extensive action. Given the evidence on the perturbation effect, participants feel that partial measures are unlikely to work, or may even make the situation worse.
- The science is inconclusive. People acknowledge that a decision has to be made, but are frustrated that the existing evidence can be used to create compelling arguments both for and against a cull.

89. There are more areas of dispute than consensus.

90. One area of dispute is the fact that the evidence on the role of badgers is associative, rather than causative. Some participants are happier to base a decision on this than others as they believe that the severity of the situation requires an answer now. Others question whether a decision of this magnitude can be based on inconclusive, associative evidence.

91. Some participants place greater weight on the evidence around transmission of bovine TB from badgers to cattle. They feel that this level of evidence (combined with the evidence that closed herds can get bovine TB) is enough to consider a cull. Other participants feel that the limited evidence on the extent to which badgers are responsible (especially in contrast to other factors such as biosecurity, cattle movement, and other potential wildlife hosts) is an argument against a cull.

92. All participants accept that perturbation is a key risk factor associated with a cull. They are concerned that badgers infected with bovine TB may move into the area surrounding the cull area, taking the infection with them, and that infected badgers may re-enter 'cleaned' areas. However, some feel that, if an area is
large enough, perturbation effects could be minimised. Participants are also concerned that lack of co-operation or thoroughness from landowners will reduce the effectiveness of a cull. In addition, there is some concern that, if the infection is reduced in the badger population, bovine TB will simply become prevalent in another host species, which in turn will become the dominant wildlife reservoir for bovine TB in cattle.

“Let’s face it that whatever method you use it’s not going to be 100% effective” [Male]

There is debate around whether there is greater value in preserving cattle lives (supported by those sympathetic to farmers and considering the economic costs) or badger lives (more of a concern to those who wish to avoid killing wildlife where possible).

“As far as the farmer’s concerned the decision that they’re faced with is, ‘Do I kill badgers or do I kill my livestock?’” [Male]

“Well I’d be devastated if we suddenly had to cull the badgers, because I think they’re a wonderful animal” [Female]

“Well the cow is the food chain, isn't it? The badger's not” [Male]

A number question how humane it is to cull badgers with the available methods. However, participants acknowledge a counter argument that it may be more humane to deal with the disease in the badger population, rather than leave it unchecked.

“I mean but it’s awful, isn’t it, to be part of a cull. Wherever you stand on it, it’s awful” [Male]

There are participants who are concerned about the effects that substantially reducing the badger population could have on other wildlife species. While they acknowledge there is some evidence on this, they are also worried about unforeseen impacts. Other participants are less concerned about potential effects on biodiversity.

“I’ve got no problems with culling infected animals. I have a huge problem with eradication of species within an area because I know for sure it’s going to upset the balance of nature” [Male]

“We need to know what will happen to the wild, the animal kingdom, if the badgers get culled” [Female]

Weight placed on the threat to human life. Some place greater weight than others on the possibility of bovine TB infecting humans if the incidence in cattle increases.
“We’re saying 22,500 cattle are dying from a disease that’s spreading and it could transfer to the human population” [Male]

“Now, I wonder what we’d all turn round and say if it were the badgers passing the TB to the humans? I can guarantee you this, you’d get nearly 99% of them say, cull all the badgers” [Male]

97. Participants with more connection to the farming community are more likely to recognise the burden this places on farmers and the industry. Many also appreciate the role farmers play as custodians of the countryside, and the potential that our rural areas may suffer if farming declines.

“I put more importance on the farming side. I think farmers have been knocked a lot” [Male]

98. Some participants suspect that an underlying political agenda is driving the debate. They feel that the government tends to side with the farmers’ agenda. There is some suspicion that the timing of this decision coincides with the lifting of the ban on British beef in France, and that the government is eager to secure the UK’s place on the global beef market.

“The only people the government are worried about are farmers – those that are going to directly affect them, that are going to make a stand and not vote because of that decision or go and terrorise a farmer because of it. They’re the ones the government are really focused on, not us” [Female]

“What is the big picture? What is the reason for all this in the first place? Is it the fact that the farmers have been putting pressure on [the government] because they’re losing cattle? What is that reason why this started?” [Male]

“Is the timing of it right now coincidental or is it anything to do with British beef being able to be on the global market?” [Female]

99. How participants interpret these arguments determines whether they are broadly for or broadly against a cull.

Remaining questions

100. Beyond these areas of debate, participants have fundamental questions around cost effectiveness. In particular, they feel they lack evidence on the economic value of the farming industry to the UK. They also want to understand more about the costs of deciding against a cull (in the form of increasing testing and compensation costs) compared with the cost of implementing and monitoring a cull. Many feel that lack of information on cost effectiveness restricts their ability to make a firm decision.
Deciding whether a policy to cull badgers should be part of the approach

101. Participants do not reach a decision easily or lightly, firstly because of the lack of conclusive evidence, and secondly because of the likely scale of impact of a decision either way.

“There will never, ever be a straight answer to this ever” [Female]

“There’s evidence, but it’s a very small amount of evidence. It’s not conclusive at all” [Female]

102. Indeed, a large minority had still not made up their minds at the end of the process. Nonetheless, there were fewer participants who were undecided at the end of the whole process compared to immediately after the initial scoping workshops, suggesting the deliberative process provides more certainty.

“There’s two really good arguments there, for culling and against, and there’s still not a lot of evidence of what’s going on, so I really can’t form an opinion” [Male]

103. When forced to come to a decision, there is marginal support for a cull in the context of the one-day workshop where participants are encouraged to reach a consensus decision. However, this level of support is reluctant, and heavily caveated. Furthermore, when expressing an individual viewpoint (in self-completion questionnaires at the end of the one-day workshop), participants are equally split between pro-cull and anti-cull positions.

104. Additionally, participants on both sides of the debate feel they are still open to new evidence and to reconsidering their viewpoints on the basis of this.

Rationale for a decision in support of a cull

105. Those who support a cull do so reluctantly and only because they see it as the most pragmatic option.

“I couldn’t bear the thought of gassing – it’s terrible. I don’t want to shoot them either, I don’t want to kill them. You don’t want to, it’s just that we haven’t got any option, have we? I don’t know” [Female]

“Doing nothing isn’t an option, but we have to do something” [Female]

106. Key considerations in their decision include:

- A belief that culling is only a temporary measure until a badger vaccine and/or a better cattle vaccine become available
- A belief that action is imperative given the probable increase in bovine TB cases in cattle and the associated cost to the taxpayer and farmers
• A belief that the science will never deliver a clear cut answer on which to make a decision, therefore there is little point to a ‘wait and see’ approach
• A feeling that it is impossible not to deal with a reservoir of disease in the cattle population if we are taking other measures

107. Lesser considerations in the decision to support a cull include protecting the future of farmers – both to ensure the future of the industry and in their role as custodians of the countryside – and the potential increase in risk to human health. Those supporting a cull also feel that the promise of a healthier badger population is mildly influential in their decision.

108. Importantly, those who support a cull only do so if it is part of a cohesive, multifaceted strategy. This strategy must include:

• Central co-ordination, training and monitoring to ensure thorough implementation and maximum effectiveness and to avoid abuse
• The farming industry taking responsibility for better biosecurity and animal husbandry
• Continued, or even intensified, research into more sensitive testing, a better cattle vaccine (i.e. one that enables us to distinguish between vaccinated and infected cattle) and a badger vaccine
• A thorough system for collecting data on the effect a cull has on the number of cases of bovine TB in cattle
• Gathering more conclusive background evidence on the number of badgers and the relative impact of badger to cattle transmission in the level of bovine TB in cattle

109. If these conditions were not met, the public would withdraw their support for a cull.

“What I’ve got from today this whole Bovine TB is a much, much bigger and much, much more difficult problem than I thought it was and it can only be tackled by tackling every bit of it together, it’s got to be one huge effort with everybody working in the same direction so you’ve got to do the badgers, even though you don’t want to, you’ve got to do the cull, but also all the testing on the cattle” [Male]

“To be effective, it’s going to have to be two-way. It has to be action by the farmers on restricting movements and then also in combination if we have a cull. [A cull] on its own is just not going to work” [Female]

“Reluctantly I’m presenting an extremely slim majority vote for a general cull on behalf of my group, with reservations and realistic expectations that this is a short term measure… And the considerations we had were that there’s no feasible long term solution today, but a general cull is seen to be the most effective. Our concerns really were the disposal of the carcasses, that they’re tested and incinerated. And 100% effort would be put then into development
and [measures] such as animal husbandry, testing and we’d also like to see a report as to all the data recorded and what results have come from this cull” [Group response]

“The common theme that came out was it must be as part of a cohesive strategy. The strategy would be that there would be improved testing – more accurate and more frequent – which points towards some sort of research into the testing procedures. We’re looking at vaccine research, we’re looking at some sort of day-to-day measures in terms of animal husbandry, perhaps like … security and improved animal husbandry, as we said. Lower density was one thing that we thought of. We thought it was very important to have government coordination of the cull and clearly defined roles in a partnership framework between the government, the farmers, the local community. For there to be a finite period for the cull, that it isn’t just endless. There would have to be clear monitoring and an audit trail if you like, so that there’d be some statistical and research base, point to the effectiveness of the cull. It was important for farmers to do their bit” [Group response]

Rationale for a decision against a cull

110. Those against a cull feel that the evidence is not strong or conclusive enough to support the argument for a cull. In particular, they point to:

- The fact that the role of the badger in transmitting bovine TB to cattle has not been quantified
- The evidence suggests that a cull might not be effective: a cull may cause perturbation of infected badger populations, pushing infected badgers out into uninfected areas. In addition, an lack of participation or co-operation from landowners would undermine a cull. Those against a cull also feel that the methods themselves do not guarantee full effectiveness. There is also a concern that other wildlife hosts may become the principal reservoirs for bovine TB if the badger were eradicated in infected areas
- A belief that we have not had a chance to gauge the effect of alternative measures which have been recently introduced, such as pre-movement testing

111. In addition to these arguments, some feel there is uncertainty over the potential impact of a cull on biodiversity – some are concerned that removing large numbers of badgers will upset the ‘balance of nature’ and could have unforeseen consequences.

“There must be some more evidence behind that, there must be a clearer answer. But we need to answer that question before we do anything, because we could do a badger genocide and then go, ‘Oh, it was nothing to do with them’” [Male]
“Now I’m thinking, if someone could tell me 100% that it was the badgers that started it all, then I would maybe think differently but as I look at it now I don’t think they are saying that. Nobody can say 100% that it is” [Female]

“I’m sort of saying no to culling because we don’t know if it’s going to be effective” [Male]

“We were unanimous in the feeling that there was insufficient evidence to condemn badgers”

“In the end we voted against a cull of the badgers, because we believed that it was a smaller percentage of the problem could be attributed to the badgers and the majority of the problem could be managed through the farmers, the biosecurity, movement testing and so on. It will take some time to see the results of these things that are implemented. However, we felt really, as a whole there wasn’t enough evidence at the moment to agree with a cull. We did take another vote at the end, a hypothetical, if there was enough proof to satisfy everybody in the group that badgers were enough of a problem, would we agree with the cull. And we did, but only just with 60%. … four against three” [Group response]

“The decision that the Minister would [have to] take would be ‘no’ on the evidence that we have to date. There are so many ifs and buts and each side is so passionate about everything that it has got to be sure. Because our poor country lately has suffered some real upsets where farming and farmers and their way of life are concerned, this has got to be very sure. We have got to be sure that the farmers aren’t cast in the role of ‘poor little me’, or ‘it’s all on our shoulders’. All of those involved, have got to be brought on board” [Group response]
**Communicating the final decision**

112. Participants considered how they would prefer to hear about the final decision in terms of channel, tone and key messages.

**Channel and tone**

113. Participants expect to hear about the final decision through news reports in the national media, but also expect to be able to access further information via the internet.

114. Participants want the message to come from an authoritative and credible body. They also feel it is important that all parties to the debate appear to be working together towards a solution, rather than against each other. This desire is partly due to the frustration and confusion caused by the contradictory evidence and viewpoints participants have come across, both through their reading and from the panel discussion between the different parties.

115. There is also some desire for the communications to be straight, and avoid emotive arguments or language. Participants feel that the issues are inflammatory enough, and that further emotional debates are only likely to add to further confusion and frustration.

> “They're not all working together… Them [the different parties in the debate] all arguing makes it look so uncertain. Do you know what I mean? It makes it easier for people to shoot it down for all these different reasons… [It would be better] if they work together and then portrayed it to the general public” [Female]

> “We felt that everybody should be involved. All the stakeholders we called them, but even people down to the Badger Trust and the Wildlife groups, if there's going to be a cull. They should be involved as well” [Female]

**Key messages**

116. Key messages should reflect the arguments which participants feel are most resonant, i.e. those which help them come to a decision.

117. It is crucial to stress that the situation is serious, both in terms of the rising costs to farmers and the taxpayer, and in terms of the number of cattle being slaughtered. It is also important to communicate that, on the other hand, the science is inconclusive, and any decision cannot be made purely on the basis of the available evidence.

118. If a decision is made in favour of a cull, it is critical that communications address each and every one of the caveats specified by the public, explaining the extent to which each will be in place, and why.
119. Whatever the decision, communication should also emphasise the broader strategy around attempting to control bovine TB in cattle in high incidence areas, such as compulsory pre-movement testing, continued research into cattle and badger vaccines and background research into the epidemiology and badger ecology. If any of these elements is not adopted, it is important to explain why.

Conclusions

120. Participants become engaged in the issues from early on in exposure to the debate, and remain engaged throughout the process.

121. The deliberative approach – where participants had time and space to absorb and debate large amounts of evidence – is crucial in helping participants come up with a considered and informed decision on this complex topic.

122. Participants do not come to a decision easily or lightly on whether a badger cull should be included in a strategy to control bovine TB in high incidence areas. The lack of conclusive evidence and the scale of the impact of a decision either way make it difficult to decide.

123. There is marginal support for a cull when participants are encouraged to reach a consensus. However, reflecting the controversy of the debate, individual participants are evenly split between pro-cull and anti-cull positions at the end of the deliberative process.

124. Those who support a cull do so reluctantly because they see it as the most pragmatic option in the face of the rise in bovine TB in cattle and the effect this has on the cost to taxpayers and the impact it has on farmers. They also believe that the science will never deliver a clear cut answer.

125. Importantly, any public support for a cull is heavily caveated, and those in support will withdraw their support if a decision to cull is not part of a co-ordinated, cohesive and multi-faceted strategy comprising the conditions stated in paragraph 106 of this report.

126. Those against a cull feel that the evidence is not strong enough to support a cull. In particular, while they accept that badgers transmit bovine TB to cattle, they feel the extent to which badgers are involved has not been quantified. They also have doubts over the effectiveness of a cull and concerns over unforeseen effects of a cull on biodiversity.

127. Participants are prepared to revise their decisions for or against a cull in light of new evidence, particularly around likely effectiveness of a cull and/or other measures taken to control bovine TB in cattle.
128. Communication of the final decision should come from an authoritative and credible body. If possible, participants also want the message to demonstrate that all stakeholders in the debate are working together towards a solution.

129. Communications should stress the arguments that emerged as the most salient in the consultation, i.e. the accepted facts, the caveats that support a cull or the rationale against a cull.

130. Communications should also focus on the measures other than a cull that are part of the broader strategy in place to control bovine TB in cattle in high incidence areas, along with explicit explanation of whether these are considered sufficient.

131. Overall, the public feels they have a real stake in this debate. Participants find the debate interesting and are pleased to have been asked to give their opinions.
Appendix 1
Discussion guides
Consultation on Bovine TB – Agenda for Regional Workshops

<table>
<thead>
<tr>
<th>Timing</th>
<th>Task</th>
<th>Materials</th>
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<tr>
<td>6.45 - 7.00</td>
<td><strong>ARRIVAL &amp; REGISTRATION</strong></td>
<td>Name labels</td>
</tr>
<tr>
<td>7.00 - 7.20</td>
<td><strong>INTRODUCTION</strong></td>
<td>Briefing Note 1:</td>
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*In plenary*
- OLR to introduce themselves and explain:
  - Purpose of this workshop
  - Purpose of the reconvened workshop in London
  - How the session will run (whole group, breakout groups)
  - Participants’ role
  - OLR’s role
  - Confidentiality – taping, video recording
  - Housekeeping (food, drink, toilets, timing, fire escape, mobiles)
- Paired introductions – participants to talk to the person sitting next to them and introduce their neighbour (*first names, where they live, what they’d be doing if they weren’t here*)
- Initial discussion
  - How much do you feel you know about bovine TB and the alleged link with badgers?
  - Where do you know about the issues from? (PROBE – *local media, national media, word-of-mouth*)
- Introduce **Briefing Note 1** – Context, history and the consultation process
<table>
<thead>
<tr>
<th>Timing</th>
<th>Task</th>
<th>Materials</th>
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</thead>
<tbody>
<tr>
<td>7.20 – 7.40</td>
<td><strong>LEVELS OF AWARENESS &amp; TOPLINE VIEWS</strong>&lt;br&gt;<strong>In 2 break out groups of 8</strong>&lt;br&gt;• What, if anything, do you know about the potential link between badgers and bovine TB?&lt;br&gt;• Any views of your own on this?&lt;br&gt;• How relevant do you feel this issue is to you?&lt;br&gt;• Who (else) do you think has an interest in the issue? What do you think their point of view would be?</td>
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<tr>
<td>7.40 – 8.10</td>
<td><strong>THE ISSUE</strong>&lt;br&gt;<strong>In plenary</strong>&lt;br&gt;• Introduce <strong>Briefing Note 2</strong> – the consultation options&lt;br&gt;  – OLR to read through note with participants&lt;br&gt;• <strong>Video</strong></td>
<td><strong>Briefing Note 2</strong>&lt;br&gt;<strong>Video</strong></td>
</tr>
<tr>
<td>8.00 – 8.30</td>
<td><strong>INITIAL RESPONSE TO BRIEFING</strong>&lt;br&gt;<strong>In 2 break out groups of 8</strong> –&lt;br&gt;• Initial thoughts on the information&lt;br&gt;• What did you already know? What was new/surprising to you?&lt;br&gt;• From what you’ve heard so far, what do you think are the most important arguments on each side?&lt;br&gt;• Which arguments do you find most compelling at this point?&lt;br&gt;• Which do you find least compelling?&lt;br&gt;• What more you want to know to be able to make up your mind on the issue?&lt;br&gt;<strong>Moderator to flipchart:</strong>&lt;br&gt;  – Most compelling arguments&lt;br&gt;  – Least compelling arguments&lt;br&gt;  – List of questions</td>
<td><strong>Flipcharts</strong></td>
</tr>
<tr>
<td><strong>Timing</strong></td>
<td><strong>Task</strong></td>
<td><strong>Materials</strong></td>
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<tr>
<td>8.30 – 9.00</td>
<td><strong>WRAPPING UP</strong></td>
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</table>
| In plenary | - Moderators/ breakout group representative to present back most compelling + least compelling arguments and residual questions  
- Defra to respond briefly to key questions  
- OLR to explain  
  - What will happen next time  
  - What they need to do in the meantime – briefing pack (including going through what is in it, what they must read for the next workshop, what is background reading)  
- Participants to complete  
  - Post-workshop questionnaires  
  - Travel preference forms  | - Briefing packs  
- Post-workshop questionnaires  
- Travel preference forms  |
### Consultation on Bovine TB – Agenda for Reconvened Workshop

<table>
<thead>
<tr>
<th>Timing</th>
<th>Task</th>
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</thead>
<tbody>
<tr>
<td>9.45 - 10.00</td>
<td><strong>ARRIVAL &amp; REGISTRATION</strong></td>
</tr>
<tr>
<td>10.00 - 10.20</td>
<td><strong>INTRODUCTION</strong></td>
</tr>
<tr>
<td><strong>(20mins)</strong></td>
<td><em>In plenary</em></td>
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<tr>
<td></td>
<td>- Welcome back</td>
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<td></td>
<td>- OLR to introduce people in room</td>
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<td></td>
<td>- OLR to remind participants:</td>
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<td></td>
<td>- Purpose of this workshop</td>
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<td>- How the session will run (whole group,</td>
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<td>breakout groups, panel discussion)</td>
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<td>- Participants’ role</td>
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<td>- OLR’s role</td>
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<td>- Confidentiality – taping</td>
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<td></td>
<td>- Housekeeping (food, drink, toilets,</td>
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<tr>
<td></td>
<td>timing, fire escape, mobiles)</td>
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<tr>
<td>10.20–11.00</td>
<td><strong>RESPONSE TO READING PACK OF MATERIALS</strong></td>
</tr>
<tr>
<td><strong>(40mins)</strong></td>
<td>*In 6 break out groups of 8, keeping</td>
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<td>people from the same town/ city together*</td>
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<td></td>
<td>- Spontaneous responses – how did you find the reading?</td>
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<td></td>
<td>- What did you find most interesting? Least interesting?</td>
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<td></td>
<td>- Any new/ surprising facts/ perspectives you hadn’t previously considered?</td>
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<td></td>
<td>- Have your views changed at all?</td>
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<td></td>
<td>- How?</td>
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<td></td>
<td>- What made you change your mind? [probe specific facts/ viewpoints]</td>
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<td></td>
<td>- What remaining questions do you have for the experts?</td>
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<td></td>
<td>- Moderator to flipchart questions</td>
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<tr>
<td>11.00 – 11.30</td>
<td><strong>Q&amp;A SESSION</strong></td>
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<tr>
<td><strong>(30mins)</strong></td>
<td><em>In plenary</em></td>
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<td><em>Tea and coffee provided</em></td>
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<td></td>
<td>- Moderators from each group to run through the questions from their group</td>
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<td></td>
<td>- Lead facilitator to flipchart all overall questions</td>
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<td></td>
<td>- Defra representatives to field and answer questions</td>
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<td></td>
<td>- Further questions from the floor</td>
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<td></td>
<td>- Short Presentation from Defra on the cull coverage options</td>
</tr>
</tbody>
</table>

38
### Timing | Task
--- | ---
11.30-12.15 (45mins) | **DETAILED CONSIDERATION OF THE POLICY OPTIONS**  
*In 6 break out groups of 8 (mixture of participants from different locations and attitudes in each)*  
**NB no decision on whether to cull or not has been taken. However, we need to consider in detail the options if a cull is decided on.**

#### Cull coverage options (20mins)
- Moderator to introduce briefing note on the 3 cull options and read through
- Check understanding – what do you understand about the difference between the 3 options?
- For each option  
  - What are the benefits of this option (over the other two)?
  - What are the drawbacks of this option (over the other two)?
  - What impacts would this have? On whom?
  - What questions do you have about this option?

#### Culling methods options (15mins)
- Moderator to introduce briefing note on methods of culling and read through
- For each option  
  - What are the benefits of this option (over the others)?
  - What are the drawbacks of this option (over the others)?
  - What impacts would this have? On whom?
  - What questions do you have about this option?
- Does going through these options in detail change how you feel about whether a cull should be implemented or not? How? [probe specifics]

#### Questions for panellists (10mins)
- We will have representatives from The Badger Trust, the NFU, the veterinary profession and a scientist. What questions do you have for them?  
  - Participants to note down questions they would want to ask the panellists in the Q&A session

12.15-13.00 (45mins) | **LUNCH**
<table>
<thead>
<tr>
<th>Timing</th>
<th>Task</th>
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<tbody>
<tr>
<td>13.00-13.30</td>
<td><strong>PANEL DISCUSSION</strong></td>
</tr>
<tr>
<td>(30mins)</td>
<td><em>In plenary</em></td>
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<td></td>
<td>- Lead facilitator to introduce panellists</td>
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<td></td>
<td>- Each panellist to give a 5 minute presentation on</td>
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<td></td>
<td>their perspective on the consultation options</td>
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<tr>
<td>13.30-14.00</td>
<td><strong>PANEL Q&amp;A</strong></td>
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<tr>
<td>(30mins)</td>
<td><em>In plenary, chaired by lead facilitator</em></td>
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<td></td>
<td>- Questions from the floor to be addressed by</td>
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<tr>
<td></td>
<td>panellists</td>
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<tr>
<td>14.00-14.45</td>
<td><strong>CONSIDERATION OF PANELLISTS’ VIEWPOINTS</strong></td>
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<tr>
<td>(45mins)</td>
<td><em>In 6 break out groups of 8 (mixture of participants</em></td>
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<td></td>
<td><em>from different locations and attitudes in each)</em></td>
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<td>In 2 syndicates of 4, discuss</td>
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<td>- Spontaneous responses – how did you find the panel</td>
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<td></td>
<td>discussion overall?</td>
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<td></td>
<td>- Which facts/ points of view did you find most</td>
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<td></td>
<td>compelling? Least compelling?</td>
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<td></td>
<td>Discuss as a group</td>
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<td></td>
<td>- Any new/ surprising facts/ perspectives you hadn’t</td>
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<td></td>
<td>previously considered?</td>
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<td></td>
<td>- Taking each of the perspectives in turn (wildlife,</td>
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<td></td>
<td>farmers, science, veterinary)</td>
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<td></td>
<td>- How compelling are their points of view?</td>
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<td></td>
<td>- What makes their argument more compelling? Less</td>
</tr>
<tr>
<td></td>
<td>compelling?</td>
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<td></td>
<td>- Has hearing the different arguments changed your</td>
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<td></td>
<td>mind at all?</td>
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<td></td>
<td>- How?</td>
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<td></td>
<td>- What made you change your mind [probe specific</td>
</tr>
<tr>
<td></td>
<td>facts/ viewpoints]</td>
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<tr>
<td>14.45-15.00</td>
<td><strong>TEA BREAK</strong></td>
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<td>(15mins)</td>
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</table>
Timing | Task
---|---
15.00-16.00 (60mins) | SOLUTION-BUILDING EXERCISE

*In 6 break out groups of 8 (mixture of participants from different locations and attitudes in each)*

**Exercise in pairs/threes (15mins)**
- Imagine you are the government minister making the decision. You have heard all of these points of view. Discuss in your pairs/trios:
  - Would you introduce a cull, or not?
  - If so, which cull coverage option would you choose?

**Discussion (20mins)**
- Present back to the rest of the group
  - Moderator to note similarities/differences between pairs/trios
- What are the considerations in your decisions?
- Where is the consensus?
- What are the sticking points?

**Flipchart presentation (10 mins)**
- Moderator to note on flipchart:
  - What has the group decided?
  - Any sticking points/points of contention
  - The top 5 considerations informing this decision

**Communicating the decision (10 mins)**
- In communicating on the issues, what are the most important points to get across to people?
- What are the hardest things to explain? What (specifically) helped you understand the issues?
- **How** would you want/expect to hear about the decision?
- **Who** would you want/expect to hear from?

**Voting**
- Secret voting – each participant to receive a slip of paper and to indicate whether they personally would vote for or against a cull (to be collected in plenary)
<table>
<thead>
<tr>
<th>Timing</th>
<th>Task</th>
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<tbody>
<tr>
<td>16.00-17.00</td>
<td><strong>WRAPPING UP</strong></td>
</tr>
<tr>
<td>(60mins)</td>
<td><em>In plenary</em></td>
</tr>
<tr>
<td></td>
<td>▪ Participants to place their votes in the ballot box</td>
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<td></td>
<td>▪ Representatives from each of the groups to present back their</td>
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<td></td>
<td>▪ groups’ flipchart thoughts</td>
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<td>▪ <em>OLR to count votes while presentations are going on</em></td>
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<td></td>
<td><strong>Discuss</strong></td>
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<td></td>
<td>▪ Similarities and differences between groups</td>
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<td>▪ Anything you’ve heard from other groups you hadn’t considered</td>
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<td></td>
<td>before?</td>
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<td><strong>Response of the vote</strong></td>
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<td></td>
<td>▪ Lead moderator to announce result of the vote</td>
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<td></td>
<td>▪ How do you feel about the results – as you expected, or not?</td>
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<td></td>
<td>▪ Why?</td>
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<td>▪ What have been the most important factors in reaching the</td>
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<td>▪ decision to cull/ not to cull?</td>
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<td></td>
<td>▪ Finally – what do you think is the most important thing for the</td>
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<td>▪ government to bear in mind when it makes this decision?</td>
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<td><strong>Thanks and close</strong></td>
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<td></td>
<td>▪ OLR to thank participants</td>
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<td></td>
<td>▪ Thanks from Defra, and what happens next</td>
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<tr>
<td></td>
<td>▪   The next stage of the consultation process</td>
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<td></td>
<td>▪   How the decision will be made</td>
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<td></td>
<td>▪   How you’ll find out what the decision is (write to you/</td>
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<td></td>
<td>▪   website)</td>
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<td></td>
<td>▪ Participants to complete post-workshop questionnaires</td>
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<td>▪ Incentives</td>
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Appendix 2

Briefing notes used in regional workshops
**Factsheet 1: What is bovine TB?**

**Bovine tuberculosis (bTB)**
‘Tuberculosis’ (TB) is a serious disease of warm-blooded animals which comes from infection by organisms of the *Mycobacterium tuberculosis* (MTB) complex. This is a group of closely related bacteria that includes *Mycobacterium bovis* which causes TB in cattle and other mammals, and *Mycobacterium tuberculosis* which is the main cause of TB in humans.

**M. bovis**
Cattle, buffalo and bison, are the natural host of *M. bovis*, but nearly all warm-blooded animals could get the infection. This complicates the control of bovine TB, particularly as the infection can become established in wildlife species which in turn can become hosts of *M. bovis* for domestic animals. Humans can also be infected by *M. bovis*, however the risk of contracting TB from cattle in Great Britain is thought to be very low.

**M. tuberculosis**
TB in humans comes mainly from infection with *M. tuberculosis*, which is generally passed from person to person through the air by sneezing or coughing.

**How is bovine TB spread?**
There is still some uncertainty about bTB and the way it is passed on. Bovine TB is spread mainly through the swapping of respiratory secretions (like coughing and sneezing) between infected and uninfected animals. This usually happens when animals are in close contact with each other. So, animal density is a major factor in the passing on of *M. bovis*.

Bovine TB is a chronic disease and it can take years to develop as *M. bovis* grows very slowly. The lymph nodes in the animal’s head usually show infection first and over time lesions will begin to develop on the surface of the lungs and chest cavity.

The Government’s compulsory testing and slaughter programme means that most cattle are tested for bTB at least every four years. As the disease takes a long time to develop, this identifies most infected cattle before the disease can be seen.
**Cattle to cattle spread**
Cattle passing on the infection to cattle is a serious cause of the disease spreading. This is backed up by scientific evidence, most recently in a paper in the scientific journal “Nature”. (Gilbert, M et al. Cattle movements and bovine tuberculosis in Great Britain. Nature volume 435, pages 491-496 (2005)).

In November 2004, Defra announced new testing and control measures to help prevent further spread of bTB. Finding out the disease status of an animal prior to moving it and only letting those animals that are clear be moved will reduce the number of cattle with TB that are moved within the country and in turn the risk of disease spread. The introduction of compulsory pre-movement testing of cattle from 27th March 2006 will reduce the spread of bTB between herds in high risk areas and to areas free from disease. Please see the booklet “TB in Cattle – Reducing the Risk” for more information.

**Spread between badgers and cattle**
The evidence for a link between bTB in badgers and bTB in cattle was reviewed in 1997 by the Independent Scientific Review Group, led by Professor John Krebs. The Krebs group found that badgers were a major source of infection in cattle but were not able to state quantitatively what contribution badgers made to cattle infection. They recognised that scientific data were lacking and recommended that an experiment, the Randomised Badger Culling Trial (RBCT), be set up to look into the effect of culling badgers on TB in cattle.

**Further Reading**


**Department of Health (human TB):**

**Health Protection agency:**
Factsheet 2: History of bovine TB

1930s: bTB is widespread in Dairy herds.

Until the 1930's, a large number of dairy cows were infected with *M. bovis* (the bacterium that causes bovine TB). Many were kept near large cities so that urban dwellers could get fresh milk. Most were kept closely together in poorly aired cowsheds, which are ideal conditions for the disease to spread. Many cows got infections in the udders and, because most milk was drunk unpasteurised, *M. bovis* spread easily and was the major source of TB in humans. In 1934, a Government committee found that at least 40% of cows in dairy herds were infected with TB and estimated that at least 0.5% of cows produced tuberculous milk. It also found that bovine TB caused the deaths of over 2,500 of people and a larger amount of illness every year (over 50,000 new cases a year).

1947: The Introduction of voluntary testing of cattle to control bovine TB.

To try and control the problem, in 1947 the Government set up a voluntary scheme of tuberculin testing of cattle, slaughtering those that tested positive (reactors). To stop TB spreading to other herds moving cattle from farms that had case of bovine TB was stopped. This test and slaughter programme became compulsory in 1950, and by 1960 it had reduced the number of cases in cattle to a very low level. By mid 1960s, cases of Tb in cattle were only in a few places in South-West England. The test and slaughter scheme remains an important part of stopping its spread. Also, routine pasteurization of cows milk and inspections of cattle carcasses at slaughterhouse nave been brought in to further protect public health.

1971: The First Badger with Bovine TB is Discovered

In 1971 a dead badger infected with bovine TB was found on a farm that had an outbreak of the disease in its herd. This seemed to give backing to the theory that badgers are involved in passing on bovine TB in cattle. Over the years a number of different things have been tried to control the disease in cattle by culling badgers:

- **1975 – 1980.** MAFF staff carried out gassing operations to cull badgers.
• **1980.** Lord Zuckerman was asked to carry out a review of bovine TB. He found that badgers were probably a significant source of infection in cattle. Gassing operations had been stopped at the start of the review, however, the disease had seemed to have spread during this time. As a result Zuckerman recommended that culling start again this time using cage trapping followed by shooting as the original gas used (hydrogen cyanide) was found to be inhumane.

• **1982 – 1985.** As recommended by Lord Zuckerman a ‘clean ring’ culling strategy was used. This meant that social groups of badgers on and around breakdown farms were identified, trapped and a sample of carcasses from these groups were tested. Where infection was found, all badgers in the social group were culled. The ring extended out until groups with uninfected badgers were found. Trapping took place in a cleared area for a further six months to keep the area clean.

• **1986.** As recommended by Zuckerman, 3 years later, Professor Dunnet carried out a further review. This review found that some badger control was unavoidable. He recommended the use of an Interim Strategy plan until there was enough data from research and badger removal operations and the development of a reliable live diagnostic test for bTB in badgers. This plan involved the continued removal and culling of badgers only from farms where a bTB incident had been confirmed and where, following investigation it was thought that badgers were the most likely cause of the disease. During this time the incidence of bTB had increased in SW England and occurred in other areas which previously had no history of the disease.

• **1996.** Because of the continued increase in TB in cattle, it was clear by 1996 that the temporary strategy was not working so the Government asked Professor Krebs to carry out a further review. The Krebs group found that that “the sum of evidence strongly supports the view that, in Britain, badgers are a significant source of infection in cattle”. The group thought that scientific data were lacking and recommended that an experiment, the Randomised Badger Culling Trial (RBCT), be set up to look at the effect of culling badgers on TB in cattle (see fact sheet on the RBCT).

Current situation.

There has been a continued increase in the number of bovine TB incidents in Great Britain (as well as their length, where they happen and how severe they are). The number of cattle which had to be slaughtered because of bovine TB rose from 638 in 1986; to 5,884 in 1998; and to 22,571 in 2004. The long term surveillance programme shows that the long-term trend in Great Britain has been
an 18% increase every year in confirmed new incidents of the disease and a 20% increase in the number of cattle culled following a positive result to the tuberculin skin test.

The increased incidence of disease is worse in some parts of the country (the South West and West) than others.

Bovine TB is also costing more and more money. In 2004/5 financial year the disease cost the tax payer £90.5 million compared to £38.2 million in 1999/2000. This is forecast to continue to grow unless new action on the disease is taken.

Further Reading.


Chapter B2 of the Report of the Chief Veterinary Officer – Animal Health 2004. (can be found in your pack).

Consultation document (can be found in your pack).
The Government Strategic Framework for the Sustainable Control of Bovine TB in Great Britain.

A ten-year Government Strategic Framework for the sustainable control of bovine tuberculosis (bTB) in Great Britain was published in March 2005. The Government aims to bring about better control of bTB over the next 10 years.

The framework builds upon previous strategies. It sets out a vision for the future, new commitments and principles that will be applied to achieve these. Specific disease control policies will be tailored to reflect regional differences in disease and risk, and adjusted to make best use of new scientific findings.

It is vital that people recognise this isn't just a matter for Government. The effective control of this disease will only be possible in partnership with others including farmers, vets and wildlife groups. We all have responsibilities when tackling bTB and this new strategy says how we can work together to beat this disease.

Cattle based controls

The current cattle testing and slaughter regime will continue to be important in tackling bovine TB. Also, compulsory pre-movement testing of cattle will be introduced in England from 27th March 2006. Cattle moving out of herds in high-risk areas will be tested to help farmers reduce the risk of TB spreading to low risk ‘clean areas’. It will also reduce the risk to areas where the disease is well established. Pre-movement tests will be arranged and paid for by the herd owner. It is expected that 45,000 cattle movements will be subject to testing at a cost to the farming industry of £5 million per year.

Compensation

From February 2006 the Government brought in a compensation system that is fair to cattle owners and the taxpayer. There is now strong evidence to show that the current TB compensation arrangements have meant that some farmers have been paid too much for the value of their animals to the extent of some even making money. The industry will benefit from the incentive for all farmers to take steps to prevent introduction of bovine TB into their herd.
Public Consultation: Controlling the Spread of Bovine Tuberculosis in Cattle in High Incidence Areas in England: Badger culling

The main wildlife hosts for bovine TB in Britain are badgers. Results from the proactive part of the Randomised Badger Culling Trial (see factsheet 4) together with other scientific evidence (such as the Thornbury experiment and the four areas trial in Ireland), has led Government to decide that an open consultation is needed to help decide whether or not to introduce badger culling as a bovine TB control measure.

In deciding, the Government will look at scientific evidence, how successful a cull would be in reducing bovine TB in cattle, how much it costs, practicality, acceptability and sustainability.

No decision has been taken yet on whether to cull badgers or not.

The government is looking at 3 possible options, all using some form of licensing that could be used if badger culling is introduced:

- **Individual licensing.** Issuing licenses to kill badgers to prevent the spread of bovine TB as and when an application is made under the Protection of Badgers Act 1992.
- **General cull over large areas.** General culling over large areas, through either farmer/landowner co-ordinated groups or a combination of state and farmer/landowner involvement. This would cover high incidence areas but not be linked to specific farm or landholding.
- **Targeted culling over specific areas linked to herd incidence.** Targeted culling would involve choosing an area based on affected farms, and therefore, close to herds which have a history of bovine TB. This option could be managed and the cull run by local landowners, farmers or their agents working in co-ordinated groups.

While the scientific advice suggests that badger culling can reduce bovine TB in cattle, there is uncertainty about the benefits of particular badger culling options. There is evidence that some options may bring little benefit or even make matters worse because the disruption of badger social groups leads to an increase in bovine TB in herds at the edge of culling areas. However, any measures to reduce the number of cases, or control the spread of bovine TB, are likely to benefit the general health of wildlife, including badgers, as well as cattle.

As well as consulting on the principle of culling, the public’s views are sought on which of these options could form the basis for an effective and humane culling policy to control the spread of bovine TB in cattle.
Ongoing Research

The Government is urgently researching measures to combat bovine TB. This includes continuing scientific research into improved testing; vaccine development and epidemiology. Developing an effective vaccine for badgers is one of the long term aims of the research. It is likely to be at least 10 years before widespread vaccination (given by mouth) could be introduced. Work on developing and testing vaccines for cattle is also underway. However, the disease trends means it is likely that vaccination alone would not be enough to control the increasing number of cases. Vaccination even when ready would probably have to be used alongside with other possible methods of controlling the disease, such as, culling of badgers and/or cattle, in order to be effective.

Further Reading

Government Strategic Framework for the sustainable control of bovine tuberculosis (bTB) in Great Britain.


Consultation Document (can be found in your pack)

Pamphlet TB in Cattle – Reducing the Risk (Can be found in your pack)
Factsheet 4: Randomised Badger Culling Trial

Introduction

The Independent Scientific Group on Cattle TB (ISG) set up the Randomised Badger Culling Trial (RBCT) to look at the role of badgers in passing on bovine tuberculosis (bTB) to cattle. The trial would allow scientists to find out the amount of bTB outbreaks in cattle caused by badgers and to see if a badger cull could help to control the disease.

As Professor Krebs was the scientist who first recommended that the trial take place, the trial is sometimes also known as the Krebs trial.

How was the trial carried out?

The trial was carried out in parts of the country that have had a large number of bTB cases in cattle and are areas of increased bTB risk. Within these counties 30 areas of around 100km² were selected. The areas were grouped into 10 sets of three, known as ‘triplets’. One of three treatments was then randomly allocated to each area.

Reactive: Badgers were only culled on and around farms following bTB outbreaks.

Proactive: As many badgers as possible were culled in the whole area and badger numbers are kept as low as possible.

Survey: This is the control for the experiment. No badgers were culled but the land is surveyed for details of badger activity.

During the trial surveying for badger activity was carried out in all three treatment areas.

Badger culling in the trial was completed in Winter 2005, survey work will continue into 2006.
Impact on badgers

Badger welfare issues were a major consideration of the ISG and Defra in setting up and carrying out the trial. Badgers were caught using cage traps and then shot at close range.

Culling also stopped between February to April to protect female badgers that were nursing cubs.

Results from the Reactive culling.

An analysis of trial data entered on the trial data base up to the end of August 2003 showed that, compared to areas where no culling took place, there was an increased risk of bovine TB (bTB) in trial areas where reactive culling had taken place. The ISG estimated that in these areas the incidence of bTB increased by 25%.

This conclusion was reached after taking into account factors other than culling (e.g. history of cases in the area, number of herds, herd size etc) which may have an impact on the number of cases in a particular area.

In light of these results Ministers announced on 4 November 2003 that culling in reactive areas was to stop immediately.

Results from the Proactive culling.

On 14th December 2005 the ISG published interim analysis of the data from the culling areas in the scientific journal Nature. This showed that in areas where proactive culling had taken place there was a 20% decrease in the incidence of bTB, compared to areas where no culling happened. However, the analysis also showed that on the edge of the culling area there was a 27% increase in the incidence of bTB.

The ISG believe that the increase in bTB associated with proactive culling is caused by the displacement of badger populations (perturbation effect). Badgers are highly territorial and will aggressivly defend their territory from other badgers. The theory of the ISG is that culling badgers disrupts their territorial organisation, resulting in badgers travelling further than they would normally do. This would mean that any remaining badgers with bTB could potentially spread the disease more widely.

The final analysis of the RBCT data by ISG is due early in 2007.
Further Reading

Defra web pages in bovine tuberculosis:
www.defra.gov.uk/animalh/tb/index.htm


The interim analysis by the ISG (Positive and negative effects of widespread badger culling on tuberculosis in cattle) can be found in your briefing pack.
Factsheet 5: The Protection of Badgers Act

Introduction

Badgers were first given protection under the Badgers Act 1973 and badger setts under the Badgers Act 1991. The Protection of Badgers Act 1992 brought together the earlier laws.

Summary of the Protection of badgers Act

The 1992 Act makes it an offence to:
1. Kill, injure or take a badger
2. Cruelly ill-treat any badger
3. Interfere with a badger sett

Licensing Powers

Under the 1992 Act, Licences may be issued by the Agricultural Departments for the following purposes:

a) to interfere with badger setts for the purpose of;
   1. any agricultural or forestry operation;
   2. any operation to maintain or improve any existing watercourse or drainage works, or to construct new works required for the drainage of land, including works of defence against seawater or tidal water;
   3. controlling foxes in order to protect livestock and penned game.

b) to kill or take badgers or to interfere with their setts for the purpose of;
   1. preventing serious damage to land, crops, poultry or any other form of property;
   2. preventing the spread of disease.

Further Reading

A copy of the Protection of Badgers Act, 1992 can be found on this web site: www.opsi.gov.uk/acts/acts1992/Ukpga_19920051_en_1.htm#end
Factsheet 6: Methods of Culling

Introduction

If it is decided to cull badgers, the Government will need to decide how to capture and kill them. They will need to think about a number of things – what is practical and effective, if the methods are humane and if they will damage the environment.

Poison

Poisons have been ruled out by government due to reasons of humaneness, risk to other species (including humans) and the risk of damaging the environment.

Cage trapping and shooting

This method, as used in the Randomised Culling Trial (RBCT) involves catching badgers in a specially designed cage trap. The badgers are then shot at close range causing instant death.

Government does not propose to license this method for use in a wider cull as the shooting of the captured animal can only be carried out safely and humanely using a hand gun, an option not generally available to farmers.

Cage trapping also proved to be inefficient in the RBCT

Gassing

In the past gassing of badger setts using hydrogen cyanide has been used for culling badgers but due to concerns with humaneness and effectiveness the use of this gas has been stopped.

A recent review of gassing has found that Carbon Monoxide is a relatively humane gas and is a possible candidate for use. Lethal doses of the gas are given using a detuned petrol engine or a new model of Australian gassing machine.

Recent computer modelling work has shown that there are problems with the gas reaching high enough doses throughout a sett due to its complex structure. This has raised concerns over less than lethal doses being experienced by some badgers, particularly new born cubs.
The computer model is to be tested against a real situation. An artificial sett has been constructed and will be gassed under test conditions using a de-tuned petrol engine. Gas temperatures and concentrations will be measured as will the level of irritants which may be present in the exhaust fumes. The report of this work will be ready in May 2006.

It is likely that more work will need to be carried out to develop this option, therefore it is not likely that gassing with carbon monoxide will be available before May 2007.

Use of Body Snare

The design and use of a proposed body snare for capturing and holding a badger is different from neck snares used for foxes or rabbits. The purpose of the snare will be to restrain a badger until it is shot. Trials are currently happening to find out the most appropriate design for a badger body snare.

The proposed snare is based on the design used in the four areas trial in Ireland. To minimise the possibility of the wire cutting into skin and muscle the cable being trialled is bigger than the one used for fox snares (5mm in diameter instead of 1.5mm). The trial badger body snare is free running, with no damaging sharp edges and with 2 swivels in the anchor chain to stop it tangling and twisting. The Badger Body Snare will be aimed to catch around the body, not around the neck. It will usually be set in fairly level ground to ensure that any captured animal can stay on its feet and not be hanging down into sett entrances, down banks etc. It is proposed that the time between setting and inspection of a badger body snare should be no more than 4 hours.

Clearly the use of snares to take badgers is currently illegal therefore there will be no expertise in the industry. We are currently drafting a detailed Code of Practice on the use of badger body snares which will need to be updated as the trials progress.

Shooting of free running badgers

There are two possible ways that unrestrained badgers could be controlled by shooting. One way would involve spotting badgers on open ground with a high powered search light and shooting with a high velocity rifle. The second way would be to shoot badgers at the sett, possibly from a platform with a similar gun. If rifles were to be used firearm certificates would need to be changed to cover badgers.

Further reading
For further information see (please note the paper contains detailed descriptions of killing techniques which you may find distressing):
Factsheet 7: Badgers

Introduction
Eurasian badgers are easily recognised by the obvious black and white stripes running from the nose to the shoulders. They are stocky animals with short black legs and silvery grey backs. They belong to the weasel family also known as mustelidae. Badgers come out at night and are adapted to living underground.

Statistics
• Size: 56-80 cm (including tail, which is approx 15cm)

• Weight: 8-12kg

• Life span: up to 14 years

• Population: estimated at around 300,000.

• Location: In Britain most badgers are found in south west England, Wales and small areas of north east England

Habitat
Badgers live in a network of underground tunnels called setts, which they dig using their strong claws. They live in social groups of up to 12 individuals and will live in one sett but may also use others. Setts have a number of entrances and passages and are passed down through generations of badgers. Badgers prefer to build their setts in areas with cover i.e. woods and copses, and like areas that are next to pasture land.
Badgers are territorial and may have a territory of up to 375 acres. They can fiercely defend their territory against other badgers and mark the borders using dung and odour.

Diet

Badgers eat a wide range of plants and animals. They have a varied diet depending on the time of year and will scavenge for food rather than hunt. They mainly eat earthworms but will also include frogs, rodents, birds, eggs, lizards, insects, bulbs, seeds and berries, and cereals.

Reproduction

Badgers have an unusual method of breeding known as “delayed implantation”. They can mate at any time of year but their fertilised eggs do not develop until winter, meaning that cubs are usually born between January and March. This increases the cubs’ chances of survival and increases the badgers’ chances of mating.

A litter of cubs has between one and six cubs which are born after a gestation period of 6-8 weeks. They become independent from their mothers at about 15 weeks old.
Frequently asked questions

Bovine TB

1. What causes bovine tuberculosis?
   See factsheet 1.

‘Tuberculosis’ (TB) is a serious disease of warm-blooded animals arising from infection by organisms of the *Mycobacterium tuberculosis (MTB)* complex. This is a group of closely related bacteria that includes *Mycobacterium bovis* which causes TB in cattle and other mammals, and *Mycobacterium tuberculosis* which is the main cause of TB in humans.

Cattle, buffalo and bison, are the natural host of *M. bovis*, but nearly all warm-blooded animals can get the infection. In fact, compared to other bacteria of the MTB complex, *M. bovis* has a very broad range of animal hosts. This complicates the control of bovine TB, particularly when the infection becomes established in wildlife species. Wildlife species can also become hosts of *M. bovis* for domestic animals.

2. Are humans at risk from bovine TB?
   See factsheet 1.

Humans can be infected with bovine TB. Human infection with *M. bovis* can also cause TB that cannot be told apart from that caused by *M. tuberculosis*. It is most common in developing countries.

In developed countries TB in humans comes mainly from infection with *M. tuberculosis*, which is generally passed on from person to person through the air by sneezing or coughing.

The risk of people contracting TB from cattle in Great Britain is considered very low. At present, less than 1% of all confirmed cases of TB in humans are due to infection with *M. bovis*. This is similar to the situation reported in most developed countries.

3. Are any other species at risk from the disease?

Nearly all warm-blooded animals are susceptible to the infection (see question 1).

Cattle

4. Why don’t we simply vaccinate cattle?
Our current test for TB cannot tell vaccinated and infected cattle apart. A vaccine could make cattle react to the test in the same way as the infection does. Under current European law this would mean that cattle from these herds would lose their Officially Tuberculosis Free status and be placed under movement restrictions. So Defra is paying for the development of a specific diagnostic test which can detect and differentiate between infected animals and vaccinated animals.

The cattle natural transmission work studying possible candidate vaccines started at the Veterinary Laboratories Agency (VLA) in January 2006. This will run alongside existing studies at the Veterinary Laboratories Agency and the Institute of Animal Health. These are 5 year projects.

5. How are cattle tested for TB?

See Pamphlet – TB in Your Herd

The tuberculin (or skin test) is used to routinely test herds. This involves injecting small amounts of bovine tuberculin and avian tuberculin into the skin of the neck and comparing the swelling of the skin 72 hours later. An animal tests positive for bovine TB if the swelling associated with the bovine tuberculin is larger (by a defined amount) than the swelling associated with the avian tuberculin. This is called the single intra-dermal comparative cervical test (SICCT) commonly known as the skin or tuberculin test. The SICCT is the only skin test currently used in Great Britain for the detection of TB in cattle.

6. Is the test for bovine TB accurate?

It is as accurate as possible at the current time. No diagnostic test, including the tuberculin test is 100% accurate. When used as a routine screening test, the SICCT is designed to maximise specificity (identification of uninfected animals), whilst retaining good sensitivity (identification of infected animals). The sensitivity for a correctly performed SICCT is between 77% and 95%. Its specificity is above 99%. It is designed to detect an immune response at a relatively early stage in the infection process. Therefore, in most cases, cattle that react to the skin test are considered to have bovine TB.

7. What is the gamma interferon test?

The laboratory-based gamma-interferon test was officially recognised by the EU in July 2002, but only for use as a supplement to the skin test in TB affected herds. The test is considered more sensitive than the skin test, but less specific,
meaning that it can identify uninfected animals as infected. Although the gamma interferon test is not sufficiently specific to replace the skin test, the use of the two tests in parallel could significantly increase the detection of infected cattle in herds where TB has been confirmed.

Preparations are being made for wider use of the gamma-interferon test (in prescribed circumstances). A Gamma-Interferon Working Group has been set up to prepare and deliver a policy for increased use of the test.

**Pre-movement Testing**

See pamphlet TB in Cattle – Reducing the Risk.

**8. What is pre-movement testing?**

From 27 March it will be a legal requirement to test cattle in high incidence areas before moving them to other herds. This is to help reduce the risk of spreading bTB between herds in high risk areas and to herds in areas free from the disease.

**9. Why are cattle measures important?**

Effective cattle controls are vital as there is clear evidence that movements of cattle contribute to the spread of bTB.

**Compensation**

**10. What is the compensation scheme?**

*Cattle owners are routinely compensated for cattle slaughtered as bovine TB reactors.*

The compensation scheme was changed in February 2006. Unless cattle owners have chosen to slaughter the animals privately, compensation will be payable for an animal, at the level of the average sales price for that animal's bovine category.

The Cattle Compensation (England) Order 2006 sets out the detail. Animal Health Divisional Offices (AHDOs) have details of current tables and compensation amounts payable for each affected animal. New compensation rates are calculated before the start of each calendar month - updated tables, detailing the rates, are on Defra's website.
Badgers

11. How many badgers are there in England?

Difficult to know an exact figure but believed to be approximately 300,000 – 400,000.

12. What have badgers got to do with bovine TB?

See Factsheet 4.

Badgers are the main wildlife host of bovine TB in this country. Significant interim results from the proactive element of the Randomised Badger Culling Trial, together with other scientific evidence such as the Irish Four Area Culling Trial, led Government to decide that consultation was needed to help decide whether to introduce badger culling as a bovine TB control measure.

13. Why are there proposals to cull badgers to control the disease?

See factsheet 3 & 4

Scientific evidence supports the view that badgers are a significant source of infection in cattle, and that culling badgers can have an effect on cattle TB.

Current advice from vets is that the most effective method to reduce bovine TB in high incidence areas and keep unaffected areas clean, is a combination of measures that manage both badger-to-cattle and cattle-to-cattle transmission.

14. Aren’t badgers legally protected by the Protection of Badgers Act?

See Factsheet 5

Badgers are protected from cruelty under the Protection of Badgers Act.

The 1992 Act makes it an offence to:

1. kill, injure or take a badger
2. cruelly ill-treat any badger
3. interfere with a badger sett
However, under the Act Defra is permitted to grant licenses to kill badgers or to interfere with their setts to prevent serious damage to land, crops, poultry or any other form of property and to prevent the spread of disease, including TB.

Badgers are not an endangered species.

15. Can’t we simply vaccinate badgers?

This is the Government’s long term goal. A 3 year badger vaccine field study to provide data on safety and how effective it is for licensing injectable BCG (TB vaccine) is due to start in mid 2006. Preparatory work is now underway. It is to be led by the Veterinary Laboratories Agency (VLA) with Central Science Laboratory input in the field work. Longer term work on oral vaccine formulations and bait preparations is being taken forward by VLA in January 2006.

It is likely that vaccine, when available, would have to be used alongside other possible methods of controlling the disease, such as, culling of cattle and badgers, in order to be effective.

16. Why can't we trap the badger, test them and let the healthy ones go free?

There is currently no test for use on live badgers in the field that is sufficiently reliable to be certain that the badgers that seem to be negative are indeed free of disease.

There are two issues:

(1) There is as yet no test that is practical for field use in badgers: Various tests for bTB are currently being looked at for use in wildlife species, including badgers, but there are practical limitations restricting their use in the field. Work is being carried out to develop and validate a robust “trap-side” test. There can be uncertainty in the interpretation of all test results, especially when using them to confirm freedom from infection.

(2) Badgers would have to be held in cages while awaiting test results: Using the currently available, validated testing techniques, the time taken to get a valid result is a minimum of several days (even in cattle) and the badgers would have to detained in cages for this time; or marked, released and recaptured, which would pose both welfare and logistical problems.
17. If it is decided that a cull should take place, who will carry out the culling?

Farmers/landowners and their agents (e.g. gamekeepers) would be licensed to carry out a cull.

18. How will the badgers be killed?

See Factsheet 6.

This is one of the questions that the consultation is asking for views on. If we did decide to cull we would need to balance practicality, efficiency cost effectiveness and humaneness of the different methods.

19. Are you planning to get rid of badgers from whole areas of the country?

No. The aim of a cull would be to reduce the badger population so as to reduce the likelihood of contact between cattle and badgers and not to get rid of all badgers. The numbers killed will depend on the area and the population of badgers in that area. We would not be seeking to remove a specific number.

As the consultation document says, we will be monitoring the numbers culled to protect the badgers as a species. A population survey has been commissioned from the Central Science Laboratory so the impact of any badger culling policy can be monitored.

20. Does other wildlife also carry bovine TB?

Yes, other wildlife can carry bovine TB e.g. deer. However, scientific evidence has shown the disease is much more widespread in badgers, who are the main wildlife host.
### Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>AHWS</strong></td>
<td>Animal Health &amp; Welfare Strategy</td>
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<tr>
<td><strong>Badger Baiting</strong></td>
<td>Illegal blood sport where badgers are made to fight a number of dogs.</td>
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<td><strong>BCVA</strong></td>
<td>British Cattle Veterinary Association</td>
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<tr>
<td><strong>Bio-security</strong></td>
<td>A series of measures and protocols designed to prevent the spread of potentially harmful biological agents</td>
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<tr>
<td><strong>Boar</strong></td>
<td>An adult male badger</td>
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<tr>
<td><strong>Bovine tuberculosis (bovine TB or bTB)</strong></td>
<td>A disease caused by the mycobacterium <em>M.bovis</em></td>
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<tr>
<td><strong>Breakdown (or bTB incident)</strong></td>
<td>When one or more reactors are revealed by the tuberculin test, or when disease is suspected in live cattle showing clinical disease or in carcasses with lesions at post-mortem examination</td>
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<tr>
<td><strong>BVA</strong></td>
<td>British Veterinary Association</td>
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<tr>
<td><strong>Carbon Monoxide</strong></td>
<td>A poisonous gas caused by incomplete burning of carbon. This gas is found in car exhaust fumes.</td>
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<tr>
<td><strong>CAP</strong></td>
<td>Common Agricultural Policy</td>
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<tr>
<td><strong>Clean Ring</strong></td>
<td>Social groups of badgers on and around breakdown farms are identified, trapped and a sample of carcasses from these groups are tested. Where infection was found, all badgers in the social group were culled. The ring extended out until groups with uninfected badgers were found.</td>
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<tr>
<td><strong>Closed Herd</strong></td>
<td>A farming method where no cattle are bought in and all replacement cattle are bred on farm.</td>
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<td><strong>Cow</strong></td>
<td>A female that has had one or more calves</td>
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<tr>
<td><strong>Cub</strong></td>
<td>A young badger</td>
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<tr>
<td><strong>Cull</strong></td>
<td>To reduce the number if animals by selective slaughter</td>
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<tr>
<td><strong>Cull cow</strong></td>
<td>A cow that has been removed from the dairy herd or beef breeding herd to be sent to slaughter</td>
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<tr>
<td><strong>CVO</strong></td>
<td>Chief Veterinary Officer</td>
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<tr>
<td><strong>Dairy Cow</strong></td>
<td>A cow that is kept mainly for producing milk or rearing</td>
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<td>Term</td>
<td>Definition</td>
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<tr>
<td>calves for a dairy herd</td>
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<tr>
<td>Dam</td>
<td>Mother cow of a calf</td>
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<tr>
<td>Defra</td>
<td>Department for Environment, Food and Rural Affairs</td>
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<tr>
<td>Epidemiology</td>
<td>The study of the spread and control of disease</td>
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<tr>
<td>Endemic disease</td>
<td>A disease present in an animal population in GB on a continuous basis</td>
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<tr>
<td>Finishing (or fattening)</td>
<td>The final stage of beef production on a farm, involving appropriate feeding of cattle to produce good quality beef animals for slaughter</td>
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<td>FMD</td>
<td>Foot and mouth disease</td>
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<tr>
<td>Gamma interferon g-IFN (IFNγ)</td>
<td>A product of white blood cells generated during an immune response</td>
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<tr>
<td>Heifer</td>
<td>A female cow yet to have a calf</td>
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<tr>
<td>Incidence</td>
<td>The rate at which new cases of infection arise in a population</td>
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<tr>
<td>Interim Strategy</td>
<td>The temporary badger culling and cattle testing strategy carried out in the 1980’s and early 1990’s in the UK.</td>
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<td>Krebs trial</td>
<td>Aka the Randomised Badger Culling Trial.</td>
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<td>ISG</td>
<td>Independent Scientific Group on Cattle TB</td>
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<td>LA</td>
<td>Local authority</td>
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<tr>
<td>Lamping</td>
<td>Method of hunting where animals are spotted at night using a high powered torch and then shot with a rifle.</td>
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<tr>
<td>M. bovis</td>
<td><em>Mycobacterium bovis</em> – bacteria which causes bovine TB</td>
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<tr>
<td>M. tuberculosis</td>
<td><em>Mycobacterium tuberculosis</em> – bacteria which cause tuberculosis in humans</td>
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<td>MDC</td>
<td>Milk Development Council</td>
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<td>MLC</td>
<td>Meat and Livestock Commission</td>
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<td>NBA</td>
<td>National Beef Association</td>
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<td>NFU</td>
<td>National Farmers’ Union</td>
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<td>Term</td>
<td>Description</td>
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<tr>
<td>Omnivore</td>
<td>An animal that eats both plants and meat e.g. the badger</td>
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<tr>
<td>Pasteurisation</td>
<td>A heating process carried out on milk to destroy most of the micro-organisms in it.</td>
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<tr>
<td>Perturbation effect</td>
<td>The disruption of badger social groups by culling which results in badgers travelling further than they would do normally.</td>
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<tr>
<td>Pre-movement testing</td>
<td>Testing of cattle before they are moved from their farm of origin.</td>
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<tr>
<td>Prevalence</td>
<td>The proportion of a population infected at a particular time</td>
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<td>RABDF</td>
<td>Royal Association of British Dairy Farmers</td>
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<tr>
<td>RBCT</td>
<td>Randomised Badger Culling Trial also known as the Krebs trial.</td>
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<tr>
<td>RCVS</td>
<td>Royal College of Veterinary Surgeons</td>
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<tr>
<td>Reactor</td>
<td>An animal which gives a positive result (i.e. reacts) to the tuberculin test</td>
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<tr>
<td>Replacement(s)</td>
<td>Cattle bred on farm to replace breeding stock</td>
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<tr>
<td>RIA</td>
<td>Regulatory Impact Assessment</td>
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<tr>
<td>Sett</td>
<td>The series of underground tunnels in which badgers live.</td>
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<tr>
<td>Skin Test</td>
<td>The test for bovine TB that is carried out on cattle.</td>
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<tr>
<td>Sow</td>
<td>An adult female badger</td>
</tr>
<tr>
<td>Specificity</td>
<td>Proportion of uninfected animals correctly identified</td>
</tr>
<tr>
<td>Spoligotyping</td>
<td>A molecular typing technique used to distinguish different strains of the TB organism</td>
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<tr>
<td>Store Cattle</td>
<td>Young beef cattle that are kept on a low maintenance diet over the winter months in preparation for finishing in the summer</td>
</tr>
<tr>
<td>Steers (or Bullocks)</td>
<td>Male calves that are raised for beef production and usually castrated at 6 to 12 weeks</td>
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<tr>
<td><strong>Suckler (or beef cow)</strong></td>
<td>A cow kept mainly for producing and rearing cows for a beef herd</td>
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<tr>
<td><strong>Suckler calf</strong></td>
<td>The offspring of a suckler cow</td>
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<tr>
<td><strong>SVS</strong></td>
<td>State Veterinary Service: A GB Wide government Agency operating a network of veterinary, technical and administrative staff</td>
</tr>
<tr>
<td><strong>TB</strong></td>
<td>Tuberculosis</td>
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<tr>
<td><strong>Tuberculin</strong></td>
<td>A sterile protein extract derived from the tubercle bacterium, used to diagnose TB in cattle by skin testing</td>
</tr>
<tr>
<td><strong>Vaccine</strong></td>
<td>That used to prevent disease by stimulation of an immune response to the causative agent</td>
</tr>
<tr>
<td><strong>Veterinary Surveillance</strong></td>
<td>Process of collecting information about all aspects of animal health and welfare so as to characterise animal diseases and assess their level and distribution in order that action can be taken if necessary</td>
</tr>
<tr>
<td><strong>VLA</strong></td>
<td>Veterinary Laboratories Agency: Executive agency of DEFRA that provides all sectors of animal health industry with animal disease surveillance, diagnostic services and veterinary scientific research</td>
</tr>
<tr>
<td><strong>WAG</strong></td>
<td>Welsh Assembly Government</td>
</tr>
<tr>
<td><strong>Warm blooded</strong></td>
<td>The ability to maintain a constant body temperature through chemical processes e.g. mammals and birds.</td>
</tr>
<tr>
<td><strong>Young bulls</strong></td>
<td>Male calves that have not been castrated</td>
</tr>
<tr>
<td><strong>Zoonosis</strong></td>
<td>Disease communicable between animals and man</td>
</tr>
</tbody>
</table>
Useful Websites

**Defra**

Main site  www.defra.gov.uk

Defra TB Division  www.defra.gov.uk


**Wildlife Lobby**

RSPCA  www.rspca.org.uk

Badger Trust  www.badger.org.uk

Coalition of Badger Groups  www.badger-killers.co.uk

Wildlife Trusts  www.wildlifetrusts.org

Mammal Society  www.abdn.ac.uk/mammal/

**Farming Lobby**

National Farmers Union  www.nfu.org

National Beef Association  www.nationalbeefassociation.co.uk

Tenant Farmers Association  www.tenant-farmers.org.uk/taf/

**UK Agricultural Departments**

Northern Ireland  http://www.dardni.gov.uk/

Wales  http://www.countryside.wales.gov.uk/

Scotland  http://www.scotland.gov.uk/

Topics/Agriculture
**Briefing pack: Extra information**

1. Press articles on bovine TB
   
   I. *The Culling Fields: Government Announces consultation on badger control*, The Independent, 16\textsuperscript{th} December 2005

   II. *A persistent problem*, Citizen – Gloucester, p. 16, 4\textsuperscript{th} February 2006

   III. *Strong opposition to culling*, Citizen – Gloucester, p.20, 7\textsuperscript{th} February 2006

   IV. *Cull Badgers or we’ll quit, farmers tell MPs*, Western Morning News, p.26, 8\textsuperscript{th} February 2006

   V. *Positive and Negative Effects of Widespread Badger Culling on Tuberculosis in Cattle*, Nature Vol 439, 16\textsuperscript{th} February 2006

2. Website printouts:

   I. Badger Trust – Bovine TB Strategy December 2005

   II. National Farmers Union – Badgers And Bovine Tuberculosis: The Facts

3. Research, policy and consultation documents:

   I. Defra consultation document: Controlling The Spread Of Bovine Tuberculosis In Cattle In High Incidence Areas In England – Badger Culling

   II. TB in Cattle – Reducing The Risk (Defra document PB10070)

   III. Government Strategic Framework For The Sustainable Control Of Bovine Tuberculosis In Britain (Defra document PB10528)

   IV. Annex B: Badger Management As Part Of A Balanced Approach To The Control Of Bovine TB (Partial Regulatory Impact Assessment)

   V. Dealing With Bovine TB In Your Herd (Defra, February 2006)

   VI. Report of the Chief Veterinary Officer – Animal Health 2004; Chapter B2: Tuberculosis In Cattle
Appendix 3
Panellist presentations

The scientific perspective

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**Badgers and Cattle TB – The Scientific View**
Richard Clifton-Hadley,
Veterinary Laboratories Agency

1) Is the badger involved?
- Field surveys
- Laboratory-based studies
- Wildlife studies
- Typing data
- Badger clearances

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**Badgers and Cattle TB - the Evidence**

- Field surveys:
  a) Infected with TB, clinical cases: "an ideal host for TB infection"
  b) Surveys indicate infected badgers often near herds with TB, set data by
  c) In national survey, 6% of badgers infected where TB was a cattle problem, 0.75% elsewhere

- Laboratory-based studies:
  a) Experimental TB transmission by injecting Mycobacterium bovis
  b) Experimental TB transmission between badgers and cattle

- Wildlife studies:
  a) Surveys where no other species but badgers infected
  b) Other species with pathology showing no spread
  c) Prevalence in deer species
DNA fingerprints

Near 100% geographical match of DNA types in the two species

Thornbury Intervention Study

- Badgers culled for 5 years
- No TB in cattle for 10 years

Key:
- Intervention Area
- Severn Estuary
- Comparison Area
- Motorway
- Railway
2) Does badger culling work?

Irish trials:
- East Offaly – TB reduced to a third of the national rate: 26% reduction
- Four areas trial – TB reduced by 51-66%

Randomised Badger Culling Trial: Proactive cull analysis

- The issue of trapping efficiency: 20-60%
- Reasons for poor trapping efficiency:
  - a) Land owner consent
  - b) Trapping method
  - c) Interference

Trial findings:
- Culled periphery: 13% improvement
- Culled core: 20% improvement
- Unculled edge: 29% deterioration

If areas were completely circular, then the culled core would be 42km², the culled periphery would be 38km² and the unculled 2km-wide edge would be 63km².
3) What can we conclude from the scientific evidence?

- Badgers get TB, more than any other GB wildlife species
- Much of the evidence for TB spread to cattle is about association, not necessarily causation
- "The sum of this evidence strongly supports the view that badgers are a cause of herd breakdowns" - Krebs Report 1997
- Extensive culling has a positive effect of varying size but may also be having a negative effect outside the culled areas
Veterinary perspective

BOVINE TB
THE VETERINARY VIEW

Bovine TB and Badgers Consultation
Citizens Panel Workshop
Holiday Inn, Bloomsbury
11 March 2006

John Montague, Veterinary Adviser
TB Division,
DG Animal Health and Welfare

REASONS TO CONTROL BOVINE TB

• Protection of Public Health
• Protection of Animal Health and Welfare
• International Obligations
• Viability of British Agriculture
DISEASE CYCLE

- Badger is principal reservoir host for disease in cattle
- Consultation focuses on disease control options to reduce risk of TB transmission of highlighted part of cycle

DISEASE CONTROL

General Principles of Disease Control
- Prevention is better than cure
- Identify and remove all sources of infection to the target species
- Control procedures are sustainable, humane and effective

Bovine TB Control
- Bovine TB no different to other infectious diseases
- Necessary to make decisions to take action in face of an equivocal evidence base
MANAGEMENT OF BOVINE TB RISK FROM BADGERS

- Objective of the disease management options is to reduce:
  - the rate of direct contact between cattle and infectious badgers; and
  - indirect contact of cattle with an infected environment.
- This can be achieved by decreasing:
  - the number of infected badgers
  - severity of infection in the badgers
  - separating cattle from badgers and their excretions

VETERINARY ADVICE

Veterinary advice is that the best currently available management options for reducing the level of both direct and indirect transmission of bTB from badgers to cattle are a combination of:

- Culling infected badger social groups to reduce:
  - The frequency of contact of infected badgers with cattle
  - The level of contamination of the shared environment
  - Altering farm management practices to minimise high risk interactions:
    - Limit access of badgers to the farm in both housing and pasture, e.g. cattle feed stores; and
    - Exclude cattle from badger sets and latrine areas

NB. Neither are straightforward, cheap or certain in outcome
VETERINARY OVERVIEW

Veterinary perspective is that addressing and minimising the risk from the badger reservoir is an ESSENTIAL COMPONENT of a comprehensive and balanced strategy to reduce bTB in the national cattle herd.

Without effective reduction of the risk from badgers, the disease problem will worsen and extend geographically with ever increasing costs to the industry, Government and wider society, and threaten the health of the public and worsen the health and welfare of animals.
The wildlife perspective

Sustainable bovine TB control

- Dedicated to the conservation and welfare of Britain’s badgers.

BADGER TRUST

About Trevor Lawson

- First class honours in Environmental Science
- A journalist for 18 years
- My wife is Dr Elaine King
- Who is looking after our six-month old baby
About the Badger Trust

- A member of Wildlife & Countryside Link
- Partners include the National Trust, Wildlife Trusts & RSPCA.
- Partner of the Year 2005, in the Partnership Against Wildlife Crime
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Our view is based on sound science:

• Defra’s Science Advisory Council reports that “badger culling is unlikely to be effective unless and until all measures to reduce cattle to cattle transmission are successfully implemented”.
Sir David Attenborough says

- Culling would have to be over “at least” several hundred km²
- With “no gaps”
- Using humane and publicly acceptable means
- With no interference
- And effective implementation and coordination

Most importantly, he adds

- Culling “would also need an open-ended commitment until an exit strategy allowed it to be replaced by an as yet unknown solution”.

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Sir David’s alternatives

- “In contrast to these unpromising prospects for a badger cull, it is well established that the main source of infection in cattle is from other cattle.”

Sir David’s alternatives

- Cattle movement controls
- Improved TB surveillance and cattle testing
- Vaccine development
- Improvements in biosecurity, animal husbandry and farmland management.
Sane solutions

- Movement of infected livestock is the key problem to be addressed.
- Pre-movement testing is vital

- But many herds already infected
- TB continues to infect new herds and wildlife

- Post-movement TB skin testing and gamma interferon will quickly reduce TB in cattle
- This means short term pain (compensation) for rapid gain (less disease)

- Herd biosecurity should minimise risk from wildlife but more research urgently needed
- Likely to mean protecting housing, feed and water... and funding farmers to do it

- These are positive solutions that will boost animal welfare and satisfy tax payers
Who can you believe?

- Scientists say that Defra’s consultation is:
  “inaccurate in important respects”, contains claims for which there are “no scientific data”, which are “without foundation” and which are “at variance with the scientific findings”

Conclusion

- Bovine TB can be sustainably controlled
- Eradication is not feasible
- The focus must be on cattle – the main agents of the disease
- Bioscience should minimise the modest risk from badgers
Thank you for your time

- Dedicated to the conservation and welfare of Britain’s badgers.

- 1B Bevisham Street, London, SW11 3RP
- 020 7122 8332
- www.badgertrust.org.uk
- enquiries@badgertrust.org.uk
The farming perspective

**Bovine Tuberculosis and Badgers**

*Wildlife Control: the Farming Industry Perspective*

Mourig Raymond
Deputy President
National Farmers' Union

March 2005

**Numbers of cattle slaughtered 1978-2005**

[Graph showing cattle slaughter numbers over years with relevant dates and data points.]
Problems caused by TB

- Emotional impact
  - Animal "part of the family"
  - Personal family stress
  - Shooting of dairy bull calves
  - Viability of business

- Varying and often huge economic impact
  - Unable to run business fully and efficiently
  - Limited options for selling cattle
  - Unable to tackle root cause (in majority of cases)

NFU
Cattle-cattle or badger-cattle?

- Clean areas
  - Significant proportion of TB transmission is cattle to cattle movement in TB
  - Some cases unexplained
  - But this only represents a small minority of national TB cases
- Hot spots – TB concentration
  - TB in cattle - we don’t know but probably about 10% of cases caused by badgers, 90% by cattle
  - Massive cattle testing programme therefore little likelihood of advanced cases in cattle - cattle unlikely to become infectious
  - Most breakdowns involve small numbers of cattle
  - The badger is the most significant reservoir in these areas.

What is the industry doing?

- Pre-movement testing will reduce TB spread to clear areas
- PMF has very limited potential for disease reduction in hotspots, especially in absence of badger control
- UK has very well developed test and slaughter policy
  - Skin test gives virtually no false-negatives, but only 70-90% sensitive
- Very rare for cattle to show clinical symptoms of TB (and thus become treated or)
- Due to outdoor grazing, difficult to restrict badger-cattle contact
- Biosecurity measures such as double fencing are used
**Badger culling – does it work?**

- Role 60% – 95% reduction in risk of TB in cattle herds
- Recent GoA culling trials: flaws in culling methods and general methodology – BUT led to a reduction in TB incidence in trapping areas. Issues remain regarding evidence of displacement of infected badgers as a result of culling activity
- Culling (1975-81) and clean ring strategy (1982-86) led to a reduction in the cattle breakdown rate
- UK unique in not addressing main wildlife disease reservoir: badger-BTB. Methods eradication techniques have worked in other countries involving cattle and wildlife controls:
  - Possums in New Zealand
  - Voles in Australia
  - Voles led deer in Michigan (USA)

**What does the industry want?**

- Healthy cattle populations
- Healthy badgers and wildlife
- An end to economic hardship caused by TB
- Badger or cattle vaccine to follow control programmes