



Department  
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Food & Rural Affairs

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# **Defra bovine TB citizen dialogue**

## **Public dialogue workshops**

**April 2014**

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## Executive summary

This report summarises views of recruited members of the public on Defra's draft Strategy for achieving Officially Bovine Tuberculosis-Free (OTF) status for England<sup>1</sup>, captured through public dialogue workshops. In July 2013 Defra published its draft Strategy for achieving OTF status for England. The stated aim of the Strategy is to eradicate bovine TB (bTB), achieving OTF status for England incrementally, whilst maintaining a sustainable livestock industry. The Strategy is intended to counter the rising trend of bTB incidence in certain areas of England using a comprehensive, staged and risk-based approach. Although the risks of bTB to public health today are low, the disease continues to have economic, environmental and social implications.

## About the dialogue

In June 2013, the OPM Group (Office for Public Management and Dialogue by Design) was commissioned by the Department for Environment, Food and Rural Affairs (Defra), with part-funding and support from Sciencewise<sup>2</sup>, to conduct a citizen dialogue project on the future strategic direction of bovine TB. This dialogue aimed to engage a broad range of stakeholders and publics in the debate about bovine TB control measures and the future bovine TB eradication strategy, and consisted of three strands: stakeholder workshops, reconvened public workshops, and online public engagement.

Three sets of recruited, reconvened public dialogue workshops were held on Saturdays in autumn 2013 in three locations across England: Birmingham, Exeter and Newcastle. Workshop locations were selected to ensure coverage of the three geographical areas defined in the draft Strategy. Each workshop was reconvened in the same location two weeks later. A sample of approximately 40 members of the general public attended each workshop, with a total of 111 participants across the three locations. Participants were recruited to reflect broadly the diversity of the local population. Workshops were attended by representatives from Defra and the Animal Health and Veterinary Laboratories Agency, as well as academic experts on bovine TB.

This dialogue uses a qualitative approach aimed primarily at attaining an understanding of attitudes and opinions and why people hold them. It focuses on participants' insights,

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<sup>1</sup> Companion reports to this one include the Stakeholder Workshops Report which presents the findings from work on the same topics, but with stakeholder participants, the Online Engagement Report which presents the findings from online engagement with public participants, and a higher level combined report, which draws out the findings from all three strands of the dialogue.

<sup>2</sup> Sciencewise is funded by the Department for Business, Innovation and Skills (BIS). Sciencewise aims to improve policy making involving science and technology across Government by increasing the effectiveness with which public dialogue is used, and encouraging its wider use where appropriate to ensure public views are considered as part of the evidence base. It provides a wide range of information, advice, guidance and support services aimed at policy makers and all the different stakeholders involved in science and technology policy making, including the public. The Sciencewise also provides co-funding to Government departments and agencies to develop and commission public dialogue activities. [www.sciencewise-erc.org.uk](http://www.sciencewise-erc.org.uk)

attitudes and concerns and how these change over the course of the dialogue, in response to information and deliberation. Qualitative approaches are not about identifying the prevalence or distribution of a phenomenon, or making claims about the whole population from researching a sample.

## Initial responses to bTB and the draft Strategy

In general, participants came to the workshops with little or no knowledge of bTB. Their initial questions and discussions help to provide a context against which to understand those issues on which their views changed over the course of the two day dialogue. These initial views focused on six themes:

1. The nature of the disease, including the symptoms and where it originated
2. The level of risk to human health
3. Why other countries have successfully controlled bTB
4. Bovine TB in badgers
5. Why there is a 25-year timescale for implementation of the Strategy
6. The costs of implementing the Strategy and how these compare to the current cost of bTB, particularly that portion borne by the taxpayer.

Protection of human health, maintaining a viable farming industry and reducing the cost to the taxpayer of managing bTB were seen as important drivers of any attempt to eradicate bTB. Its spread to current levels was seen as a reason for a strategic approach to tackling the disease. A few participants were concerned about the cost of eradication in relation to the value of our beef export market, asking whether it would be cheaper to cease this trade rather than pay the cost of eradication. This view was countered with the argument that farming contributes to the UK economy, plays a role in land management and, more straightforwardly, that food production is important.

## Bovine TB control measures

Participants discussed five control measures:

1. **Cattle testing and surveillance:** participants supported increased cattle testing and surveillance, primarily because of their concerns about the possible risks of bTB to human health. These concerns decreased as they learned more about the disease.
2. **On-farm biosecurity measures:** views were split on whether a compulsory or voluntary regime would be most effective. Some argued that evidence of the effectiveness of on-farm biosecurity was not sufficiently strong for a compulsory approach. Others felt that on-farm biosecurity measures have implications for the

spread of bTB beyond the individual farmer and hence a compulsory approach is needed. Participants showed some concern over the cost to farmers of implementing on-farm biosecurity and a grant scheme was suggested to provide them with support.

- 3. Compensation for farmers:** some level of compensation was seen as necessary for farmers with a bTB breakdown in their herd. Some felt that current levels were too low, arguing that farmers would avoid a bTB breakdown at all costs and current compensation amounts did not take into account the hidden costs of a bTB outbreak, including the emotional costs. Others argued that compensation was currently too high, arguing that it would discourage farmers from taking sufficient preventative measures on their farms, or, in some cases, incentivise poor or even criminal practices. Some participants did not feel in a position to comment on the compensation levels.

There was general support for Defra's proposal to link compensation to on-farm biosecurity, though participants questioned the practical implications of this, including how measures would be assessed and whether requirements would differ between high and low risk areas. Most of those who did not support this measure argued for compulsory biosecurity.

There was some support for an insurance scheme to protect farmers against the cost of bTB breakdowns, primarily on the grounds that this would reduce the cost to the taxpayer of bTB compensation.

- 4. Controlling the risk from badgers:** views on badger culling fell into three broad groups. First, culling is wrong and should not be considered as part of the Strategy. Second, culling is an option but participants raised questions about the certainty of the evidence. Third, that all control measures should be used, given the scale of the bTB problem. Most participants moved between those views over the course of dialogue.

Participants had mixed views on badger vaccination. Some thought that it sounded impractical, while others saw it as an important control measure that should be deployed: these people tended to question the level of commitment to vaccination in the Strategy. A few participants argued for more investment in contraceptives for badgers.

Participants were surprised that badgers killed on the road were not tested for bTB and asked for wildlife surveillance and testing of culled badgers to be introduced.

- 5. Cattle vaccination:** Participants were surprised at how long it would be until a cattle vaccine was available. Some were frustrated about the EU ban on vaccinating cattle against bTB and asked about the EU contribution to solving the problem. They were disappointed in the reported 50-60% effectiveness of the vaccine: some used this to question its value whilst others suggested it meant more should be spent on cattle vaccine research.



## Roles and responsibilities

Participants discussed five main themes:

1. **Sharing responsibilities:** The importance of working together and sharing responsibility was emphasised by participants at all workshops. They thought that the incidence of bTB in England had escalated to its current levels because of inadequate leadership by the government: this point was sometimes emphasised with reference to other countries having dealt with their bTB problem. Shared responsibility and team-work would, participants felt, contribute to a more successful bTB control programme.
2. **The role of the Government:** Participants made a number of arguments in support of government taking a leadership role in the bTB control programme. One very strongly supported view across all workshops was that the government's inaction had caused the rise in the incidence of bTB and that the government should therefore "*sort it out, get on with it*" (*Birmingham*). Others were not convinced that government could be trusted to eradicate the disease effectively and that the pace of action needed meant that other stakeholders should have more control over the programme. Some argued that policy must balance all interests, rather than favouring some and that government alone is in a position to ensure this balance. Other tasks for which government should be responsible included testing, research and development, and supporting farmers to improve on-farm biosecurity practice.

Some participants argued that the Strategy should be politics-free, so that it would survive future changes in government.

3. **The role of farmers and the farming industry:** Many participants felt farmers should have more control of the bTB eradication programme, primarily on the grounds that they would be its prime beneficiaries. Some suggested that an industry-led control programme would be more streamlined and better at getting things done. Some felt that farmers are currently subject to 'bureaucracy for bureaucracy's sake' and there was some sympathy for farmers not having the power to do all they wanted to do to eradicate bTB.
4. **The role of the food industry:** some felt strongly that the food industry should take greater responsibility for bTB control as it benefits from a functioning farming industry. It was seen as well as the driver of changes in farming practices, such as intensification. Some suggested that supermarkets were squeezing farmers by paying low prices for meat and milk. Very few argued that more of the real costs of food should be passed on to consumers.
5. **The role of wildlife organisations:** participants who discussed wildlife organisations tended to support them having some responsibilities in the bTB control programme and taking part in decision-making. The financial contribution to vaccination programmes made by organisations such as the National Trust and the Wildlife Trust was welcomed and participants thought that they should be able to continue with this.

6. **The role of the public:** the public were viewed first as consumers of beef and dairy products and second, as taxpayers and hence stakeholders in how government money is spent on the bTB control programme. Although participants acknowledged that bTB has an impact on the public, both as consumer and taxpayer, there was little support for them taking more responsibility, or contributing more financially, to the bTB control programme through increased food prices or through increased taxes.

## Communicating bTB to the public

The information that participants think should be communicated to the public falls under six main themes. Participants emphasised the importance of communication being factual, unbiased and politics-free.

### 1. Epidemiology of bTB:

- the nature of the disease, including whether it is viral or bacterial, how it is transmitted, the patterns of disease prevalence and upwards or downwards trends in infection rates.
- comparative data about the bTB in the UK and England relative to other countries.

### 2. Impact on animals:

- the animals that can be affected by bTB, including badgers, cattle and other wild and domestic animals.
- the impact of the disease on different animals.

### 3. The role of badgers:

- factual and comprehensive information about the role of badgers in bTB transmission.

### 4. Control measures:

- cattle and badger vaccination.
- the EU block on vaccinating cattle against bTB and the timescale for developing an effective cattle vaccine.
- badger culling, including how effective it is at reducing the disease, where responsibility for culling lies and how it is done.

### 5. Finance and costs:

- the economic impact of bTB on the UK and the cost borne by the taxpayer.

- the cost of control and detection.
- the relationship between spending and successful control.

## **6. Responsibility:**

- Where responsibility lies for controlling bTB.
- The value of shared responsibility and a multi-agency approach.

## **7. Other impacts:**

- the risk to and impact of bTB on human health and how these are mitigated.
- the emotional cost of bTB, particularly to farmers.
- the longer term strategy and impacts of failing to tackle the disease.

## **Conclusions**

The main messages arising from discussions relating to the bTB Strategy are categorised under the following broad themes:

- Learn from other countries
- Establish multi-stakeholder governance arrangements
- Communicate better with the public
- Base actions on evidence
- Explore the role and responsibilities of farmers more fully
- Tighten up testing and surveillance.

Badger control and culling was a consistent theme throughout the dialogue but no clear message emerged. The range of views included temporary suspension of the Protection of Badgers Act, targeted culling of infected badgers only, testing culled badgers and those killed on the road. Opposition to culling was based largely on questions about its efficacy and the evidence base.

## **Reflections on the dialogue**

Dialogue is about taking a journey. Most participants arrived on the first day with little or no knowledge about bTB, beyond what they had picked up in passing from media coverage of the pilot culls. Some had seen no coverage and were not aware of the ongoing and

sometimes heated debates about the badger culls, which were running in Somerset and Gloucestershire when the dialogue was underway. At the end of the two days they were talking about on-farm biosecurity, levels of compensation for farmers with reactors and the roles and responsibilities of different stakeholders involved in managing bTB. Generally, this was new information for participants.

On the first morning, respondents were clearly shocked by information on the scale and spread of the disease in England, the picture here relative to other countries, the cost to the UK economy and the timescale for eradication. They were both puzzled and angered by what looked to them like inaction and a failure of leadership from the government.

As they learned more about things such as the efficacy of different control measures participants' views began to reflect more of the complexity of the problem. By the close of the dialogue they felt that government alone is in a position to balance the range of sometimes starkly different views and interests involved in the eradication of bTB. It does not follow from this that participants *trust* the government to do this, but reflects their view that no single stakeholder group will – or perhaps even should – take the wider perspective needed to address the problem.

## Reflection on the objectives

This section relates some of the main messages in this report to the objectives for the overall dialogue and the public dialogue strand. The objectives for the public workshops are:

1. To enable members of the public to deliberate in detail on the measures needed to achieve OTF status for England, including current and potential future measures.
2. To understand public views and perspectives on bovine TB, the measures proposed in the draft Strategy, and the social impacts of the proposed measures.
3. To enable participants to give input on how the strategy should evolve.
4. To explore participants' views on the appropriate roles and responsibilities of the government, industry, and civil society in addressing and eradicating bovine TB, both for cattle and wildlife.
5. To enable policy-makers to increase their understanding of public attitudes towards the measures proposed to eradicate bovine TB, and on animal disease control more generally.

We have summarised the main messages under the following headings:

- Enabling deliberation and input (objectives 1 and 3)
- Understanding and exploring views (objectives 2, 4 and 5)
- Opportunities for building trust (overall project objective: see [Introduction](#)).

## **Enabling deliberation on and input to the draft Strategy**

- The dialogue focused on what it would be feasible and meaningful for participants to discuss within the time available, rather than seeking to cover every aspect.
- Participants' discussions throughout were wide-ranging and thoughtful. Participants returned to the same topic from different perspectives as they developed their views and gained argumentative purchase on the different issues under discussion.
- The animated film used at the start of the first workshop provided a useful introduction to many of the issues that would be discussed throughout the two days, giving a wider framework within which each individual topic was situated.

## **Understanding and exploring views**

- This report describes the range of views expressed by participants during the course of the dialogue and attempts to make sense of some of the factors that inform these views.
- Participants seemed surprised not just by the scale of the problem but also by its social impacts, in particular the emotional impact that an outbreak of bTB has on a farmer. The film in which a farmer described his experience of the disease also helped participants to understand some of the challenges of biosecurity.
- The dialogue shows that participants' views are more nuanced and varied than the media coverage of the culling might suggest: given sufficient time, accessible information and support, the public can deliberate in a considered and sophisticated way on these complex issues.

## **Opportunities for building trust**

- One of the overall objectives of the dialogue was to develop and appraise opportunities to build a trust relationship between the general public, stakeholders, and government in developing policy options for animal disease control.
- How participants' views inform the development of the draft Strategy will be down to policy-makers. Rather than being able to identify single specific opportunities for this, the more general messages described at the start of this chapter set out the broad dimensions across which the public want to see the draft Strategy develop and provide a framework for building trust.
- Participants were engaged in this dialogue on the understanding that their views will contribute to the future development of the Strategy. Demonstrating clearly which views have informed policy-makers' thinking and which have not, and communicating this to the participants and more widely, marks an essential difference between dialogue as an enjoyable day out and dialogue as a contributor to the evidence base used to inform decisions and is a vital aspect of building trust.

# Chapter 1 Introduction

## Background

### Bovine TB in England

Across Europe many countries have been declared bovine TB (bTB) free. However the UK continues to face significant challenges in eradicating the disease. The incidence of bTB in UK cattle has been growing since the 1980s, with outbreaks clustered in hot spots in the South-West and West of England and in Wales<sup>3</sup>.

Although the risks of bTB to public health today are low, the disease continues to have economic, environmental and social implications. In 2012, measures to control the disease resulted in the testing of 5.8 million cattle and the slaughter of 28,000 animals at a cost of £100 million to the UK taxpayer. BTB poses a risk to the beef, dairy and live export trade and the Government continues to face international pressure to comply with EU regulations and progress towards eradication.<sup>4</sup>

### Defra's draft Strategy for eradicating bovine TB in England

In July 2013 Defra published its draft Strategy for achieving 'Officially Bovine Tuberculosis-Free' (OTF) status for England. The aim of the Strategy is "to eradicate bTB, achieving OTF Status for England incrementally, whilst maintaining a sustainable livestock industry". The Strategy sets out how the aim will be achieved through greater partnership working, increasingly industry-led implementation and fair sharing of the associated costs.

An online public [consultation](#) was run from 4 July to 26 September 2013 to seek views on Defra's draft Strategy document.

### The pilot badger culls

In December 2011, Defra announced that badger culling would be carried out as part of a policy of badger control. Pilot badger culls began in Gloucestershire and Somerset in August/September 2013. Licences issued by Natural England allowed trained operators, employed by farmer-led companies, to carry out controlled shooting of free-ranging badgers, with the costs being borne by farmers and landowners. The decision on a wider roll out of controlled shooting as a culling method will follow a report delivered by the Independent Expert Panel on its effectiveness, humaneness and safety.

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<sup>3</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69443/pb13601-bovinetb-eradication-programme-110719.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69443/pb13601-bovinetb-eradication-programme-110719.pdf)

<sup>4</sup> For a summary of the natural science evidence base underlying bTB policy in the UK, please see the Oxford Martin School report by Godfray et al (2013) *A Restatement of the Natural Science Evidence Base Relevant to the Control of Bovine Tuberculosis in Great Britain*. The open access article can be accessed [here](#) and a version as a single pdf can be downloaded [here](#).

Badger cull policy was covered extensively in the mainstream media and political debate with vocal opposition from sections of the scientific community, campaign groups and a public e-petition gathering over 300,000 signatures<sup>5</sup>. Both the proponents of the badger cull policy and its opponents claim scientific foundations for their argument and both sides have interpreted the results of the Randomised Badger Culling Trial (RBCT) in their favour. The debate around the badger cull was therefore a focus for participants and was raised at every workshop. However, the focus of this project was on the raft of measures outlined in the draft Strategy for the eradication of bTB, in which badger control measures – including culling – are only one element.

## About the wider dialogue project

The public deliberative workshops reported on here were part of a wider citizen dialogue project on the future strategic direction of bovine TB. The dialogue was commissioned by Defra, with part-funding and support from Sciencewise<sup>6</sup>. It aimed to engage a broad range of publics and stakeholders in the debate about bovine TB control measures and the future bTB eradication Strategy.

An oversight group, comprising Defra policy and evidence representatives, Sciencewise, and external members with a range of views and expertise from academic and non-governmental organisations, was set up to oversee the dialogue process and material. The role of the group was to help ensure that the dialogue material was comprehensive, balanced and accessible to a lay audience and that the engagement process was far reaching, accessible and targeted all relevant stakeholder groups.

The dialogue consisted of three strands:

1. Ten deliberative stakeholder workshops
2. Three sets of reconvened deliberative public workshops
3. Online public engagement.

The dialogue was coordinated alongside a [public consultation](#) on the content of the draft Strategy, which ran from 4 July to 26 September 2013.

A stand-alone report was produced for each strand of the dialogue. There is also a higher level combined report, which draws out the findings from all three strands of the dialogue.

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<sup>5</sup> <http://epetitions.direct.gov.uk/petitions/38257>

<sup>6</sup> Sciencewise is funded by the Department for Business, Innovation and Skills (BIS). Sciencewise aims to improve policy making involving science and technology across Government by increasing the effectiveness with which public dialogue is used, and encouraging its wider use where appropriate to ensure public views are considered as part of the evidence base. It provides a wide range of information, advice, guidance and support services aimed at policy makers and all the different stakeholders involved in science and technology policy making, including the public. The Sciencewise also provides co-funding to Government departments and agencies to develop and commission public dialogue activities. [www.sciencewise-erc.org.uk](http://www.sciencewise-erc.org.uk)

This dialogue project builds upon the 'Call for views on strengthening our TB eradication programme and new ways of working', carried out in Autumn 2012 on behalf of the Animal Health and Welfare Board for England.

The overall objectives for the citizen dialogue project were:

- To engage the general public and stakeholders in understanding, deliberating on and contributing to the future strategic development of England's bovine TB policy and Strategy.
- To inform Defra's development of a comprehensive bovine TB eradication strategy.
- To develop and appraise opportunities to build a trust relationship between the general public, stakeholders, and government in developing policy options for animal disease control.

## About the public workshops<sup>7</sup>

The specific objectives for the public workshops were:

- To enable members of the public to deliberate in detail on the measures needed to achieve OTF status for England, including current and potential future measures.
- To understand public views and perspectives on bovine TB, the measures proposed in the draft Strategy, and the social impacts of the proposed measures.
- To enable participants to give input on how the strategy should evolve.
- To explore participants' views on the appropriate roles and responsibilities of the government, industry, and civil society in addressing and eradicating bovine TB, both for cattle and wildlife.
- To enable policy-makers to increase their understanding of public attitudes towards the measures proposed to eradicate bovine TB, and on animal disease control more generally.

## Recruitment

Members of the public were recruited using on-street recruitment, against a quota to ensure a spread of gender, ethnicity, age, socioeconomic grouping and employment. Alongside these demographic variables we recruited for a spread of appropriate attitudinal characteristics and from a range of postcodes, to ensure that each event achieved a diversity of views and perspectives.

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<sup>7</sup> Additional details about the recruitment and workshop locations can be found in Appendix 3.



'Thank you' payments were offered to encourage participation, particularly from people who might otherwise not feel able to attend such an event, and to recognise the effort and contribution made by participants.

Forty-five members of the public were recruited in each location, with the ambition of 40 participants to attend each workshop.

The actual participant numbers for each workshop in each location is provided in the table below.

Location	Participants at first workshop	Participants at second workshop
Birmingham	39	37
Newcastle	41	37
Exeter	31	30

### Workshop locations

Workshops were held in three locations: Birmingham, Exeter and Newcastle. The rationale for choosing these three locations was two-fold. First, to engage with members of the public in the three risk areas as these are defined in the draft Strategy:

- **High Risk Area (HRA):** concentrated in the South West, West Midlands and East Sussex. Bovine TB is endemic here. A relatively high proportion of herds experience breakdowns, including repeat breakdowns, and there is a reservoir of infection in badgers. Exeter is in the HRA.
- **Edge Area:** covers the boundary of the High and Low Risk Areas. It marks the area where infection is spreading outward from the High Risk Area. Birmingham is in the Edge Area.
- **Low Risk Area (LRA):** currently extends across the North and East of England. The prevalence of bTB is very low with most cases linked to animals being introduced from higher risk herds. Breakdowns tend to be relatively short. There is not a recognised reservoir of the disease in wildlife in the Low Risk Area. Newcastle is in the Low Risk Area.

A second factor informing choice of locations was our view that people living in or near large city centres may have a different perspective on aspects of the bovine TB draft Strategy than those living in more rural areas. We chose Exeter as the rural location, Birmingham as the urban location and the Newcastle sample included a mix of urban and rural participants.

## Workshop design and materials

Because of the complexity of the topic and the amount of information in the draft Strategy, a reconvened workshops approach was chosen for the public dialogue strand. This involved participants attending a one-day workshop and meeting again for a second workshop two weeks later. This approach gave participants sufficient time to get to grips with the science and to deliberate on the social and ethical issues.

Throughout all discussions, participants were asked to record questions on a Question Board, to be reviewed and responded to by experts in plenary sessions.<sup>8</sup> Interactive voting sessions were held at a number of points during both the first and second workshops.

Each workshop was attended by:

- 30 - 40 recruited members of the public
- 4 OPM facilitators (one lead facilitator, three table facilitators)
- 2-3 Defra or AHVLA representatives<sup>9</sup>
- One academic expert at workshop 2.

Please see [Appendix 2](#) for the Defra, AHVLA and academic representation at each workshop.

For most discussions, participants worked in four small groups, each one seated round a separate table. Each group was supported by a facilitator and discussion was stimulated and focused through specific questions and the pre-prepared stimulus materials. Representatives from Defra, Animal Health and Veterinary Laboratories Agency (AHVLA) and the academic workshop (in workshop 2) moved between the small groups, primarily in a listening role, but also to answer questions of clarification.

Plenary question and answer sessions – with the academic expert and the Defra and AHVLA representatives – were held after any new information was provided.

### **Workshop 1**

The overall aim of Workshop 1 was to set out the science and epidemiology of bovine TB and the options for addressing its eradication.

In Workshop 1, information was presented in three main ways:

- An [animation](#) which gave an overview of what bTB is, the rationale for controlling it, control methods and the aim of the draft Strategy. This set the scene and opened up

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<sup>8</sup> These questions are listed in [Appendix 8](#).

<sup>9</sup> Our first choice was to recruit an independent external academic to attend these first meetings. However, the tight timetable and limited pool of independent expertise meant that we were not able to secure their attendance.

the initial discussion, enabling us to understand what participants found interesting, new, difficult or surprising.

- A presentation from a Defra or AHVLA representative outlining the history of bovine TB in England, current levels of bTB in England and Europe, and an overview of the bTB control measures currently in place and the changes proposed in the draft Strategy. The slides accompanying this presentation are included in [Appendix 4](#).
- Four control measures information sheets, which summarised the bTB control programme under the following headings: detecting bovine TB; dealing with bovine TB when it is found; badgers and bovine TB, and preventing the spread of bovine TB.

Throughout the day participants were given the opportunity as a whole group to ask questions, and also to give plenary feedback on the 'burning issues' or key comments from their table.

We ran interactive voting sessions at several points during the two workshop stages. The outputs of these votes have no statistical significance but they do help us to understand how participants' views changed over time on a number of issues throughout the course of the two events. Please see [Appendix 7](#) for the list of questions asked during these voting sessions.

A detailed process plan for Workshop 1 can be found in [Appendix 1](#).

## **Workshop 2**

The overall aim of Workshop 2 was to help participants think through the social implications of various bTB control measures and policy options and for us to hear and understand their views on specific aspects of the draft Strategy in detail - such as the appropriate roles and responsibilities of different stakeholders - as well as on the strategy as a whole.

A film shown at the start of the second workshop highlighted some of the different views and interests at stake, through interviews with a farmer with experience of bTB in his herd, representatives from the RSPCA and the Wildlife Trust, and a vet in a high risk area. These interviewees were selected to bring a range of views on bovine TB into the room, to contribute to participants' ongoing discussions about the control measures.

To bring other perspectives into the room, 12-14 stakeholder quote cards were placed on the walls of the room. The quotes were taken from the ten stakeholder workshops held in September as a separate strand of this citizen dialogue project. They were chosen to reflect a range of stakeholder perspectives on various control measures, and on the roles and responsibilities of different organisations and groups within the system. Public participants were asked to indicate which one quote was closest to their own view (using a green sticky dot) and which one quote was furthest from their own view (using a red sticky dot). The full list of stakeholder quotes and the distribution of dots is provided in [Appendix 9](#).

Each workshop was attended by an academic expert specialising in the social impacts of bovine TB.<sup>10</sup> Their role was twofold. First, they provided participants with more information about the roles, responsibilities and costs of bovine TB, through a presentation outlining the New Zealand governance model, how this compares to the UK model, and the pros and cons of industry playing a greater role in bovine TB control. Second, they supported ongoing deliberations, by responding to participants' questions during small table and plenary sessions. Please see [Appendix 5](#) for the Workshop 2 presentation slides.

In addition to the three main broad strands covered in the workshop – information about the disease, control measures and roles and responsibilities – we wanted to understand what, amongst all the issues participants had discussed, they felt the public needed to know about bTB. This discussion was held towards the end of the final workshop and shows which issues throughout the two days remained uppermost in participants' minds and which they felt were most useful as a starting point for the wider general public to get to grips with the complexities of the issue.

In the final session of the second workshop, we asked participants to give their final recommendations for the bTB Strategy. Participants were encouraged to reflect back on all the information and perspectives they had heard over the two days before drawing together their main conclusions on the draft bTB Strategy.

Please see [Appendix 1](#) for the detailed process plan for Workshop 2.

## Reflections on the methodological approach

The findings from this dialogue need to be understood within the context and process through which the data were collected. Like any dialogue, this project involved a specific set of people - both public participants and the delivery team - in a particular discussion at a particular time.

The public workshops took place whilst the pilot badger culls were ongoing in Somerset and Gloucestershire. The extent to which media coverage of the pilot culls affected discussion at the workshops is difficult to assess. Awareness of some coverage was widespread amongst participants and a very small number of people arrived in the room with their views on this issue relatively well-formed. Where this was the case, these people tended to be against the culls. However, the following quote from a participant in Exeter sums up the starting point for many of the participants in all three workshops:

*“We hear the extreme arguments from both sides and are left in the middle without the facts.”*

The control measures described in the Strategy are technically complex and, other than culling, are not the subject of intense media debate. Some are difficult to discuss in detail

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<sup>10</sup> The academic expert at the Birmingham and Newcastle workshops was Dr Gareth Enticott from Cardiff University. At the Exeter workshop, the academic expert was Dr Ian McFarlane from the University of Reading.

without understanding how the farming industry works and the relationship between and responsibilities of different players in this industry. Decisions on the design of the dialogue were based on what would be feasible and meaningful for the public to discuss over the period of the two reconvened workshops; which issues would benefit in particular from public insight; which topics in the Strategy could be discussed in relative isolation from the whole and the time available for deliberation.

Participants' discussions throughout were wide-ranging and thoughtful. Some of the scientific information presented was complex – for example, on the reasons for the level of accuracy of the diagnostic tests for cattle or for the different ways in which the disease affected and progressed in different species. The same topic was often returned to from different perspectives as participants developed their views and gained argumentative purchase on the different issues under discussion.

Public dialogue, as understood by Sciencewise, brings together publics, policy makers, scientists and other experts to deliberate on national public policy issues involving science and technology. The rich findings generated through the dialogic approach can help policy makers and the government to make better decisions that reflect public values and societal implications; increase legitimacy for tough decisions; demonstrate accountability in public investment and overcome entrenched positions to enable policy to move forward.

Dialogue draws on qualitative social research methods through its explicit link with policy and decision-making place it within an overtly political context. This is stated clearly in the Sciencewise-ERC Guiding Principles<sup>11</sup> that have governed this dialogue. These state that:

*“It [dialogue] must take place far enough ahead of policy being made to be able to have some influence over the eventual policy decisions.*

*A key requisite of public dialogue as developed by Sciencewise-ERC is that it must have a ‘policy hook’ with a clear understanding of who will be listening to the outcomes.”<sup>12</sup>*

Qualitative approaches are not about identifying the prevalence or distribution of a phenomenon, or making claims about the whole population from researching a sample (as in quantitative research). Qualitative research is primarily about attaining a better understanding of attitudes and opinions and why people hold them. To give the reader some broad sense of the extent to which views were or were not shared we have used the terms ‘some’, ‘few’ and ‘many’. However, these terms do not express clearly defined quantities or proportions.

As with qualitative social research, dialogue focuses on the range of insights, attitudes and concerns. Dialogue and qualitative research differ in two particular respects. The first is the importance of the collective and individual journeys which participants undertake: this is why a reconvened approach is particularly useful for dialogue projects. The second is that

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<sup>11</sup> [The Government's Approach to Public Dialogue in Science and Technology](#), BIS.

<sup>12</sup> *Ibid* p3

the dialogue commissioners and practitioners commit to ensuring that the findings from dialogue projects form one part of the wider evidence based that informs thinking in the relevant policy area. Whilst social research findings are also part of the evidence base, in the case of Sciencewise-funded dialogue the commitment to the findings having an impact is explicit: there must be “clear and transparent mechanisms to show how these views have been taken into account in policy and decision-making”<sup>13</sup>.

## About this report

This report describes and analyses the findings from across the three locations. We have not sought to include every detail, but to characterise the main themes and debates. Where possible and where differences are of particular interest, we have drawn out particular comments, issues or attitudes from individual workshop.

The remainder of the report is structured as follows:

- [Chapter 2](#) sets the context for the main findings from the dialogue by summarising participants’ initial questions and reactions. It also looks at participants’ views on the rationale for eradicating bTB.
- [Chapter 3](#) looks at the control measures, including biosecurity, cattle testing, culling and vaccination.
- [Chapter 4](#) explores participants’ views on how roles and responsibilities should be shared by the different players within the system and where the cost of eradicating the disease should lie.
- [Chapter 5](#) looks at participants’ views on what information about bovine TB should be communicated to the public.
- [Chapter 6](#) provides a short summary of the main findings, outlines participants’ recommendations for the future of the Strategy for the eradication of bovine TB and reflects briefly on the dialogue overall and the dialogue objectives

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<sup>13</sup> Ibid p6

# Chapter 2 Initial responses to bTB and the draft Strategy

## Introduction

This chapter summarises participants' initial comments, concerns and questions about bovine tuberculosis (bTB) and the cost and timescale for implementing the Strategy. It describes the issues on which participants' focused spontaneously, prior to deliberation, and provides some insight into those themes which drew participants' attention and interest before the detailed discussions which are covered in the later chapters of this report.

Participants generally came to the workshops with little or no knowledge of bTB and were hungry for information: much of the first morning of the first workshop was dedicated to providing this and responding to their specific questions. Three things seemed to be a factor in participants' early responses to the information provided on the first morning. First, the extent and nature of their exposure to information on bTB prior to attending the workshop: whilst knowledge of bTB was limited, most seemed to be aware, to differing degrees, of the pilot badger culls underway at the time the workshops were held. Second, their existing knowledge of and attitudes towards the complexities of the disease and the different control measures: some participants had clearly explored the debate around badger culling in some detail already, though seemed less familiar with other elements of the draft Strategy. Third, participants' desire for information suggested an appetite for participating fully in the dialogue.

## Overview

Participants' initial comments and concerns can be categorised broadly under six main themes. These are connected by a single thread which emerged in this first discussion and recurred throughout the dialogue: the importance of learning from experience. The six themes are:

1. The nature of the disease, including the symptoms and where it originated
2. The level of risk to human health
3. Why other countries have successfully controlled bTB
4. Bovine TB in badgers
5. Why there is a 25-year timescale for implementation of the Strategy
6. The costs of implementing the Strategy and how these compare to the current cost of bTB, particularly that portion borne by the taxpayer.



## Nature of the disease

The information on bTB was new and surprising to many participants and some felt that media coverage hadn't conveyed the full scale or complexity of the issue. Their questions focussed on the nature of the symptoms and severity of the disease, whether bTB is a naturally occurring disease, and how and where it originated. Explanations were sought on the reason for high levels of the disease in the South West and the Midlands and on the variation in levels across the UK. Participants were also interested in how long it takes for symptoms to appear in cattle, and whether infected cattle can be cured.

## Risk to human health

Participants in all locations wanted to understand whether and how bTB could be transmitted to humans, and what level of risk it poses to human health: some were angry about the possible threat to human health and felt that this should have been communicated.

The means of transmission was of particular interest. Participants wanted to know whether the disease was airborne; whether it could spread through milk or food consumption; whether it could be transferred through crops, either for human consumption or animal feed and whether meat from animals with bTB enters the human food chain. They wanted reassurance that the appropriate regulations were in place to protect human health. They were also interested in whether different methods of processing meat (such as halal) could affect the risk of contracting bTB and whether cooking would kill the bacteria.

The animation provided some information about the level of risk posed by bTB to human health, giving an estimated figure of 30 human cases of bTB per year. Some participants were surprised by this number, thinking it low and concluding that this number of cases showed the UK must be controlling the disease effectively. Others were more alarmed, arguing that 30 cases were too many and that the public should be made aware of the potential risk to human health, however slight.

*"How come you don't hear more about this? It sounds like a risk to public health?"  
(Newcastle)*

In Birmingham, participants discussed the history of bTB in the UK and its spread through unpasteurised milk: some related their experience of parents suffering from human TB. Defra and AHVLA representatives played an important role at this stage, distinguishing *M. mycobacterium* from *M. bovis* and explaining the difference between bovine and human TB.

## Comparison with other countries

Many participants argued that the UK needed to learn from the approaches taken by other countries, including Scotland, France and Argentina. They were curious about the



difference in spread and incidence of the UK in comparison with other countries and some participants sought to provide – and wanted - explanations for this. Some wondered if other countries were bTB-free because of differences in farming techniques or density of herds.

## Bovine TB in badgers

Many of the initial questions focused on badgers. Participants asked how badgers contract the disease, how it affects them and about the prevalence of the disease in the badger population and their part in its spread to cattle. They were interested in particular in whether badgers are the main carriers of the disease and the extent to which the incidence of the disease in the UK can be attributed to badgers. Other questions included which other animals could carry bTB, such as foxes, hedgehogs, horses, pigs and deer. Some participants felt that these other potential hosts should receive attention too.

Participants in all workshops also showed a more general interest in badgers, asking how many live in a sett, how many offspring badgers typically have and why the numbers are growing. Some suggested that better knowledge and understanding of the badger population and infection levels were needed to tackle the disease effectively.

## Timescale

The 25-year timescale for eradication of the disease was surprising to many participants. They wanted to know why it had not been tackled earlier and why the situation had been allowed to escalate.

*“It’s surprising the Government have let it go on for so long, they’ve known about it for years so why let it become an epidemic?” (Newcastle)*

Some participants doubted that 25 years was a realistic timescale for eradication or challenged the supporting evidence. Others felt that the timescale suggested a lack of urgency on the part of the government in dealing with the disease.

Participants asked about the history of the disease in the UK, including how and why it had spread and what strategy - if any - had been in place for the previous 20 or 25 years.

*“We have been facing the disease for 40 years and it appears nothing has been done as we are still at the same point.” (Exeter)*

## Cost

Many participants were surprised at the amount spent annually on controlling the disease and argued that taxpayers should have more information about these costs and that they should be justified.

## Rationale for the draft Strategy

Discussions about the rationale for the Strategy began at the start of the workshops and continued throughout. In their initial responses to the issues that were put to them, participants identified protection of human health, maintaining a viable farming industry and reducing the cost to the taxpayer as important drivers of any attempt to eradicate bTB.<sup>14</sup> The viability of the farming industry was of more concern to participants in Exeter than elsewhere and protection of human health was of least concern. More participants in that workshop came from rural environments than those in either Birmingham or Newcastle.

The spread of the disease to its current levels was seen as a clear reason for a strategic approach, as were preservation of agricultural landscape and the potential impact of the disease on future methods of food production.

*“Supply of meat, too. Do we want genetically ‘grown’ meat in the future?” (Exeter)*

A small number of participants questioned whether any rationale would be acceptable, given the cost of the eradication programme. These participants focused on the economics, including the value of beef farming to the UK, the impact of reducing or ceasing farming in certain areas, and wondered whether, given the cost, it would be cheaper to stop bTB controls altogether and not trade with anyone else.

*“Cattle symptoms are hard to detect, it can live dormant for years, Bovine TB can’t be passed to humans, the meat can still go into the food chain – so why do we have to care about this?” (Newcastle)*

Participants who emphasised the importance of maintaining a viable farming industry, most of whom were in the Exeter workshop, based their view on a range of points. Some argued simply that farming is an important part of the economy and that everyone needs to be fed, hence farming is one of the most – if not *the* most – important industry. Exeter participants had more nuanced arguments too, about the importance of farming as a method of land management.

*“Farming is really important for so many things, it is not just about food production and financial sustainability but we should also consider land management. We don’t want to live in an urban environment do we?” (Exeter)*

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<sup>14</sup> This information was gathered through the interactive vote held on the morning of the first workshop. It is indicative only, providing an initial sense of the range of views held by individuals, rather than being the result of deliberation and reflection.

# Chapter 3 Bovine TB control measures

## Introduction

The changes to the bTB control measures as proposed in Defra's draft Strategy are numerous, detailed and specific and it was not possible to seek public views on them all during the dialogue. Our approach was to familiarise the participants with the types of controls that are currently in place, to provide information on some of the main changes to particular control measures proposed by Defra in the draft Strategy, and to seek participants' views on the current controls and the proposed changes. To do this we divided the controls into four categories:

1. Detecting bovine TB - testing and surveillance of cattle and wildlife
2. Dealing with a breakdown – the steps taken when bTB infection is found in a herd and compensation
3. Badgers and bovine TB – badger culling and vaccination
4. Preventing the spread of bTB on the farm – on-farm biosecurity measures and cattle vaccination.

For each category, participants spent time reviewing an information sheet<sup>15</sup> outlining the control measures before discussing it in small groups. Defra and AHVLA representatives were available to respond to questions or provide more information. Participants were asked for their reactions to what they had read and heard: what had surprised them and what additional information they wanted. The controls reported on below are those on which participants wanted to focus or on which they had the most to say.

Participants were most interested in and able to say most about the amount of compensation paid to farmers who experience a bTB breakdown, and the use of badger culling. They had less to say about controls such as pre-movement testing and the steps taken to clear infection following a breakdown.

## Overview

This chapter has five main sections:

1. Cattle testing and surveillance
2. On-farm biosecurity measures

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<sup>15</sup> The Control Measures Information sheets were developed by OPM Group using information from Defra's draft Strategy, text taken from the Godfray et al (2013) natural science review paper and input from the Defra project team and the Oversight Group. These information sheets are included in Appendix 6.

3. Compensation for farmers
4. Controlling the risk from badgers
5. Cattle vaccination.

Participants' discussions of these themes illustrate a number of broader points. First, their surprise that a number of measures are not already in place or that some measures are in place which they would not have anticipated. For example, they were surprised that meat from bTB reactors enters the human food chain and that on-farm biosecurity measures were not already compulsory.

Second, there was an initial broad tendency amongst many participants – though not all - to suggest that if a control measure is available, then it should be used or used more. Participants wanted to see more cattle testing and surveillance, more testing of badger carcasses – for example, road kill; and more use of measures that might encourage behaviour changes –for example linking compensation to the standard of on-farm biosecurity. At this stage, the issue of cost had not been explored in any detail: speculatively, this suggests that participants are responding to the scale and spread of the disease and the initial information on the cost to the UK economy and farming industry and adopting something of a 'do all we can' approach. As deliberations continued and participants incorporated new information into their initial views, some of the complications associated with 'just doing more' became evident and discussion grew more nuanced.

Third, participants found discussion about badger culling more straightforward than discussion about other control measures, though their views on this are more varied, more nuanced and more strongly held. Most had followed this discussion in the media prior to attending the workshops and this prior familiarity fed into their deliberations and is apparent in the length of the section on this issue.

Finally, participants tended to question the evidence on culling, though this tendency was not traceable to any single obvious cause. The same questioning was not apparent in relation to evidence on other issues. Speculatively, it results from a number of factors. These include general questioning of the government's leadership on bTB: this was evident in participants' discussion of where responsibility lies for the current severity of the problem and why the disease had been allowed to escalate to current levels. It is possible as well that wider mistrust of the government<sup>16</sup> lay behind some participants' tendency to raise questions about the evidence, both that presented in the workshops and more widely. Media coverage of culling has also called the evidence into question and this too might have played a role in participants' questioning. Participants might also have felt uncomfortable about supporting a measure that involves killing wild animals: challenging the evidence could provide a way of expressing that disquiet. Those participants with

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<sup>16</sup> See, for example, IPSOS-Mori research, including <http://www.ipsos-mori.com/researchpublications/researcharchive/3188/Perceptions-are-not-reality.aspx>; [http://ec.europa.eu/unitedkingdom/pdf/eb80\\_uk\\_nat.pdf](http://ec.europa.eu/unitedkingdom/pdf/eb80_uk_nat.pdf); <http://www.ons.gov.uk/ons/rel/wellbeing/measuring-national-well-being/governance/art-governance.html#tab-Trust-and-accountability>.

deeply held ethical objections to badger culling might well think that evidence itself is not sufficient to warrant this step, and that arguments based on other grounds also need to be aired in this debate. Finally, we should note that a few participants were well-informed and might well have reached their own conclusions about the reliability of the evidence, independent of these factors.

## Cattle testing and surveillance

### Routine cattle testing

Participants were keen to see increased cattle testing and surveillance. This was motivated by concerns about bTB-infected meat being used for human consumption and the view that if bTB is such a big problem - which many participants thought is the case - then the current level of testing is insufficient. One group from Newcastle thought that four-yearly testing regimes in low risk areas might not be adequate, on the grounds that regular traders could buy and sell cattle several times within a four-year period.

Some asked whether a stricter testing regime was in place in other countries, and when one expert in Newcastle explained during table discussions that the Republic of Ireland test all herds annually, the group were keen for England to follow this example: this is a further example of participants' constant return to the importance of learning from elsewhere. Others at the Exeter workshop spoke favourably about the stricter measures they recalled were implemented during the breakout of foot and mouth disease:

*“Same severity and rigour of testing and regulations should be applied and enforced as with foot and mouth, for example stopping cattle being transported large distances. Government was unpopular for this approach but it worked.” (Exeter)*

Specific suggestions for a stricter testing regime included introducing annual testing across the country and increasing testing in the High Risk Area to every six months or even every three months. One group in the Exeter workshop thought that young calves should also be tested.

Participants asked why the government had not already put in place a stricter testing regime and why the 'Detecting bovine TB' information sheet shown to participants described Defra as only 'considering expanding the circumstances for pre-movement testing'. Although some participants recognised that cost and resource was a barrier to deploying a more intensive testing regime, others questioned this rationale on the grounds that testing must be cheaper than slaughter.

A few participants raised concerns about increasing the testing regime, arguing that farmers would not have the money or time to conduct more tests. There was also some concern about the impact of more testing on the price of milk and meat.

Some participants were interested in the test itself, raising questions about how it is carried out. They asked whether the accuracy of the skin test – the standard test used during

routine tests – depended on the tester or whether it was due to the nature of the test itself. There was some concern that testers were not trained properly, or that the job of testing was too difficult to be done accurately.

## **Slaughterhouse surveillance**

All participants were surprised to learn that meat from cattle infected by bTB entered the human food chain. However, their responses to this information varied. Some showed trust in the testing and regulation applied to the food chain:

*“I am sure it must be safe; if it wasn’t we’d know by now.” (Exeter)*

Others had a more visceral reaction:

*“I am starting to go off my meat now.” (Exeter)*

Many felt that the public should be given more information about what they are eating, for example through labelling meat so that people can ‘vote with their feet’.

Participants were also surprised by the number of bTB cases picked up through slaughterhouse surveillance. A few felt this reflected badly on the efficacy of the earlier stages of the testing regime, whereas others were concerned that relying on slaughterhouses to identify infected meat increased the risk of some cases slipping through the net. This latter concern was compounded by feelings that slaughterhouse checks were not sufficiently robust to catch all infections:

*“I remember seeing and hearing 12 months ago that there were problems with slaughterhouses and the fact they are not testing animals and meat properly or filling in forms properly.” (Newcastle)*

Participants recognised the importance of effective slaughterhouse surveillance and suggested ways that it could be improved, including financial incentives and up skilling meat inspectors.

## **Wildlife surveillance**

Participants from all workshops questioned the decision to stop the testing of badgers killed in road traffic accidents. They asked whether this was due to the method not providing useful data or simply because resources to carry out this testing were limited. Several felt uncomfortable with the idea of culling badgers without knowing whether they have the disease or not and asked for badger surveillance to be introduced, with some suggesting that wildlife organisations could play a role in this.

One group from Exeter expressed support for the current practice - as described in the ‘Detecting bovine TB’ information sheet - of encouraging deer stalkers to submit carcasses for testing as a way of gaining intelligence about the incidence of the disease at a local level.

## On-farm biosecurity measures

Participants were provided with information about on-farm biosecurity measures to prevent badger-to-cattle transmission of bTB, and discussed the merits and drawbacks of these being voluntary: many were surprised that they were not already compulsory.

The main argument for maintaining a voluntary regime was that the effectiveness of on-farm biosecurity measures was not confirmed. Participants were worried that farmers would be made to implement measures which may not reduce the risk of bTB transmission to any great extent. This case was made most strongly in Exeter and raised by some participants in Birmingham. Comments focussed particularly on the efficacy of the measures suggested to keep badgers away from cattle:

*“Is it realistic to keep badgers away from the farms thanks to fences?” (Exeter)*

*“Badgers live underground; can’t they just dig under the fence?” (Birmingham)*

A further reason given for retaining a voluntary approach was that each farm is different and measures that work in one place may not have the same success elsewhere:

*“There is no evidence of these measures working. We cannot have a one size fits all approach. We need to use common sense to implement the right measures to the right farm.” (Exeter)*

Some participants were concerned that not all farmers would be able to afford to implement all the proposed biosecurity measures on their farms and suggested setting up a grant system to help farmers implement biosecurity measures or that other stakeholders, such as supermarkets, should help cover the cost to farmers of implementing biosecurity measures.

Participants made a number of further arguments in favour of retaining the voluntary approach. These included the view that farmers are already motivated to do all they can to protect their herds; that the farming industry is already constrained by legislation; that implementing on-farm biosecurity was likely to be very time-consuming for farmers; that the system could be too difficult to monitor for compliance; and that enforcing the measures could lead to farmers locking all their animals indoors, which some felt would have an unacceptable effect on the quality of meat.

Those participants who argued for compulsory measures felt that this approach would be in line with approaches taken in other industries and that farmers would only be required to act in their best interests:

*“It is the same in other industries – the producer has to pay for their own safety and hygiene measures so farmers should also.” (Exeter)*

*“Why should farmers be picked out and treated differently to other people just for doing the right thing?” (Newcastle)*



Some suggested that making the measures compulsory would remove the need for a variable compensation programme (see Linking top-up compensation to biosecurity) because compulsory on-farm measures would not need to be incentivised. Compulsory measures were therefore preferred by some who felt that a variable compensation programme was likely to be difficult to establish and implement.

## Compensation for farmers

### Views on the current compensation levels

Participants were in broad agreement that some amount of compensation for farmers was necessary but were undecided on the appropriate level of payment.<sup>17</sup> Those who felt that current levels of compensation for were too low argued that farmers have a reputation to maintain and would therefore avoid a bTB breakdown at all costs. Some added that current compensation figures did not take into account the hidden costs of a bTB outbreak, such as the emotional impact of experiencing a bTB breakdown. Others felt that higher compensation would allow farmers to be better supported and more able to maintain their livelihood.

Other participants felt that compensation was too high, arguing that it would discourage farmers from taking sufficient preventative measures on their farms, or incentivise poor practice or the falsification of bTB tests. Some blamed government for what they felt was the creation of a “compensation culture” during the foot and mouth disease outbreak and emphasised farmers must be given an incentive to alter their behaviour towards mitigating bTB risk:

*“During foot and mouth a lot of farmers made a lot of money, farmers are not poor and they will do all they can to flaunt the rules and make as much money out of it. A compensation culture gives no incentive for them to improve anything.” (Exeter)*

Some participants did not feel in a position to comment on the compensation levels. However one group in Birmingham thought it was important for the public as taxpayers to have a voice in decisions about the level of compensation, arguing that this was a cost to the taxpayer and that they were paying hidden costs for their meat:

*“We are paying twice - we pay the compensation and for it to be slaughtered and then we are buying the meat.” (Birmingham)*

### Linking top-up compensation to biosecurity

There was strong and widespread support for Defra’s proposal to link the amount of compensation paid to farmers who experience bTB breakdowns to the on-farm biosecurity

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<sup>17</sup> Please see Information sheet 2 in Appendix 6 for the information on compensation provided to participants as part of the first workshop.



measures they have in place. They had many questions about the practical implications of such a link. For example, how would on-farm biosecurity measures be assessed; would the requirements vary between low and high risk areas; how much would the new system cost to set up and enforce. They emphasised the importance of providing very clear guidelines about what was expected of farmers.

The primary reason for supporting this measure was that the link between compensation and standards of on-farm biosecurity would provide an incentive to any farmers who would otherwise be less inclined to implement these measures: financial incentives were seen as the most effective way of changing behaviour. A few participants argued that farmers would already be taking all the measures that they could and that a link between compensation and on-farm biosecurity would have significant impact.

Participants who did not support this measure generally felt that it did not go far enough. Some participants, particularly in the Newcastle workshops, thought that improvements in biosecurity practices should be compulsory rather than being left to the farmers' discretion: these comments are covered in more detail in the previous section on on-farm biosecurity measures. Others were concerned that the introduction of this measure would impact on meat prices, as beef farmers would need to spend more money on farm maintenance. There were no comments on how the impact of this specific measure on dairy farmers might affect to milk prices.

A few participants were concerned that some farmers would not be able to pay for the biosecurity measures. As noted above, some asked whether a grant could be available for some farmers to use to implement on-farm biosecurity measures. Some wondered whether money could be raised from the local community. The idea of a grant scheme gathered more traction after the filmed interviews which showed a farmer who had experienced a bTB breakdown.

## **Insurance schemes**

The idea of an insurance scheme for farmers to protect them against the costs of bTB breakdowns was discussed by a few groups at the Birmingham and Newcastle workshops only.

Some participants in Newcastle supported this idea and felt that it would reduce the cost of bTB compensation to the taxpayer. Some argued that such a scheme should be supported by government, on the grounds that it might not be viable in high risk areas. Others suggested that insurance cover could be conditional upon meeting certain biosecurity standards. The analogy given was car insurance and the requirement to have an MOT before the insurance company will pay out.

# Controlling the risk from badgers

## Views on badger culling

Participants' perspectives on the subject of culling as a method for controlling the risk from wildlife fall into three broad groups. First, culling is wrong and should not be considered as part of the Strategy. Second, culling is an option but participants raised questions about the certainty of the evidence. Third, that all control measures should be used, given the scale of the bTB problem. Most participants did not hold to one perspective throughout the two workshops: rather they moved between the different viewpoints based on the information provided, discussions with others, and even research carried out independently by some of the participants themselves between workshops. We look at these three perspectives in turn.

### ***1. Culling is wrong and should not be considered part of the Strategy***

Participants who took this view did so for a number of reasons, including concerns about the possibility of a humane cull, broader ethical objections to killing animals, uncertainty about the impact of culling badgers on the wider ecosystem and some suspicion that the cull was primarily being carried out to placate farmers.

Some participants felt strongly that no cull could be described as 'humane' and were therefore unwilling to consider culling as part of a future Strategy for eradicating bTB. They argued that humans have a responsibility to look after wildlife, that badgers are part of the ecosystem and that the impact of removing them is unknown. In Birmingham some participants asked which species were most likely to be affected by a reduction in the number of badgers.

*"I hate the whole idea of a cull so don't ask me if it's humane." (Newcastle)*

Other participants were concerned that culling could lead to the extinction of badgers and that the value of badgers had been underplayed simply because they did not generate income in the way that cattle do. After hearing about the wildlife control programme in New Zealand, several participants said that such a rigorous programme could not be implemented in England because of public attachment to badgers.

*"It has got to be wrong to cull, as it does not address the problem. 500,000 badgers is not a big number – there could be a tipping point and a risk of extinction."*

*"Badgers are just as important as cows – they're just not making people any money." (Birmingham)*

Some participants objected to the cull because they thought it was only going ahead to placate farmers. People holding this view wanted the Strategy to focus on other measures, such as restricting cattle movements or taking steps to reduce the risk of interaction between cattle and badgers.

## **2. Culling should be part of the Strategy and should be used more widely**

Those who supported a wider roll-out of the culling programme tended to do so with some reservations or conditions. They said that any culling should be proportionate and that more work should be done to determine how many badgers needed to be culled for the measure to be effective in reducing the incidence of bTB.

Those participants who supported culling tended to base this view on one or both of two main reasons. First, they were more convinced by the evidence that culling was an effective way to reduce the incidence of bTB and second, that the severity of the bTB problem in England warranted such measures.

*“It is justifiable to cull badgers given the circumstances. It should be done humanely, based on expert advice.” (Exeter)*

In their discussions of culling, these participants made a number of points in support of their position. Some questioned why badgers should be treated any differently to other wildlife - for example deer and rabbits which are sometimes culled – or to cattle, which are killed when they are found to be infected with bTB. Some questioned the value of badgers and wondered whether badgers and wild animals in Britain are really valued as much as others suggested and indeed, whether they are truly wild.

*“Badgers don’t do anything in particular for us.” (Birmingham)*

*“Wild animal populations in Britain are not really wild – they are managed by the grace and favour of farmers. So we should be prepared to cull them if necessary, though we should not decimate them, and in general we should protect wildlife.” (Exeter)*

Some participants wanted to know why the Badger Protection Act had been introduced and why it was not revoked, either permanently or temporarily to allow badger culling to take place. Those who made this suggestion thought that the Badger Protection Act had played a role in the increase in bTB incidence over the last twenty years.

## **3. Culling should be an option but more evidence is needed**

A more common view was that culling should be an option in the eradication programme but that the evidence to support its use is currently inadequate: participants were not convinced that it would have any significant impact on the incidence of bTB in cattle.<sup>18</sup>

Within this wider questioning of the evidence, some participants wondered whether Defra’s proposed roll-out (subject to the results of the pilot culls) was due to the desire to look proactive: these quotes illustrate some of the more general suspicion underlying a few participants’ views on culling in particular:

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<sup>18</sup> See the Overview to this chapter for a brief speculative discussion of why participants might have challenged the evidence around badger culling.

*“Is the badger cull just to make the government look like it’s doing something?”  
(Newcastle)*

*“Are there other reasons why we shouldn’t be culling badgers, for example ecological reasons? I don’t feel this question has been answered” (Exeter)*

*“Not enough research has been done to prove a link between badgers and bTB. The Government just wants to be seen to be doing something – it does not have definitive proof of a link.”*

*(Birmingham)*

Some participants were also unconvinced that the evidence on the role of badgers in spreading bTB was secure. This uncertainty fuelled a strong feeling, particularly at the Exeter and Newcastle workshops, that badgers should be tested as part of any culling programme. Participants thought that if culled badgers were shown to be infected then this would strengthen the case for the cull, and that carrying out checks to test whether the approach was working was only logical. Some felt that not carrying out this testing reinforced the view of those participants who argued that the decision to cull was not based on evidence:

*“It just seems like such a waste not to be collecting stats on this about how many have TB - it proves they don’t actually care they just want the badgers dead.” (Newcastle)*

Some made more ambitious suggestions about capturing and testing live badgers, then vaccinating those that were healthy and culling those that were infected.

Other participants felt that they did not have sufficient information to make an informed judgement:

*“No one seems to be able to say anything with certainty – it all seems to be a grey area. This makes it very difficult to make up your mind.” (Birmingham)*

Participants asked many questions to help them form an opinion on the best approach to wildlife control, such as how cattle and badger populations mapped across England and what impact the Badger Protection Act had had on bTB incidence in cattle. Others wanted to read about the results from the Randomised Badger Culling Trials for themselves. A question was also raised about whether badgers could pass on bTB to their offspring and therefore whether culling was a sustainable option.

## **Badger vaccination**

Participants had mixed views on badger vaccination. Some thought that it sounded impractical, while others saw it as an important control measure that should be deployed: these people tended to question the level of commitment to vaccination in the Strategy.

Concerns about the deployment of the injectable badger vaccine focussed on the practicalities of capturing badgers in order to vaccinate them and the long timescale over

which vaccination would need to be deployed.<sup>19</sup> This led some to suggest that the focus should be solely on cattle control measures instead.

Others saw vaccination as the best way to deal with the problem of bTB, saying that it was no less practical than culling, and that it would be cheaper than doing nothing. One group in Exeter considered 'cost per badger' to be an important measure of the cost-effectiveness of badger vaccination versus culling. Some questioned the way in which vaccination was currently being deployed, for two main reasons. First, that vaccination programmes should not be running at the same time as the pilot cull, because you could end up culling vaccinated badgers, which was seen to be a waste of resource and time. Second, and linked to this first point, the absence of a tagging process to show that a badger had been vaccinated was felt to indicate that Defra was not fully committed to this option and that insufficient thought had gone into its deployment.

## Badger contraception

A few groups across the workshops touched on the idea of badger contraception as an alternative method for controlling the risk from wildlife. In general it was thought that more investment should go into research of contraceptive measures, either because participants themselves considered the idea to be more palatable than culling, or because they thought that contraception might be more appealing than culling to the general public.

## Cattle vaccination

Participants' focus in this discussion was on the timescale for deployment of a cattle vaccine. They wanted to understand why it would take so long, given the seriousness of the bTB problem in England. Some expressed frustration that the UK government was not just 'getting on with it'. Others felt that the EU was a hindrance rather than a help to England and that it could – for example - contribute towards the cost of cattle vaccination research.<sup>20</sup>

*“EU Law’: why? Can’t we make the rules ourselves anymore?” (Birmingham)*

*“What is EU contributing to solve the problem?” (Exeter)*

One group in Newcastle asked whether countries outside the EU vaccinate their cattle.

The information provided to participants included an explanation of the Differentiating Infected from Vaccinated Animals (DIVA) test as a way to tell the difference between vaccinated cattle and cattle infected with bTB, and the time required before this test can be

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<sup>19</sup> In contrast to the discussion on cattle vaccines, participants did not discuss the efficacy of the badger vaccine.

<sup>20</sup> Cattle vaccines are currently prohibited by EU legislation as the lead candidates are based on BCG, which can interfere with the tuberculin skin test. Some vaccinated cattle could therefore react positively to tuberculin as if infected by TB, and herds could not be declared officially TB-free (OTF). The test to differentiate infected from vaccinated animals is given the acronym of the DIVA test. This test, a modification of the current interferon-gamma blood test, can be used alongside the tuberculin skin test in vaccinated animals where necessary, to confirm whether a skin test positive result is caused by vaccination or TB infection.

used reliably in the field. This added to participants' frustration about the timescales. Some asked why simple markers could not be introduced such as branding or stamping cattle, use of microchips, use of cattle passports to indicate whether cattle had been vaccinated or not, or compulsory vaccination at birth so you know that cattle above a certain age have been vaccinated.

Participants were generally disappointed by the 50-60% effectiveness of the cattle vaccine.<sup>21</sup> Some asked how this percentage had been reached, and whether the human TB vaccine was more effective. Some thought this level of effectiveness did not warrant the money that was being spent on bringing the vaccine to the UK, although others thought that more money should be spent on cattle vaccine research.

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<sup>21</sup> Participants did not comment on the efficacy of the badger vaccine, focusing more on the practical issues of implementation.

# Chapter 4 Roles and responsibilities

## Introduction

To explore participants' views on the appropriate roles and responsibilities of government, industry and other stakeholders in addressing and eradicating bovine TB, they were presented with an outline of the New Zealand governance model (please see [Appendix 5](#) for the presentation slides), how it compares with the UK model, and the pros and cons (according to the academic expert present at the workshop) of the farming industry playing a greater role in bovine TB control. Given the link between responsibilities and costs, participants were also asked to consider which stakeholders should pay for which aspects of the bTB control programme and why. The main discussion about roles and responsibilities occurred during the focused discussion around the New Zealand model and what England might learn from this. However, participants' expressed their views on these issues and on the roles of different players – including the government, farmers, the farming industry, wildlife organisations, food industry and the public themselves - throughout the workshops.

## Overview

This chapter has six main sections:

1. Sharing responsibilities
2. The role of the Government
3. The role of farmers and the farming industry
4. The role of the food industry
5. The role of wildlife organisations
6. The role of the public.

As in the previous chapter there are some wider themes that run throughout these sections. The first is a general sense that responsibilities for the eradication programme should be shared across government, the farming industry, wildlife organisations and other stakeholders. This view was driven in part by learning about the New Zealand approach but also by the view – first expressed at the very start of the dialogue – that there was at present a 'pass the buck' mentality amongst all those who should be taking responsibility.

The second theme is that throughout their discussions on responsibility most participants elided the distinction between the current government and the government in general: it is therefore not possible to determine the referent of comments about 'the government'

## Sharing responsibilities

The importance of working together and sharing responsibility was emphasised by participants at all workshops. Participants at all workshops thought that bTB incidence in England had escalated to its current levels because of inadequate leadership from the government: this point was sometimes emphasised with reference to other countries having dealt with their bTB problem.

*“If government knew there was a sharp increase happening in the 1990s, why did it not deal with it there and then?”* (Birmingham)

*“Why wasn’t it controlled earlier? 40 years of uncontrolled mess.”* (Newcastle)

Shared responsibility and team-work would, participants felt, contribute to a more successful bTB control programme. Sharing responsibility would also reflect the fact that bTB is a problem for everyone and therefore everyone is responsible – with participants referring to the impact it has on the farming industry, on wildlife, on the economy and the costs to the taxpayer.

Some participants in Newcastle suggested having a single body to manage the bTB control programme, with representation from all interested groups. They argued that this would prevent different stakeholders from passing the buck to others, ensure all relevant parties are involved and take some responsibility and emphasise the shared nature of the problem and the solutions. The group thought it important that this body was free from political influence whilst still being accountable to the government. In Birmingham, one group thought that a farming industry and government-led group should act as the decision-making body for the bTB control programme, but that it was important that other stakeholders could provide input into those decisions.

## The role of government<sup>22</sup>

Participants made a number of arguments in support of government<sup>23</sup> taking a leadership role in the bTB control programme. One very strongly supported view, particularly in Newcastle, was that the government’s inaction had caused the rise in the incidence of bTB and that government should therefore *“sort it out, get on with it”* (Birmingham).

Some participants argued that it is government’s responsibility to make policy that balances all interests, rather than favouring some: their concern was that if the farming industry had too much influence over the bTB control programme, it would reflect the

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<sup>22</sup> As noted in the Overview, participants’ comments on the role of the government were often not clear in their reference and we did not explore every use of this term. This means that some of the points described below relate to the general responsibilities of the state whilst others are about this current government. It should be noted that in these discussions, participants made disparaging remarks about the government in general, and about the coalition government and about politicians, without these remarks having direct reference to the draft Strategy.

<sup>23</sup> In line with convention and style guidance, we use government, with lower case g. See: [http://www.ox.ac.uk/public\\_affairs/services\\_and\\_resources/style\\_guide/capitalisation.html](http://www.ox.ac.uk/public_affairs/services_and_resources/style_guide/capitalisation.html)



interests of farmers too strongly. Others suggested that farmers would not be able to contribute any additional monies to the control programme and that it must, therefore, remain in government hands. A few also argued that any improvement in the nation's economy due to eradication of bTB would be of benefit to the government, and therefore it would be in their interests to deliver an effective control programme. Even though views were split about the extent to which government should have a role, most felt that they had some part to play, even if it was simply oversight.

Other participants were not convinced that government could be trusted to eradicate the disease effectively and that the pace of action needed meant that other stakeholders should have more control over the programme.

Alongside this view – and echoing strongly the view of stakeholders – was the view of some participants that political influence could be more of a hindrance than a help: a politics-free approach that would last beyond the lifetime of any particular political regime was supported by some.

*“If there is a change of government, this [plan] shouldn't change – a law, act, whatever, is needed. So it wouldn't be a policy of a specific party or else it will never happen.”*  
(Newcastle)

*“Shouldn't be about politics, but is currently. Need to make sure future governments won't reverse any strategy/approach agreed on- can it be 'government proof'?”* (Exeter)

Although most comments relating to the government were about government in general rather than directed specifically at the current incumbents, one group in Newcastle felt that the decision to proceed with the pilot badger culls was one which would not have been taken by a Labour-led government:

*“Labour would choose vaccination over culling.”* (Newcastle)

This is one of the very few explicit comments in which participants suggest that political leanings drive preferences for particular control measures.

## **What should government pay for and why?**

Following the general discussion about the role of government, participants looked in more detail at the different aspects and costs associated with the bTB control programme. Participants were given a list of tasks and asked which of a list of stakeholders should be responsible for each of them.<sup>24</sup> Those tasks for which they felt government should be responsible included testing, to ensure consistency across the country and adherence to EU requirements: research and development, and supporting farmers to improve on-farm biosecurity practice. This latter support included setting up a grant scheme for farmers who cannot afford to install biosecurity measures on their farms. The aspects of the bTB control

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<sup>24</sup> See Appendix 1 for more detail on this process.

programme which participants most commonly allocated to government are shown below, along with a summary of participants' rationale for their allocation.

Costs for government	Participants' rationale for government ownership
Advice and guidance, testing, bTB breakdown investigations	To provide consistency across the country
Research and development	Other stakeholders would not be able to afford it, or would not have the incentive to pay for it
Transporting and disposing of bTB reactors	To ensure it is done to a good standard
Policing of the badger culls	To ensure it is done humanely
Monitoring the badger vaccination programme	Impact of the programme may be represented in a biased way by other stakeholders
Routine bTB surveillance testing	Simply to ensure that it is done
Grant scheme for on-farm biosecurity measures	Farmers need financial support for this

## The role of farmers and the farming industry

Many participants supported farmers having more control of the bTB eradication programme, primarily on the grounds that they would be its prime beneficiaries. Some participants suggested that an industry-led control programme would be more streamlined and better at 'getting things done'. Some felt that farmers are currently hidebound by what one participant described as 'bureaucracy for bureaucracy's sake' and there was some sympathy for farmers not having the power to do all they wanted to do to eradicate bTB.

This view was expressed more strongly after participants viewed the film of an interview with a farmer who had experienced a bTB breakdown. Some argued that farmers are already facing considerable pressure from the food industry to produce high-quality food for low profit, and concluded that they were therefore not in a position to commit further expenditure to bTB control measures. There was also support for the view that farmers know their own land and should be allowed to manage it in the ways that they see fit.

Most participants stopped short of expressing support for the farming industry having complete control of the bTB programme. Some felt that farmers could not afford to '*do it alone*', but the main concern was that farmers' full agenda was unlikely to be supported by the taxpayer. Participants thought that farmers should '*be in charge of their own farm*' and responsible for things they can affect, such as on-farm biosecurity measures.

In contrast to the support for farmers expressed by some participants, others described them as '*ruthless*', particularly in relation to badger culling. However, on balance the most predominant view was that farmers should take responsibility for culling, but that

government should retain an oversight role to ensure that the public interest of preserving wildlife is maintained.

## What should the farming industry pay for and why?

Participants provided some suggestions about which aspects of the bTB control programme should be the responsibility of farmers or the farming industry. The aspects of the bTB control programme which were most commonly allocated to the farming industry are shown below, along with participants' rationale for their allocation.

Costs for farmers	Participants' rationale for farming industry ownership
Biosecurity measures	It's in the farmers best interest; individuals must take responsibility for their own farm and cattle; individual farmers have the knowledge to implement and monitor such measures, e.g. " <i>they know where the setts are so could fence them off</i> ".
Pre-movement testing and export testing	It's in the farmers best interest; to allow individuals to be in control of their own cattle; to allow individuals to maintain responsibility for own business choices
Routine bTB surveillance testing <sup>25</sup>	It's in the farmers best interest; individuals must take responsibility for their own farm and cattle
Staff and time away from business for bTB testing	It would be hard for the system to be any other way - although testing requirements should stay reasonable
Transporting and disposing of bTB reactors <sup>26</sup>	Seen as part of the basic package of costs that farmers should be covering, i.e. " <i>part of cattle management</i> ".
Compensation for bTB reactors	To internalise the cost of risky behaviour: " <i>It might incentivise them</i> ".
Badger culling	Farmers have done it before effectively; but would need to be regulated

## The role of the food industry

The food industry – mainly supermarkets - was singled out as 'the big winner' by participants who felt that they were squeezing farmers by paying them low prices for meat and milk. Some felt strongly that the food industry should take greater responsibility for bTB control as it benefits from a functioning farming industry. The food industry was also singled out as the driver of changes in farming practices, with some participants believing that this has forced the intensification of farming in the UK. Some argued that consumers,

<sup>25</sup> Participants were divided about whether this should be a cost to government or the farming industry: some felt government would ensure that surveillance testing is actually done, whilst others felt it was a cost of doing business as a farmer.

<sup>26</sup> Participants were divided about whether this should be a cost to government or the farming industry: some felt government is best placed to do this to the required standards whilst others felt that this was a clearly responsibility of farmers.

rather than supermarkets, gain from low prices at the farm gate, although others argued that this was an empty gain because the public pays in the end through farming subsidies. It was suggested that it would be fairer and make more sense if costs were passed on directly to the consumers of beef and dairy products, rather than indirectly to taxpayers through increased subsidies.

## The role of wildlife organisations

Discussion about the role of wildlife organisations in the control programme was limited. This was due in part to participants being prompted specifically about the role of government and the farming industry only. The role of wildlife organisations was raised in response to the question of who else might need to be involved. Those participants who discussed wildlife organisations tended to support them having some responsibilities in the bTB control programme and take part in decision-making. Some participants in Birmingham felt that this would skew the focus of the bTB control programme too much towards wildlife, and badgers in particular, rather than encompassing the wider programme of measures. The financial contribution to vaccination programmes made by organisations such as the National Trust and the Wildlife Trust was welcomed and participants thought that they should be able to continue with this.

## The role of the public

The role of the public was seen from two perspectives: firstly as a consumer of beef and dairy products, and secondly as a taxpayer and therefore a stakeholder in how government money is spent on the bTB control programme. Although participants acknowledged that bTB has an impact on the public, both as consumer and taxpayer, there was little support for them taking more responsibility, or contributing more financially, to the bTB control programme through increased food prices or through increased taxes.

Minimising the risk of bTB to human health was clearly important to participants. However, there was a widespread view amongst participants that the level of risk was not sufficient to justify an increased role for the public, as actor or financier. For example, most participants were not willing to support changes to the bTB control programme that would result in increased prices for meat and milk. When questioned about this, they argued that people *'should not have to pay extra for safe food'*. In these discussions, government spending and responsibility for making changes to the control programme were often divorced from the cost to the individual taxpayer: this meant at times that the call for 'more government spending' was not traced back to the individual purse.

Some participants wondered whether the public should indeed pay more for its food, suggesting that the additional income could be passed to the farming industry to provide more resource for improving biosecurity practices and testing regimes. A few participants at all workshops felt that the public expects meat to be cheap enough to eat every day and cheap milk and that this expectation should be challenged. However most participants thought meat - and especially British meat - is expensive enough and that people expect

food bought from a supermarket to be safe. This view was particularly strong at the Birmingham and Newcastle workshops.

Some participants were not sure what role members of the public could or should play in shaping bTB policy. Given that the risk to human health is minimal, many did not see it as relevant to them or see the need for public input into the policy. Others asked about the extent to which outputs from the dialogue would influence decision-making. For example, a few participants at each workshop had argued that the Protection of Badgers Act inhibited progress in eradicating bTB and asked:

*“Will the Badger Protection Act be lifted if we say so? Sounds like this can’t be changed. We should have a vote on this and let people decide.” (Birmingham)*

In general, participants were sceptical about the ability of the public to ‘make things happen’.

# Chapter 5 Communicating bovine TB to the public

## Introduction

Throughout the workshops, participants commented on the way that the issues and impacts of bTB are communicated to the public through mainstream media channels. They felt that the information most readily available to the public was often misleading or biased, that it focussed on badger culling only and not on the wider range of measures in the Strategy, and that the range and nature of the impacts of bTB were not fully known to members of the public.

At the end of the second workshops, people worked in small groups to develop the outline of a newspaper article that presented what they felt were the most important messages to communicate to the public. Each group presented its newspaper to other participants. The messages each group presented were those that participants thought would help the public to develop a more informed opinion and understanding of the issues surrounding bTB.

## Overview

The articles produced by participants, and their explanations of these at the end of the second workshop, highlighted the different types of information they thought would be of value to the public.<sup>27</sup> These messages are grouped under the following broad themes:

- Epidemiology of bTB
- The role of badgers
- Control measures
- Finance and costs
- Responsibility
- Other impacts.

The articles presented in digest form many of the issues discussed throughout the two days. Some of the content was presented as questions rather than statements: these were perhaps those questions to which participants felt they did not have an answer or issues on which they had not developed a firm view but, nonetheless, thought it important to

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<sup>27</sup> See Appendix 10 for examples of newspaper articles produced in each of the three locations.

communicate to the public. One theme that was less prevalent during the dialogue as a whole but apparent in the articles produced by some groups is that of the long-term: some groups highlighted the need for a long-term Strategy and for the long-term impacts of the disease to be considered and communicated.

When reading this chapter, it is useful to keep in mind that participants had spent two days hearing about bTB from a range of perspectives, listening to others' views and reflecting and deliberating on the issues. Their introduction to bTB, the problems it presents and the draft Strategy that aims to ameliorate these problems was unusual. What they remembered and thought was important to capture in their final newspaper articles might be artefacts of the process – for example, which information they themselves found most persuasive or easiest to integrate into their existing knowledge or was presented in a particular way – for example, in person via presentation or on video. Dialogue also provides an enjoyable and guided journey through complex information that might, for any one single participant, take much longer to accumulate through individual research. There might thus also be some over-statement of the interest that the wider public has in learning more about bTB.

However, there was some consistency across the groups in what they included in their articles, which is captured in the six broad themes, so it might be that these six themes are the building blocks that they themselves have found useful in developing a broader picture of the disease and exploring the implications of different aspects of the draft Strategy.

The thread that ties these themes together is factual information: in the first section below, before looking at the six themes noted above, we look briefly at participants' comments about the importance of unbiased and accurate information.

## **“The facts: free from politics”**

This quote from the article drafted by a group in Birmingham captures what many participants wanted from government communication about bTB and, in particular, about badger culls. This desire for factual, unbiased information and for a range of balanced opinion ties many of the other themes together. Participants felt that government should provide balanced, considered and politics-free communication that would address the bias that many of them felt was evident in media coverage of the pilot badger culls, though not in any single direction, for or against the culls.

This concern about balanced communication was evident in the articles that participants drafted and evident in many of the headings they used, which often included the words “Facts”, “Fiction” or “Myths”.

## **Epidemiology of bTB**

Participants in all three workshops thought that public information about bTB should communicate whether the disease is viral or bacterial, how it is transmitted, the patterns of

disease incidence and upwards or downwards trends in infection rates. Comparative data was also seen as important. These included the position of the UK relative to other countries, the position of England in relation to Scotland and the different patterns across the regions. For example, participants in Newcastle noted that infection rates were highest in the South West and were concerned about the disease spreading into the currently low risk North East. The early information about UK's position relative to other countries and about Scotland being bTB-free clearly resonated with participants and remained foremost in their minds throughout the two events.

The most prominent information in the articles as a whole related to animals, including badgers, cattle and other wild and domestic animals that can be affected by bTB. Some participants felt that it was important to inform the public about how the disease affects different animals.

## The role of badgers

In all workshop locations some comments simply highlighted the need for factual information about the role of badgers in bTB transmission:

*“Other animals that spread disease - why badgers most?” (Exeter)*

All but one of the articles included comments on the role of badgers in bTB transmission. Participants in Exeter and Birmingham tended to highlight the role badgers play in bTB transmission, as carriers of the disease and as a vector in its transmission to cattle. Participants in Newcastle took a different perspective, emphasising that badgers alone do not account for the spread of the disease and that other animals can also carry and spread the disease.

## Control measures

Participants focused on two control measures in particular: vaccination and badger culling. In relation to cattle vaccination, comments referred to the current EU block on vaccinating cattle and the 10-year timescale for vaccine development. Comments on badger vaccination communicated the availability of the vaccine and noted the cost and complexity of delivery. We have noted above that participants felt more factual information about culling was important: the information they wanted included how effective culling is at reducing the disease, where responsibility for culling lies and how it is done. An article from Birmingham referred to examples where culling has proven to be effective: an article from the Exeter workshop noted that badger culling can spread the disease further.

A few of the articles positioned culling within the wider package of control measures, noting that it is just one amongst a range of options. Articles from Exeter and Newcastle highlighted the importance of a combined approach or balanced solution. A few articles touched on pre-movement testing of cattle, biosecurity measures, investigating different farming techniques, the role of contraception in badgers, and the accuracy of bTB testing.



Participants saw comparative data as a useful communication tool, as indicated in the section above, on epidemiology. This was evident in their messages about control measures too. In all locations, they referred to examples and case studies from other countries where bTB control has been effective, and importance of learning from these examples.

## Finance and costs

Participants felt it was important to communicate to the public the economic impact of bTB on the UK. Many quoted the figure of £1.7 billion a year as the cost to UK meat and dairy exports and the farming industry as a whole. Some pointed to the wider risk to the UK of a losing an entire industry, particularly in difficult times:

*“In the current economic climate do we want to see another British industry go under?”  
(Exeter)*

As well as communicating the overall costs, participants in all locations felt that the cost to the taxpayer should be conveyed: participants quoted this as being £100 million a year. Some groups’ newspapers asked for a justification of this cost and one article suggests sharing the costs of bTB with other stakeholder groups to reduce taxpayer spending.

The economic impact on individuals was also highlighted, in the context of costs being passed on to consumers through supermarket price increases.

The articles include a number of more general comments about cost. Participants suggest that explanation of the high costs of bTB control and detection; of the overall financial impact; the relation between spending and success, and a detailed breakdown of the spending forecast would be valuable to the public.

## Responsibility

Articles from Birmingham and Newcastle and a few from Exeter included communication on where responsibility lies for controlling and funding the eradication of bTB. Some simply asked the question: who is responsible? This could indicate that participants themselves were unclear about the answer to this question or that they thought that there is not at present a single body taking responsibility for tackling the epidemic. Some listed the different stakeholders who could be responsible for disease control, regulation, funding, and decision making.

One article questioned the government’s level of understanding of and concern about bTB and stated that the public has a right to know who takes responsibility. Another one pointed to a top-heavy approach, with *“too many chiefs”*.

Other articles placed more emphasis on shared, rather than individual responsibility, suggesting a multi-agency approach is most likely to succeed.

*“Solutions - one united body with representatives from each body - wildlife org, NFU, farming, government, Defra, vets, food industry, supermarkets, slaughter houses, auction houses. All of these are accountable, each putting in percentages of money and says.”  
(Newcastle)*

Whilst ostensibly about a partnership approach, much of the focus in articles was on farmers: in particular, their financial contribution, whether they should receive compensation for reactors and how this should be funded.

## **Other impacts of bTB**

Articles in all locations included comments on the importance of providing accurate information on the risk to and impact of bTB on human health. Some of these emphasised that abattoir controls, milk pasteurisation and thorough cooking of meat meant that cattle products are safe for human consumption. A smaller number referred to a slight risk to human health, about which the public should be informed.

Half of the articles produced in the Exeter workshops included comments about the emotional cost of bTB, particularly to farmers.

Finally, a few participants saw communication about the long-term as important. Their articles suggested that agreeing the long-term strategy and communicating this effectively to the public would be valuable. They suggested as well that the public should have information about the long-term impact of failing to tackle bTB.

# Chapter 6 Conclusions

## Introduction

In this final chapter we summarise the main messages that participants felt should inform the future development of the Strategy. We look next at some of the changes in participants' views over the course of the two workshops and touch on some of the broader themes that we have identified throughout the report. Finally, we reflect very briefly on the dialogue objectives and what this project has achieved.

## Main messages from the dialogue

In this section we summarise the main messages that emerged from participants' deliberations throughout the two days of the dialogue. These messages are categorised under six main themes:

- Learn from other countries
- Establish multi-stakeholder governance arrangements
- Communicate better with the public
- Base actions on evidence
- Explore the role and responsibilities of farmers more fully
- Tighten up testing and surveillance.

Badger control and culling is a seventh theme running through all discussions and a clear focus in participants' final newspaper articles. However, there is no clear message attached to this theme: participants' views were very mixed and often strongly held. We summarise these views briefly after looking at the messages sitting under the six themes.

### Learn from other countries

Participants thought that learning from other countries' experience of controlling bTB was vital.

*“Learn from other countries – not all of it, take the good bits from other countries – if other countries can reduce it why can't we?” (Newcastle)*

They thought that some measures used in New Zealand, such as the farmer levy and increased influence for farmers were particularly useful.

The evaluation data will provide details on the information and media that participants valued most during their discussions. One observation we can make is that comparative data seemed particularly useful. Throughout the workshops, participants used comparative data – looking at either England or the UK in relation to other countries - to make sense of the scale and nature of the problem in the UK, the time needed to control the disease, the types of control measures available and their relative effectiveness.

## **Establish multi-stakeholder governance arrangements**

Shared responsibility for managing bTB was seen by participants as a way of removing political interests from the problem and helping to ensure that the strategic direction of the control programme did not shift with changing governments. It was also felt to be a way of demonstrating that bTB is a problem for everyone and that responsibility should therefore be shared. Participants did not fully embrace the New Zealand model, which is farmer-led, but preferred instead a coalition of farmers, vets and government representatives and the continued involvement of organisations such as the National Trust and Wildlife Trust who are currently funding vaccination programmes.

## **Communicate better with the public**

We have looked at the main topics for communication in the previous chapter. The primary recommendation emerging from participants' deliberations is to ensure that information provided by the government is balanced, that evidence is not interpreted or communicated through a political lens and, where there is informed debate about the reliability or weight of the evidence, acknowledges this. Participants' mistrust of evidence related in particular to the badger culls: they were less likely to challenge other data provided.

## **Base action on evidence**

All participants thought that the actions taken to control bTB should be based on evidence: the emphasis on learning from others is one indication of this. However, participants' views differed about what this means in relation to the speed of action. This difference seems to relate at least in part to the level of trust different participants placed in the evidence.

Some participants continued to express the frustration they had felt at the start of the dialogue, particularly about the 25-year timescale for implementing the Strategy and the EU ban on vaccinating cattle. They felt that a cattle vaccine was an essential tool for tackling bTB and saw the EU ban as a brake on its rapid development. A few participants thought that the dialogue process itself was unnecessary and that the time spent on this would have been better used to implement the Strategy. The thirst for action was also one of the drivers behind those participants supporting the badger cull as a temporary measure that should be used now whilst a cattle vaccine is still in development.

Others argued that the evidence for rapid action was not yet sufficient. They argued for more time to evaluate how different control measures work and why, so action that is taken is effective, logical and can be justified. These comments referred to the efficacy of

wildlife controls, for example whether badgers were actually a significant transmitter of bTB to cattle, whether the proposed method for badger culling would significantly reduce the amount of infected badgers, and some concern that there was not enough evidence about the ecological impacts of culling badgers.

*“Are there other reasons why we shouldn’t be culling badgers, for example ecological reasons? I don’t feel this question has been answered.” (Exeter)*

## **Explore the role and responsibilities of farmers more fully**

The discussion on shared responsibility made clear that participants felt that farmers have an important role to play and that they should be involved in any multi-stakeholder body set up to manage the implementation of the Strategy in future. Views differed on what exactly that role should be, and on how much control farmers should have over managing bTB.

Some felt that farmers should have more control, particular in relation managing wildlife on their farms:

*“Let farmers cull or vaccinate on their own land.” (Newcastle)*

Others felt that legislative changes would be required before farmers take more ownership of bTB control. The specific issues referred to in this context were on-farm biosecurity measures: either bTB breakdown compensation should reflect the efforts taken by the farmer to protect their farm from bTB infection, or on-farm biosecurity measures should be compulsory and farmers penalised if these are not in place. Some participants suggested that the government should provide more support for farmers to implement these measures: one suggestion we have noted earlier was a grant scheme.

## **Tighten up testing and surveillance**

This issue was raised by only a few participants, who recommended some specific changes. They argued for more pre-movement testing, tighter restrictions on cattle movement and for more people to be trained to conduct routine cattle testing, including lay testers. They also recommended further research to improve the accuracy of the skin test.

## **Badger control and culling**

As noted in the Introduction to this chapter, no clear message on badger control and culling emerged from this dialogue. We have seen throughout this report that participants had mixed and often strongly held views on whether or not culling should be one of the tools included in the draft Strategy. One view - not held widely - was that the Protection of Badgers Act is a barrier to a successful bTB control strategy and could be temporarily suspended:

*“Suspend the Badger Protection Act temporarily so as to allow a regulated cull. Monitor the effects of the culling, and reinstate the Act when necessary.” (Exeter)*

Others asked if targeted culling were possible, so that only the infected badgers are culled. There was some support for testing culled badgers and those killed on the road. Some participants saw a need for culling but were concerned about the method:

*“If you have to do it, okay – but make sure it is humane.” (Birmingham)*

The strongest opposition to culling came from Newcastle, where participants questioned its efficacy, and recommended that the Strategy include other ways to control the risk from wildlife, such as trapping and vaccinating badgers:

*“Culling is a token effort. Don’t put more money into this – focus resources on what’s been proven to work.” (Newcastle)*

## Reflections on the dialogue

Dialogue is about taking a journey. We noted in the previous chapter that participants had taken part in intensive two-day deliberations on bTB and the draft Strategy. At the end of the two days they were talking about on-farm biosecurity, levels of compensation for farmers with reactors and the roles and responsibilities of different stakeholders involved in managing bTB. Generally, this was new information for participants. Most had arrived on the first day with little or no knowledge about bTB, beyond what they had picked up in passing from media coverage of the pilot culls. Some had seen no coverage and were not aware of the ongoing and sometimes heated debates about the badger culls, which were running in Somerset and Gloucestershire when the dialogue was underway.

On the first morning, respondents were clearly shocked by information on the scale and spread of the disease in England, the picture here relative to other countries, the cost to the UK economy and the timescale for eradication. They were both puzzled and angered by what looked to them like inaction and a failure of leadership from the government. One early view was that the draft Strategy is a piecemeal, chaotic or uncoordinated collection of measures to address a problem that the government has, over many years, allowed to escalate to the current high level. Participants did not understand how or why the situation in England differed so much from that in Scotland, or elsewhere in the world. The cost to the nation of the disease itself and the cost of controlling it were seen as very high.

Three things seemed to be a factor in these responses to the information provided on the first morning. First, the extent and nature of participants’ exposure to information on bTB prior to attending the workshop: whilst knowledge of bTB was limited, most seemed to be aware, to differing degrees, of the pilot badger culls underway at the time the workshops were held. Second, their existing knowledge of and attitudes towards the complexities of the disease and the different control measures: a small number of participants had clearly explored the debate around badger culling in some detail already, though seemed less familiar with other elements of the draft Strategy. Third, participants’ desire for information suggested an appetite for participating fully in the dialogue.

As they learned more about things such as the efficacy of different control measures participants' views began to reflect more of the complexity of the problem. Their main concerns in the early part of the dialogue related to the possible implications of the disease for human health and its economic cost. As the dialogue progressed, participants began to consider the social impacts of the disease – particularly the emotional impact on farmers – and the wider context within which the debate about managing bTB sits, including consumer food choices and supermarket pricing. This helped them to recognise the necessity for a package of measures, the impossibility of a 'silver bullet' solution to controlling bTB and the differential impact of the control measures on farmers in different circumstances. This wider perspective on the scale and nature of the problem made the draft Strategy seemed less chaotic and uncoordinated and more adequate to the nature of the problem.

Participants mapped another journey through the course of the dialogue, which might be seen as parallel to the one described above. It relates to where ultimate responsibility should lie for the eradication strategy. As we have noted, their initial response to the scale of the disease was to ask why the government had allowed things to get so bad and to demand that government sort it out. However, as the nature of the controls and the costs became clearer – in other words, as participants began to make sense of the Strategy – they began as well to take account of the sometimes incompatible priorities of different stakeholders. They tried out different solutions, suggesting that farmers should just get on with eradicating the disease, then countering this view by arguing that farmers might not take into account factors such as the welfare of wild animals or the national importance of farming to the economy. They explored the possibility of supermarkets playing a role and considered how wildlife groups should be involved. Their eventual view took them full circle to their first view: that the government should provide the leadership required. However, their reasons for this view had changed. They felt at the end of their deliberations that government alone is in a position to balance the range of sometimes starkly different views and interests involved in the eradication of bTB. It does not follow from this that participants *trust* the government to do this, but reflects their view that no single stakeholder group will – or perhaps even should – take the wider perspective needed to address the problem.

As well as going on a 'content' related journey, through which their relationship with the topic and their views on the appropriate and acceptable measures developed, participants' approach to the dialogue process changed.

One indication of this is the shift from question-asking to a more reflective and deliberative approach focused on problem-solving. This shift was evident in the workshops as a whole, with the level of questioning reducing throughout the two days, and in individual sessions. As each new topic was introduced, the early stages of a session tended to comprise individual sense-making, with questions posed to experts and other participants: this gradually shifted into a more deliberative mode, as participants explored the problems posed by a particular topic and developed their positions in relation to this. For example, in the discussion about on-farm biosecurity measures the initial stages of the session focused on understanding on-farm biosecurity and why – to participants' surprise – it isn't

compulsory. Once participants had the information they wanted about these issues they began to explore the relative pros and cons of a voluntary versus compulsory approach; to weigh up the costs against the benefits, and to debate the extent to which farmers are able to cover these costs and, if not, what support might be provided.

## Reflection on the objectives

In this final section we look broadly at the objectives of the public dialogue strand of this project. These are:

1. To enable members of the public to deliberate in detail on the measures needed to achieve OTF status for England, including current and potential future measures.
2. To understand public views and perspectives on bovine TB, the measures proposed in the draft Strategy, and the social impacts of the proposed measures.
3. To enable participants to give input on how the strategy should evolve.
4. To explore participants' views on the appropriate roles and responsibilities of the government, industry, and civil society in addressing and eradicating bovine TB, both for cattle and wildlife.
5. To enable policy-makers to increase their understanding of public attitudes towards the measures proposed to eradicate bovine TB, and on animal disease control more generally.

Some of these objectives are about the value and success of the dialogue process and the way in which this report captures the views of participants. That is, the extent to which the dialogue has enabled members of the public to deliberate on the draft Strategy and its future development and for their views on this and the impacts of the disease to be understood. Others concern the way in which the findings contained in this report are used by policy-makers to inform the development of the draft Strategy and what learning they offer for animal disease control more widely.

It is not our role and nor are we in a position to make an assessment of whether or not the dialogue met or will meet these objectives. The process in which the public were involved is clearly central to the dialogue but it is not the only factor in its overall success. However, we can reflect briefly on some of the ways in which the objectives were addressed during the dialogue. We do this under the following headings:

- Enabling deliberation and input (objectives 1 and 3)
- Understanding and exploring views (objectives 2, 4 and 5)
- Opportunities for building trust (overall project objective: see [Introduction](#)).



## **Enabling deliberation on and input to the draft Strategy**

- It was not possible to cover every aspect of the draft Strategy over the course of the two days. We chose to focus on what it would be feasible and meaningful for participants to discuss; the issues which would benefit in particular from public insight; which topics in the Strategy could be discussed in relative isolation from the whole and the time available for deliberation.
- Participants' discussions throughout were wide-ranging and thoughtful. Some of the scientific information presented was complex – for example, on the reasons for the level of accuracy of the diagnostic tests for cattle or for the different ways in which the disease affected and progressed in different species. The same topic was often returned to from different perspectives as participants developed their views and gained argumentative purchase on the different issues under discussion.
- Participants' views developed over the course of the two day reconvened process. The complex nature of bTB as a disease and of the control measures became more apparent and they recognized the need for a package of measures.
- The animated film used at the start of the first workshop provided a useful introduction to many of the issues that would be discussed throughout the two days, giving a wider framework within which each individual topic was situated.

## **Understanding and exploring views**

- This report describes the range of views expressed by participants during the course of the dialogue and attempts to make sense of some of the factors that inform these views. These include some uncertainty about the security of the evidence underpinning badger culling; pre-existing attitudes towards different stakeholders, including farmers and the government and different attitudes towards the value and importance of wildlife.
- Participants seemed surprised not just by the scale of the problem but also by its social impacts, in particular the emotional impact that an outbreak of bTB has on a farmer. The film in which a farmer described his experience of the disease also helped participants to understand some of the challenges of biosecurity.
- The dialogue shows that participants' views are more nuanced and varied than the media coverage of the culling might suggest: given sufficient time, accessible information and support, the public can deliberate in a considered and sophisticated way on these complex issues.

## Opportunities for building trust

- One of the overall objectives of the dialogue was to develop and appraise opportunities to build a trust relationship between the general public, stakeholders, and government in developing policy options for animal disease control.
- How participants' views inform the development of the draft Strategy will be down to policy-makers. Rather than being able to identify single specific opportunities for this, the more general messages described at the start of this chapter set out the broad dimensions across which the public want to see the draft Strategy develop and provide a framework for building trust.
- The public – and stakeholders – contributed time, energy and enthusiasm to this dialogue. They were convened on the understanding that their views will contribute to the future development of the Strategy. Demonstrating clearly which views have informed policy-makers' thinking and which have not, and communicating this to the participants and more widely, marks an essential difference between dialogue as an enjoyable day out and dialogue as a contributor to the evidence base used to inform decisions and is a vital aspect of building trust.

# Appendices

## Appendix 1: Workshop process plans

### Detailed process plan - Workshop 1

Time	Description	Notes
8.30	Set up: cabaret room layout (small tables each with 10 chairs facing projector screen)	
9.00	Briefing for table facilitators and Defra attendees	
10.00	Arrive, tea/coffee, registration	Glossaries placed on tables at the start
10.25	Ushering: Participants take their seats	Question board
10.30	Lead facilitator: Plenary introduction of people in the room and their roles today (Defra, OPM, participants, evaluator) Objectives of the day, agenda, ground rules. Point out the question board	
10.45	Small table introductions: In pairs first of all, then feed back to the whole table: name, occupation, where you're from	
10.50	Session 1: Bovine TB basics Animation: outlining answers to questions such as: what is bovine TB? Where does it come from? How is it transmitted? Which species can get bovine TB? What are the symptoms? Why and how are badgers being culled? How has bovine TB been controlled in the past?	
11.00	Small table discussions: Ask participants to reflect on the information shown in the animation. Were there any words you didn't understand? (refer to glossary) What thoughts did the animation bring to mind? Was any of that information new to you? What was surprising? What were you aware of before? What would you like more information about? - Ask participants write down questions on post-its to be collected by the table facilitator and put up on the question board for review during the break	

Time	Description	Notes
11.20	<p>Interactive vote</p> <p>Lead facilitator: We're going to ask you a few short questions to gauge views in the room. There is no right or wrong answer, and your views might change throughout the day.</p> <p>Questions (see presentation handout)</p> <p>Test question</p> <p>Awareness of bovine TB</p> <p>Responsibility for bovine TB</p> <p>Reasons for getting rid of bovine TB</p>	To gauge initial views on topics for discussion in second workshop.
11.30	BREAK	Facilitators group questions on the question board
11.45	Quick responses from Defra to questions on the question board	
11.55	<p>Session 2: Defra presentation (please see Appendix 4 for slides from this presentation)</p> <p>Lead facilitator: Introduce presentation: we're going to hear from Defra now. They will present some more background information about bovine TB to build on what we heard in the animation, as well as give an overview of the controls currently in place to deal with bovine TB and the aim of their new Strategy.</p> <p>Defra presentation: Context setting. History of bovine TB in England; current bTB levels in England and Europe; overview of types of measures in place; brief summary of the aim of the Strategy</p>	To set up the carousel on control measures taking place after lunch
12.10	Small table discussion: short discussion to come up with 2-3 questions to ask in plenary.	
12.15	Plenary Q&A with Defra	
12.30	LUNCH	
13.20	<p>Session 3 Carousel: A journey around bTB control measures</p> <p>Detecting bovine TB</p> <p>Dealing with cases of bovine TB</p> <p>Badgers and bovine TB</p> <p>Preventing the spread of bovine TB</p>	In order to give participants an understanding of the current state of play, the information provided at each table will focus on the system that is currently in place although a short

Time	Description	Notes
	<p>Lead facilitator to brief the session: This session is to help you understand bovine TB as well as they ways in which it is currently controlled. This information will be important for the next workshop where we will ask your views on some of the changes proposed by Defra.</p> <p>There are four stations around the room, with a facilitator at each to help you. You will be asked to answer questions at each station and to make a list of things you'd like more information about.</p> <p>Station facilitators:</p> <p>When participants arrive, hand out the information sheets and read through the information aloud.</p> <p>Facilitator prompt questions:</p> <p>What are your initial reactions to the information presented here?</p> <p>What, if anything, surprised you about the information presented here?</p> <p>Is anything unclear? What would you like more information about? - ask any Defra staff present to provide a response, otherwise ask participants to write the question on a post-it and pass it to you.</p> <p>Each participant will have a worksheet with 3-4 factual questions to answer at each station.</p> <p>Ask participants to answer the questions for this station before they move on.</p>	<p>overview of the options proposed by Defra will be provided for initial consideration by participants.</p> <p>Materials: carousel information sheets 1-4</p> <p>20 minutes at each station</p>
14.40	BREAK	Facilitators review remaining questions at each station and select some for Defra to answer in plenary.
14.55	Plenary Q and A	
15.10	<p>Table team quiz to recap information from the day</p> <p>Lead facilitator: This is just a light-hearted quiz to end the day. We want to make sure that we've provided you with all the information you need to set you up for the second workshop in two weeks' time. You can work with others or on your own, and you can use anything in the room to find out the answers.</p>	Box of chocolates for the winners
15.20	Plenary: lead facilitator gives answers to the quiz questions	
15.25	Closing interactive vote	

Time	Description	Notes
	(repeat questions from beginning of day)	
15.35	Lead facilitator: summarise next steps, the agenda for the next workshop + thank to everyone for coming.	
15.45	Evaluation forms	
16.00	CLOSE - Collect badges from participants and hand them their thank-you payment as they leave	

## Detailed process plan - Workshop 2

Time	Description	Notes
8.30	Set up: cabaret room layout (four small tables each with 11 chairs facing projector screen)	FAQ sheets on tables at the start Question board flip chart paper on wall Summary agendas on tables Stakeholder quote cards stuck up on walls
9.30	Briefing for table facilitators and Defra attendees	
10.00	Arrive, tea/coffee, registration	Match up keypads and name badges (participants to be allocated the same voting keypad as last week to enable us to see how views change throughout workshops) Tables have been remixed since the last workshop to allow people to hear the views of others in the room
10.25	Ushering: Participants take their seats	
10.30	Welcome back from Lead facilitator: Reminder of the aim of the dialogue; reintroduction of people in the room; introduce the expert and their role for the day Objectives of the day, agenda, ground rules. Recap of the information from the previous workshop	

Time	Description	Notes
10.40	<p>Point out the question board</p> <p>Note that people are in different groups and explain why.</p> <p>Introduce new groups at tables: participants to say their name and what they'd be doing today if they weren't here</p>	
10.45	<p>Plenary recap 'shout-out'</p> <p>Aim of session: to refresh participants' memory of the issues discussed at the first meeting and establish a basis for the discussion of the day.</p> <p>What do you remember about the discussion at the last meeting?</p> <p>Replay of animation</p> <p>Refer to FAQ sheets on tables which provide answers to some of the common questions from the first workshop's question board</p>	<p>Support facilitator to record 'shout-outs' on flipchart paper on wall</p> <p>Questions responded to should be either matters of fact required to help participants engage with the topics of the second day or issues that address some of these topics.</p>
11.00	<p>Film: perspective interviews</p> <p>Aim of session: bringing four different perspectives (farmer, vet, Wildlife Trust, RSPCA) into the room to help participants understand some of the social impacts of bovine TB and to prompt debate about how and who should control bovine TB.</p>	
11.05	<p>Table discussion:</p> <p>What are your reactions to what was said in the film? (Probe: was anything particularly interesting or surprising?)</p> <p>What impact do these people's comments have on your previous views about bovine TB policy and controls? (Probe on any changes in view: particular reasons for these changes.)</p> <p>What questions do the things discussed in the film bring to mind?</p> <p>FACILITATOR: Ask participants to write any questions on post-its for the expert to address after the break.</p>	<p>When responding to participant questions, academic expert to extract the general points from the interviews rather than talk about those particular personal situations.</p>
11.25	<p>Lead facilitator: introduce interactive voting and remind participants how handsets work.</p> <p>Interactive voting:</p> <p>Awareness of bovine TB</p> <p>Responsibility for bovine TB (five part question)</p>	<p>Table facilitators to hand out colour dots to participants after the voting session.</p>

Time	Description	Notes
	Reasons for getting rid of bovine TB (ppts can vote twice)	
11.35	BREAK	Stakeholder quote cards placed around the room – participants invited to have a look and write and choose two quotes: one that coincides most closely with their own view and one that is a long way from their own view. Each participant has one red and one green spot to identify each quote.
11.50	Plenary Q and A Lead facilitator: invite expert to respond to questions from the question board)	
12.00	Focus topic 1: Roles and responsibilities  Aim of session: To explore participants' views on the appropriate roles and responsibilities of the government and industry in addressing and eradicating bovine TB, both for cattle and wildlife.	
12.15	Expert presentation: fifteen-minute presentation outlining the New Zealand governance model, how this compares to the UK model, and the pros and cons of industry playing a greater role in bovine TB control.  (Please see Appendix 5 of this report for the slides to accompany this presentation)	
12.17	Small table discussion: to agree one of two questions to ask in plenary on the information in the presentation  Plenary Q and A with the expert	
12.30	Small table discussions  Materials: Print out of slides showing NZ and UK comparison Stakeholder quote cards relating to roles and responsibilities	



Time	Description	Notes
	<p>Table facilitator: Hand the quote cards round to participants. Give them 1-2 minutes to read some of them and ask participants to select one quote which caught their attention.</p> <p>Facilitator prompt questions:</p> <p>What caught your attention about that particular perspective?</p> <p>Based on what you've heard in the presentation and what you've read on the quote cards:</p> <p>What do you think are the upsides of giving more control to the farming industry for the control of bovine TB?</p> <p>What do you think are the downsides of giving more control to the farming industry for the control of bovine TB?</p>	
12.45	LUNCH	
13.30	<p>Focus topic 2: Costs of bovine TB and controls</p> <p>Aim of session: To explore participants' views about how the costs of bovine TB controls should be split between government, industry and civil society and their reasons for this.</p> <p>Small group work</p> <p>Materials:</p> <p>A3 sheet titled 'who should pay for bovine TB controls?', with a blank table with three column headings: government; farming industry; other (2 per table).</p> <p>2 packs of control cards - one control measure per card (e.g. biosecurity measures, advice and guidance to farmers) plus some blank cards.</p> <p>Blue tack.</p> <p>Table facilitator to brief the session:</p> <p>Split the table into two groups of 4-5.</p> <p>Ask each group to look through the control cards and divide them into those they think the government should pay for; those they think</p>	

Time	Description	Notes
14.00	<p>industry should pay for, and those they think other organisations should pay for.</p> <p>Ask both groups to stick control cards under the government/industry/other columns on the A3 sheet. For each card they should write their reasons for putting it there. One group starts with the government column, one group starts with the farming industry column.</p> <p>Facilitators to be on hand to answer questions about the process and encourage participants to note down their reasons for their choices ready for presenting back to the table.</p> <p>Feedback to tables</p> <p>Facilitator prompts:</p> <p>What did you take into account when deciding who pays for what?</p> <p>Point out the differences between the two groups and ask participants to explain their reasons to the other group.</p>	
14.10	<p>Table group work: create a newspaper article about bovine TB</p> <p>Aim of session: to understand what participants consider to be the most important issues and areas of debate around bovine TB policy.</p> <p>Lead facilitator: ask each group to design an editorial piece for a newspaper that will help people to understand bTB. Groups can refer to the hand outs and quote cards provided in the earlier sessions, and the expert will be on hand to support and advise. Facilitators to prompt groups with the questions below.</p> <p>Materials:</p> <p>Pre-prepared template on flip chart paper with suggested headings addressing each of the focus sessions and an 'Editor's view' section.</p> <p>Facilitator prompt questions:</p> <p>If you were responsible for communicating to the public about bTB what information would you</p>	Working break - tea/coffee available throughout

Time	Description	Notes
	include? How would you describe the impact of bTB? What are the issues around bovine TB that are most important for the public to understand?	
14.50	Lead facilitator: invite participants to review other groups' newspaper articles. Each participant will have three sticky dots which they can use to identify the three points that they think are absolutely crucial to helping people understand bTB.	During this session, the expert looks at the outputs and then comments on them in the final plenary
15.00	Plenary feedback and Q and A: Feedback on editorials from the expert and final round of Q and A using questions from the question board and any final questions from the room - expert and Defra to answer.	
15.15	Final small group discussion: Prompt question: Headline messages: If you were constructing a Strategy to achieve OTF status in 25 years, what would be your recommendations to the minister?	
15.30	Closing interactive vote (repeat questions from beginning of day)	
15.40	Lead facilitator: summarise what happens next (OPM writes up everything that is said in the workshops into a report for Defra to consider when finalising their Strategy by the end of the year): thank to everyone for coming.	
15.45	Evaluation forms	
16.00	CLOSE - Collect badges from participants and hand them their thank-you payment as they leave	

## Appendix 2: Experts at the workshops

The table below lists the Defra, AHVLA and academic experts attending each workshop. The role of these experts was to present information about bovine TB and its controls, to answer participant questions on the content of the materials and presentations used during the workshops.

Location	Dates	Experts
Birmingham	28 September 2013	Presenter: AHVLA Additional resource: Research Lead
	12 October 2013	Presenter: Dr Gareth Enticott, Department of Geography, University of Cardiff Additional resource: Research Lead
Newcastle	5 October 2013	Presenter: Defra TB Policy Additional resource: Defra TB Evidence; Research Lead.
	19 October 2013	Presenter: Dr Gareth Enticott, Department of Geography, University of Cardiff Additional resource: Research Lead; Defra TB Economist; Defra Social Scientist.
Exeter	5 October 2013	Presenter: Defra TB Policy Additional resource: Defra TB Evidence
	19 October 2013	Presenter: Dr Ian McFarlane, University of Reading Additional resource: Defra TB Policy; Defra TB Science; Defra TB Policy.

## Appendix 3: Recruitment specification and location choice

The final recruitment specification was based on:

Recruiting 40 people to attend two workshops in Birmingham (urban):

- First workshop on Saturday 28<sup>th</sup> September
- Reconvened workshop on Saturday 12<sup>th</sup> October

Recruiting 40 people to attend two workshops in Newcastle upon Tyne (mix of rural and urban):

- First workshop on Saturday 5<sup>th</sup> October
- Reconvened workshop on Saturday 19<sup>th</sup> October

Recruiting 40 people to attend two workshops in Exeter (rural):

- First workshop on Saturday 5<sup>th</sup> October
- Reconvened workshop on Saturday 19<sup>th</sup> October

The full recruitment specification for each workshop is shown on the following page.

The actual participant numbers for each workshop in each location is provided in the table below.

Location	Participants at first workshop	Participants at second workshop
Birmingham	39	37
Newcastle	41	37
Exeter	31	30

Birmingham provided an urban context: participants were recruited from within the city boundary. Newcastle provided a more mixed, urban-rural split. Half of the participants here were recruited from within the city boundary and half from small villages and more rural areas surrounding the city. Exeter was selected as the rural location. Participants were recruited from villages and rural areas within 15 miles of Exeter city centre.

**workshop: Sat 28<sup>th</sup> September and 12<sup>th</sup> October, Birmingham**

Age	Number	Segment	Gender	Ethnicity	Other quota
18 – 24 (at least 2 between 18-21)	8	2 x B 2 x C1 2 x C2 2 x DE	50/50 M/F throughout (as close as possible)	Black/ Black British: At least 2 Black/ Caribbean and at least 3 Black/ African Asian/Asia British	Nobody who is a farmer or has a farmer as an immediate family member Nobody who works for a farming organisation Nobody who works in the media industry Nobody who works for a wildlife organisation
25 - 34	8	2 x B 3 x C1 1 x C2 2 x DE		At least 3 British Indian, At least 3 Asian others/ Chinese	Attitudinal question: <i>Which, if any, of the following types of TV programmes have you watched in the past month?</i>
35 -44	8	2 x B 2 x C1 2 x C2 2 x DE			1. <i>Cooking</i> 2. <i>Science and technology</i> 3. <i>Nature and wildlife (BETWEEN 8 AND 20 RESPONDENTS)</i> 4. <i>Soap opera or sitcom</i> 5. <i>Reality TV show</i> 6. <i>Sport</i> 7. <i>Other</i> 8. <i>None - I have not watched any television in the past month</i>
45 – 54	6	1 x A 1 x B 2 x C1 1 x C2 2 x DE		29 Remainder white / other	
55 – 64	6	1 x A 1 x B 1 x C1 1 x C2 2 x DE			
65 +	4	1x B 1 x C1 1 x C2 1 x DE			Participants should be recruited from AT LEAST 6 postcodes within the Birmingham city boundary.

**workshop: Sat 5<sup>th</sup> October and 19<sup>th</sup> October, Newcastle**

Age	Number	Segment	Gender	Ethnicity	Other quota
18 – 24 (at least 2 between 18-21)	8	2 x C1 3 x C2 3 x DE	50/50 M/F throughout (as close as possible)	3 black /black British participants  3 Asian / Asian British participants	Nobody who is a farmer or has a farmer as an immediate family member  Nobody who works for a farming organisation
25 - 34	8	2 x B 2 x C1 2 x C2 2 x DE		34 Remainder white / other	Nobody who works in the media industry  Nobody who works for a wildlife organisation
35 -44	6	1 x B 1 x C1 1 x C2 3 x DE			Attitudinal question: <i>Which, if any, of the following types of TV programmes have you watched in the past month?</i>
45 – 54	6	1 x B 1 x C1 2 x C2 2 x DE			1. <i>Cooking</i> 2. <i>Science and technology</i> 3. <i>Nature and wildlife</i> (BETWEEN 8 AND 20 RESPONDENTS) 4. <i>Soap opera or sitcom</i>
55 – 64	6	1 x B 2 x C1 1 x C2 2 x DE			5. <i>Reality TV show</i> 6. <i>Sport</i> 7. <i>Other</i> 8. <i>None - I have not watched any television in the past month</i>
65 +	6	2x BC1 2 x C2 2 x DE			50% of participants should be sourced from within the Newcastle city boundary.  Other participants should be recruited from AT LEAST 3 villages from the following list:  Backworth  Earsdon (further - 9 miles)  Forest Hall  Seaton Burn  The Boldons (10 miles)  Whitburn  Walbottle

**workshop: Sat 5<sup>th</sup> October and 19<sup>th</sup> October, Exeter**

Age	Number	Segment	Gender	Ethnicity	Other quota
18 – 24 (at least 2 between 18- 21)	8	1 x B 2 x C1 3 x C2 2 x DE	50/50 M/F throughout (as close as possible)	2 black /black British participants	<p>Nobody who is a farmer or has a farmer as an immediate family member</p> <p>Nobody who works for a farming organisation</p> <p>Nobody who works in the media industry</p> <p>Nobody who works for a wildlife organisation</p> <p>Attitudinal question: <i>Which, if any, of the following types of TV programmes have you watched in the past month?</i></p> <ol style="list-style-type: none"> <li>1. <i>Cooking</i></li> <li>2. <i>Science and technology</i></li> <li>3. <i>Nature and wildlife</i> (BETWEEN 8 AND 20 RESPONDENTS)</li> <li>4. <i>Soap opera or sitcom</i></li> <li>5. <i>Reality TV show</i></li> <li>6. <i>Sport</i></li> <li>7. <i>Other</i></li> <li>8. <i>None - I have not watched any TV in the past month</i></li> </ol> <p>Participants should be sourced from AT LEAST 6 of the following ten villages around Exeter:</p> <p>Exminster Starcross Dunsford Tedbury St Mary Broadclyst Crediton Woodbury Chudleigh</p>
25 - 34	8	2 x B  4 x C1  1 x C2  1 x DE		2 Asian / Asian British participants	
35 -44	6	1 x B  2 x C1  2 x C2  1 x DE		36 Remainder white / other	
45 – 54	6	2 x B  2 x C1  1 x C2  1 x DE			
55 – 64	6	2 x B  2 x C1  1 x C2  1 x DE			
65 +	6	1x B  2 x C1  2 x C2  1 x DE			



Age	Number	Segment	Gender	Ethnicity	Other quota
					Thorverton Newton St Cyres

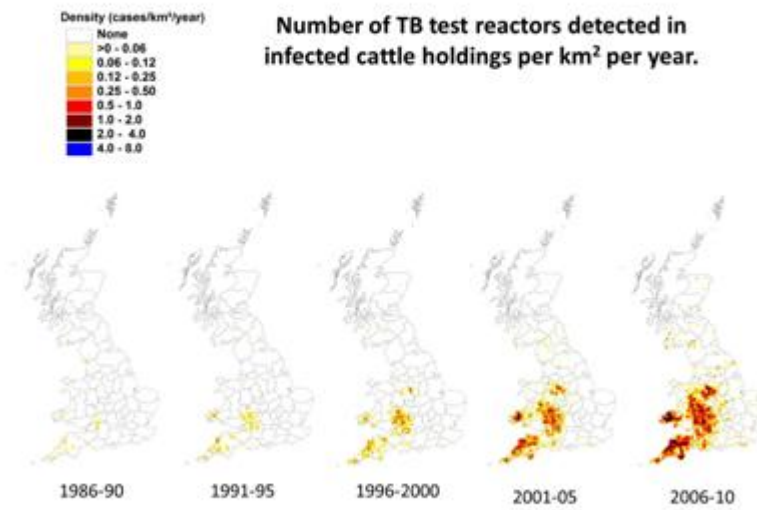
## Appendix 4: Defra presentation

In the first workshop, a representative from Defra (or the AHVLA) gave a presentation to participants. The presentation covered the history of bovine TB in England; current bTB levels in England and Europe; overview of types of measures in place; and a brief summary of the aim of the Strategy. The slides from the presentation are shown below.

**Introduction**

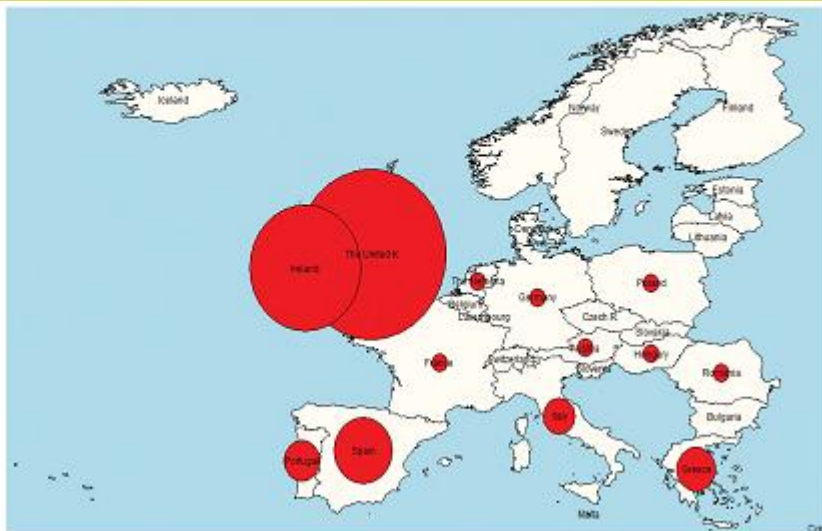
- Background on bovine TB;
- Summary of current bTB controls controls
- Summary of potential future bTB control controls
- Proposed Strategy aim and approach
- Area-risk based strategies

## Background: bTB in GB & England



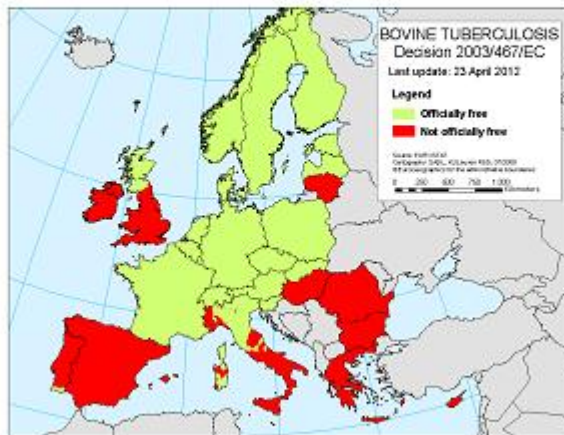
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## Background: bTB in Europe



3

## Background: Status of European countries



## Proposed Strategy aim and approach

- To make England 'free' of bTB within 25 years whilst maintaining a sustainable livestock industry.
  - Comprehensive – using all available controls.
  - Risk based – targeting controls to the local risk based on advice from scientists and vets.
  - Staged – stop bTB spreading, bring it under control, and then eliminate it.

## Summary of controls currently used

Detecting bovine TB	Dealing with bovine TB	Badgers and bovine TB	Preventing the spread
<p>Testing cattle herds (annual / four year)</p> <p>Slaughterhouse inspections</p> <p>Looking for the disease in other farmed animals</p> <p>Looking for the disease in wildlife (e.g. deer and badgers)</p>	<p>Restricting cattle movements from TB affected herds</p> <p>Slaughter of reactor' cattle; compensation paid to farmers</p> <p>Tracing the source and spread of infection</p> <p>Testing cattle herds in the surrounding area</p> <p>More frequent testing of TB affected herds</p>	<p>Pilot badger culls</p> <p>Badger vaccination (injection)</p>	<p>Separating cattle from neighbouring herds</p> <p>Stopping cattle and badgers coming into contact with each other</p> <p>Advice and guidance to farmers</p> <p>Penalties for not following rules</p> <p>Reporting movements of cattle</p>

6

## Summary of possible future controls

Detecting bovine TB	Dealing with bovine TB	Badgers and bovine TB	Preventing the spread
<p>Stricter or more frequent testing of cattle</p> <p>Improved slaughterhouse inspections</p> <p>Develop better, more accurate tests</p>	<p>Stricter or more frequent testing of breakdown herds</p> <p>Improved investigations into breakdowns</p> <p>Tougher controls on breakdown herds e.g. slaughter more cattle</p> <p>Less compensation if farmers do not deal with the risks</p> <p>Enable cattle vaccination</p>	<p>'Roll out' of culling, if the pilots are humane, effective and safe</p> <p>Culling of badgers in (infected?) setts</p> <p>Contraception to manage the badger population</p> <p>Develop badger vaccine taken by mouth</p>	<p>Help farmers to consider risks when buying new cattle</p> <p>Better advice for farmers</p> <p>Penalties for not following advice (e.g. less compensation)</p>

7

## Area-risk based strategies



8

## Appendix 5: Presentation from the academic expert

An academic expert in the social impacts of bTB was present at the second workshop in each of the three locations. As well as answering participants' questions throughout the day, the expert also gave a presentation outlining the main questions about roles of responsibilities regarding bTB control. The presentation included a summary of the governance structure in New Zealand. The slides from the presentation are shown below.

### Bovine TB: Whose Responsibility?



restricted external

1

#### Key Questions

- **Who has responsibility for bovine TB?**
- **Who should pay for what?**
- **Look at the system in New Zealand**
- **Discussion**



restricted external

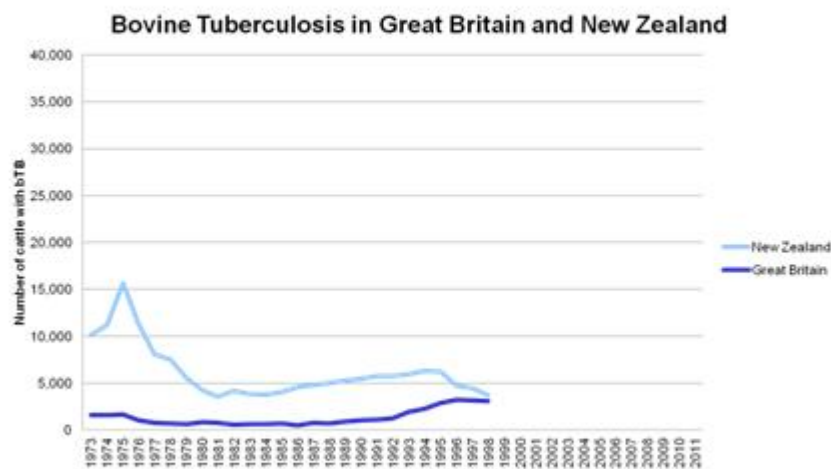
2

## Bovine TB in New Zealand

- What is the TB control program in New Zealand?
- How is the disease managed?
- Who plays what role?
- Who pays what?



## Bovine TB in New Zealand & Great Britain





## Bovine TB in New Zealand

- **What is the control programme in New Zealand**
  - Wildlife control



5

## Bovine TB in New Zealand

- **What is the control programme in New Zealand**
  - Wildlife control
  - **Test and slaughter**
  - **Cattle movement restrictions**



6



## How is the disease managed?

- **The Animal Health Board**

- **Origins**
- **Status**
- **Role**
- **Members**



## The Animal Health Board

### Nationally

#### Farmer Organisations

- Federated Farmers (NFU equivalent)
- Dairy NZ
- Beef and Lamb NZ
- Deer Industry NZ
- NZ Deer Farmers Association

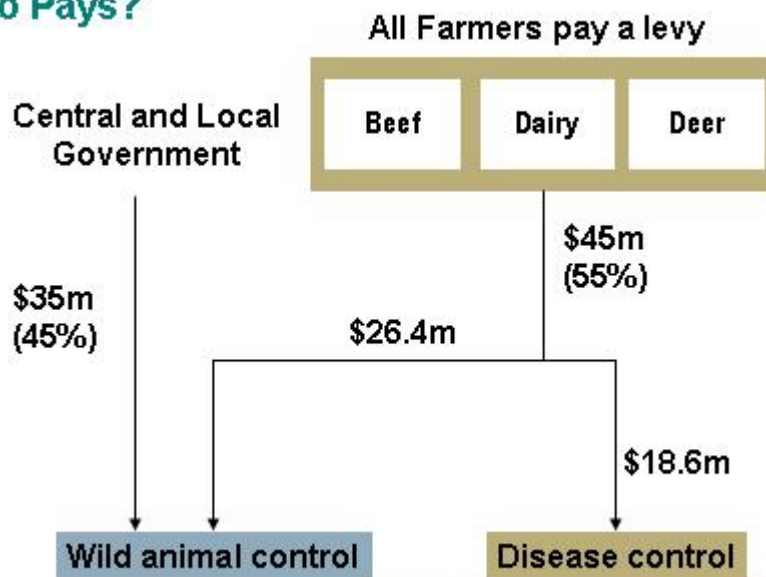
#### Government

- National Government
- Regional Councils (Local Government)

### Regional Committees



## Who Pays?



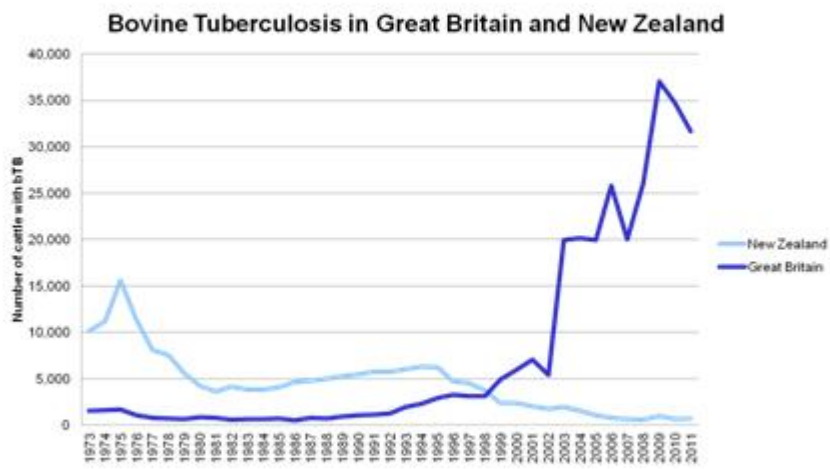
## Rationale & Impacts

### • Why did New Zealand do this?

- Politics
- Finance
- Efficiency
- Responsiveness
- Ownership



## Bovine TB in New Zealand & Great Britain



## Appendix 6: Control measures information sheets

### Information sheet 1: Detecting bovine TB

The symptoms of bovine TB are not visible during the early stages of infection, so tests are needed to spot infection in healthy-looking cows.

#### Regular testing of herds

All cattle herds are tested regularly for bTB, more frequently in areas of higher risk. In the High Risk area, herds are tested annually. In the low risk area, herds are tested every four years. Additional, targeted testing is shortly going to be introduced in the area that separates the high and the low risk areas (edge area) in order to stop the geographic spread of the High Risk area. This herd-based surveillance is required by EU law, with four-yearly being the lowest testing frequency that a country which is not officially 'free' of bovine TB can have in place.

The test used for these routine tests is the tuberculin skin test, known as the 'skin test'. It is usually carried out on the farm by local private vets on behalf of the government (although government vets or government lay testers may also be used).

Like many diagnostic test, none of the current tests for bovine TB are 100% accurate. Some infected cattle are missed and some uninfected cattle are incorrectly identified as having bovine TB.

Since 2012, the government reduced the amount of compensation farmers received for 'reactor' cattle if they are found in herd tests which are significantly overdue.

#### Testing before and after moving cattle

Sometimes farmers need to move their cattle, for example because they are selling them, or because they are moving them to a different area so the cows can graze.

Because the spread of bovine TB can be associated with cattle movements, testing before and after cattle movement is carried out in some circumstances to reduce the risk of the disease moving into new herds. Currently, all cattle (except very young calves) leaving a farm in the High Risk area must be tested before they are moved, referred to as 'pre-movement testing'.

*Evidence suggests that pre-movement testing, and to a lesser extent post-movement testing, reduces the risk of onward transmission. (Godfray et al. 2013)*

The government is considering expanding the circumstances for which pre-movement testing is required and considering whether compulsory post-movement testing should be introduced in certain situations.

## **Slaughterhouse surveillance**

About 2.2 million cattle enter the human food chain every year. All cattle carcasses that are slaughtered commercially are inspected for signs of bovine TB abscesses. If abscesses are detected, the bTB infection can be traced back to the herd.

Meat inspection is carried out by the Food Standards Agency. It is a cost-effective surveillance tool, however it depends on the inspector's skill and time spent inspecting each carcass. Also, only some infected cattle present visible abscesses.

*Slaughterhouse testing provides important surveillance information in all regions. In 2012 it accounted for nearly one quarter of all new confirmed breakdowns in cattle herds across Great Britain. (Godfray et al. 2013)*

## **Wildlife surveillance**

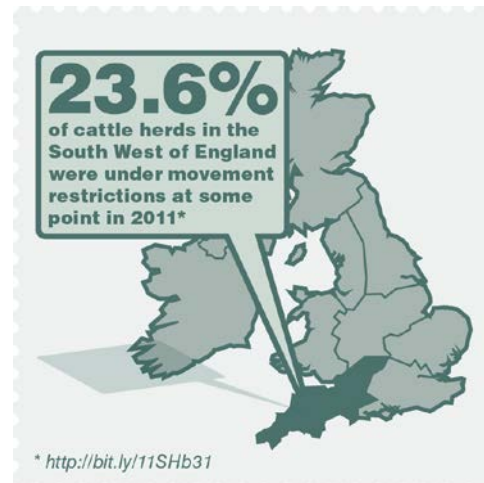
Wildlife surveillance is generally limited, but may be done by researchers or for specific projects or investigations. For example, badger carcasses from road traffic accidents used to be submitted for post-mortem examination to check if the badger had TB, although this no longer happens. Currently, deer stalkers are encouraged to submit TB-like abscesses found in deer carcasses.

## Information sheet 2: Dealing with cases of bovine TB

If a cow tests positive for bovine TB during a test, the animal is a 'reactor' and the herd is said to have had a 'breakdown'. The aim is then to clear infection as quickly as possible and prevent spread.

The following steps are taken:

- Restricting movements from the breakdown herd
- Removal and slaughter of 'reactor' cattle (and potentially other cattle in the herd which may also be infected)
- Tracing the source of infection and potential spread of the infection to other herds (if the farmer has moved animals on and off his farm)
- Testing of surrounding herds
- Repeat testing of the breakdown herd until it passes the required number of tests. The skin test rules may be tightened and a blood test may be used too, to find more 'reactors'
- Using scientific techniques (genetic typing) to investigate the origin of the infection.



### What happens to the infected cows?

Infected cattle are removed from the farm and sent to slaughter. The government receives some money for infected cattle sold to slaughter. This money covers some of the cost of compensation to farmers.

### Compensation for farmers who suffer bTB breakdowns

The Government pays compensation to farmers whose cattle have to be slaughtered to control bovine TB.

The amount of compensation paid is the average sale price of cattle which are not being slaughtered for TB control. The amount paid depends on age, gender, type (dairy or beef) and status (pedigree or non-pedigree) and changes every month.

The compensation payable during September 2013, in England, for a non-pedigree beef animal compulsorily slaughtered for Bovine TB is shown below. There are also tables for non-pedigree dairy animals, pedigree beef animals and pedigree dairy animals.

Male		Female	
Age	Compensation due (£/head)	Age	Compensation due (£/head)
Up to 3 months	249	Up to 3 months	202
Over 3 months up to 6 months	367	Over 3 months up to 6 months	313
Over 6 months up to 9 months	575	Over 6 months up to 9 months	489
Over 9 months up to 12 months	759	Over 9 months up to 12 months	636
Over 12 months up to 16 months	949	Over 12 months up to 16 months	803
Over 16 months up to 20 months	1,063	Over 16 months up to 20 months (inc calved)	934
20 months and over	1,143	20 months and over	1,022
Breeding bulls 20 months and over	1,777	20 months and over calved	1,096

The government is considering changing the way it allocates compensation to farmers so that the money pays out better reflects the efforts of the farmer in keeping bovine TB out of their farm.

### Information sheet 3: Badgers and bovine TB

Although many other non-cattle species are susceptible to bovine TB, existing evidence suggests that badgers are the only other species that play a role in maintaining bovine TB infection levels in cattle in England.

*Badgers live in mixed pasture and woodland landscape which is also where much cattle farming occurs.*

*Although cases of bovine TB in cattle are more frequent areas of the country where cattle and badger densities higher, a link has not been found between badger and densities at a more local level.*



*in  
are  
cattle*

*Little is known about how *M. bovis* is transmitted between badgers and cattle. Transmission may be indirect, for example through badger faeces in cattle food and water. Alternatively, direct transmission through the air inside farm buildings is possible .*

*In the RBCT proactive cull areas it has been estimated that 50% of confirmed herd breakdowns in the year before culling began were due to badgers though this figure has very broad confidence limits*

*(Godfray et al., 2013)*

### Pilot culls

There is evidence from a large scale field trial that badger culling can reduce the incidence of bovine TB in cattle in high risk areas.

The Government is piloting licensed badger culls in two areas in South West England where there is a high risk of bovine TB in cattle. The licences allow badger culling to be carried out over a continuous six-week period each year for 4 years.

Both cage-trapping and shooting, and controlled shooting of free-ranging animals are being used. Both methods are being conducted by trained operators. Cage trapping has been used for past badger culling operations, but it is expensive to deploy. Controlled shooting is widely used to cull other species such as deer and wild boar in England, and is also used in other parts of Europe.

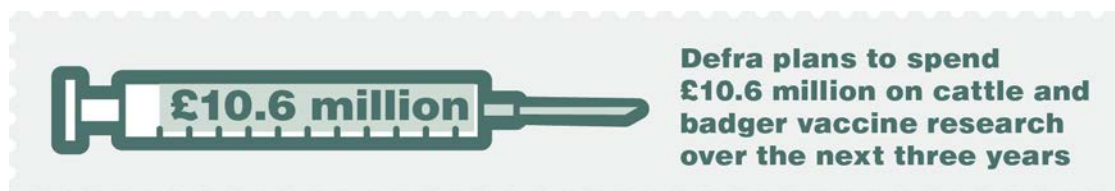
The aim of the pilot culls in 2013 is to monitor whether the cull method of controlled shooting of badgers is humane, safe and effective in terms of badger removal. This monitoring is being overseen by an Independent Expert Panel. The results will inform a decision on wider roll-out of the culling policy in England from 2014.

Research is underway to look at other ways of managing the badger population. For example:



- Humanely killing badgers in their setts - in the future, new tests may allow infected setts to be identified reliably.
- Contraception.

## Badger vaccination



An injectable badger vaccine against TB is available on vet prescription. Private individuals can use it on their land, as long as they have a licence from Natural England and a trained person to deliver it.

Using injectable badger vaccination involves cage-trapping badgers and the programme of vaccination needs to be repeated every year to make sure that new cubs are vaccinated. The main cost of vaccination is the man-power required for trapping.

This badger vaccine only works on uninfected animals, and even then it is not 100% effective. Modelling work suggests that its use could lower the amount of TB in a badger population if applied on an annual basis over many years.

The effectiveness of this vaccine on reducing bovine TB in cattle are unknown. Research is underway to try and develop other badger vaccines, for example those that can be taken by mouth.

## Information sheet 4: Preventing the spread of bovine TB on the farm

### Protection measures on the farm

Besides testing, there are other measures that farmers can put in place to reduce cattle-to-cattle and badger-to-cattle spread of bovine TB.

These on-farm measures include:

- Isolation of new animals prior to their introduction into a herd
- Separating cattle from neighbouring cattle herds
- Fencing off the areas where badgers live and excrete
- Preventing badgers from accessing the areas where cattle feed and drink (e.g. by raising water troughs as high as possible).

The above measures are voluntary, but the government is looking at ways of rewarding farmers who install these measures on their farms. For example, by calculating the compensation that a farmer gets when they lose cattle to bovine TB based on the risk-reducing practices they have implemented.

Measures to encourage careful purchasing practices when buying new cattle into a herd are also being implemented (risk based trading) on a voluntary basis, by providing cattle keepers with information on the risk that cattle brought into the herd can pose.

### Cattle vaccination

Currently there is no licensed cattle vaccine available. The most suitable vaccine is called BCG (*M. bovis* Bacille Calmette-Guerin). In tests so far, the vaccine has been around 50%-60% effective. As in badgers, it provides a spectrum of protection on individual cattle:

Some cattle will be fully protected

- Some cattle will suffer a less severe form of disease (and be less likely to affect other animals)
- Some cattle will get no protection from vaccination.

BCG does not have an effect in already infected animals.

Given this spectrum of protection, it is unlikely that cattle vaccination will be able to replace other cattle control measures.

It is currently against EU law to vaccinate cattle against TB. This is because it is not possible to tell the difference between vaccinated cows and cows infected with bTB using the skin test.

The government is planning field trials on the BCG vaccine and a test for telling the difference between infected cows and vaccinated cows, to gather information to support a change in the law. This process is expected to take at least 10 years.

## Appendix 7: Interactive voting questions

These questions were put to all participants using the interactive voting system.

The questions were asked twice during the first workshop: once after the small table discussion following the 'bovine TB basics' animation, and once before the closing words from the lead facilitator. The questions were also asked twice during the second workshop: once at the start of the day and once before the closing words from the lead facilitator.

1. On a scale of 1 - 10, with 1 being 'Nothing at all' and 10 being 'I am an expert', how much do you know about bovine tuberculosis?

1 2 3 4 5 6 7 8 9 10

2. On a scale of 1 to 5 - with 1 being not responsible at all and 5 being completely responsible - how responsible do you think each of the following groups should be for getting rid of bovine TB in England?

a. Taxpayers:	1	2	3	4	5
b. Government:	1	2	3	4	5
c. Wildlife organisations:	1	2	3	4	5
d. Farmers:	1	2	3	4	5
e. Food industry:	1	2	3	4	5

3. Which of the following do you think are the most important reasons for getting rid of bovine TB in England? (you can vote twice, starting with the one you consider most important)

1. To maintain a viable farming industry
2. To reduce the cost of the disease to the taxpayer
3. To reduce the impact on individual farmers caused by TB
4. To protect human health
5. To protect animal health
6. It's not important to get rid of TB
7. Not sure

## Appendix 8: Question boards

A Question Board - made up of three blank flip charts side by side - was set up on the wall at each workshop. Participants were invited to note any questions they had throughout the day on post-its, and post these on the question board for Defra and AHVLA representatives (and the academic expert present in Workshop 2) to respond to. An 'FAQ' two-page document, which provided further information on some of the main question themes, was developed following the first Birmingham workshop and given to participants at the start of Workshop 2.

The questions posted by participants at each workshop are recorded below.

### Workshop 1

#### *Birmingham*

- How do they control it in Scotland? Free of TB
- How and why?
- How long they been TB free?
- Why is Scotland bTB free? Is it because of different laws? Different environment? Cold weather?
- How did Scotland do?
- How many killed?
- Is bTB the same as TB?
- Why is Scotland TB free?
- Was bTB ever in Scotland?
- What have Scotland done to be bTB free?
- What has Scotland done right – we should follow their lead
- Why is Scotland free of TB?
- Do other countries test as rigorously?
- Why do we as a country choose not to cull when it works for other countries?
- Why are badgers protected in England and not abroad?

- Why some places don't have TB?
- How does Scotland keep it at bay?
- Farmers – pedigree areas. What if your in wrong area?
- Why 25 years?
- Why is it taking so long for the EU to approve the vaccine and how long can we expect it to take?
- Why has it got worse this decade?
- What has been done differently?
- How can you guarantee to be Tb free in 25 years?
- What proof have you got to say TB will be gone in 25 years!
- ? Presented that badgers are infecting cattle?
- 10 years vaccine available.
- 1980's > current. Why so long
- 1950's > current. 50 years.
- 25 years what guarantee?
- Funded vaccine in the 80s.
- 10 year. Why have they left it so late?
- Why if Defra noticed in the mid-late 90's a sharp increase in bTB. Why has it taken over 10 years to start doing something about it?
- If you know how to become bTB free...why so long?
- 25 years - long
- 25 years to be free
- Why annual testing? March? June? Detection of bovine more stringent. Only tested again on movement?
- Why 25 years? Surely there's a quicker more convenient way
- How do you know after 25 years TB will be gone?
- How 70 years to get back to the same place in 1970's (25 years)

- 20's – 60's major irradiated 50's/60's
- Why spend £100 million when we could deal with the problem of TB with controlled shootings?
- Traders/profit makers from the produce should hold responsibility and contribute towards the cost of controlling it
- Could further funds be raised by putting an additional levy on the stock market or point of trade?
- Funding control?
- If infected meat is removed and Bovine TB is not transmitted, why are we paying £100m a year of taxpayers money
- Compensation, leave it same as keeping cattle
- £100,000 cost to taxpayer
- Recession/taxpayer 100 million money wasted
- Why government spends so much money?
- Why do badgers spread TB more than other animals?
- How would badger vaccination work?
- Why don't other animals spread TB as much as badgers?
- Is the link between badgers and bTB in cattle proven?
- Badgers Transport milk is not to bad. U.K. highest level (??)
- How do you know if your capturing the infected badgers as opposed to the healthy ones?
- Can it be shown that the increase since 1992 (when protection act was introduced) is related to badgers and what happened before then?
- Why do they have if where badgers do not live?
- If small percent in UK why cull whole nation?
- Gas badger to sleep then inject them?
- I agree with culling badgers but if they're not infected I don't. Unless there's a proven fact that TB is being passed around by badgers in confined areas

- Is it the case that if the badger population was reduced by 95%, this would reduce the cases of bTB in cattle also by 95%?
- Contraception for badgers?
- Badger vaccination and testing
- Is it really possible to vaccinate every Badger via injection? And has it had an effect so far?
- How will they dispose of the badgers bodies?
- House hold pets? Why cats and not dogs?
- Can we get it from our cats?
- Can we get it from cats?
- Can cats have vaccination from vets?
- How do they know cats can carry TB?
- What does TB do to animals?
- What happens if you eat infected meat?
- Do slaughtered reactor animals go into the food chain?
- What to know exactly what happens to reactor animals at slaughter? How do they identify healthy from diseased meat?
- If the bacteria dies when the animal dies, how can the meat cause risk of infection?
- Do cattle with bTB still enter the food chain for human consumption?
- Does slaughtered bTB cattle go to food chain?
- Can we eat meat from infected cattle?
- Can you get TB from eating infected meat?
- Does human TB vaccination prevent bTB?
- Couldn't vaccinated cattle have a mark – tattoo?
- Why are vets not permitted to vaccinate?
- If they find it hard vaccinating Badgers how are they going to vaccinate from having babies?



- Why can't we have a vaccine from Doctors like flu jab?
- Is the vaccination dangerous to humans?
- Why hasn't a vaccine been developed for cattle? Surely this would be attractive
- Would the resources be better spent developing a more effective method of vaccination?
- Need to stamp cows that have been cleared and vaccinated?
- How do you test for bovine TB?
- How do we controlling testing animals out grade(??)
- Are they testing vets and farmers?
- Are vets etc being tested or could they find they have TB in years to come?
- Why is it that young cattle are not tested?
- Why not bring cattle indoors at night?
- Once eliminated what controls will be put in place?
- Removing infected animal
- Testing healthy and dead
- Restricting herd movement
- Can humans get it? And from what?
- Do genetics play any role in TB spreading?
- What makes animals better at passing TB?
- How does it transfer Badger > Cow?
- 200 – 30,000 spreading new highest level.
- Can we get it by inhaling near cows?
- 30 people contracting bTB is still too many. How are they contracting it and why aren't the health risks made clear
- How can humans avoid getting TB?
- What are our legal obligations?

- National herd ratio figures, are they accurate?
- Decisions have been made
- Bacteria inhaling or eating goes into lungs. Deer, goats, cats, badgers > cattle. Human – 50,000 – in milk 30 now
- Is bTB the same as TB?
- bTB/tb? Same? Or different!
- Is bTB the same as TB?
- Not fair on the farmers – tough life

### ***Exeter***

- What happens to humans if they catch TB? Treatment available?
- Are we a carrier- could we pass TB to future children?
- Growth in TB due to actual growth or just improvement in method of detection?
- Is it more prevalent in cattle with a large local badger population- i.e. is there evidence?
- What is the life span of TB bacterium when not in host?
- Isn't there currently an increase in TB?
- What has changed in the last 10 years to account for the increase in England?
- Is bTB a virus or a bacterial infection?
- Is that human TB or bovine TB in humans?
- If humans get TB it gets cured by antibiotic?
- Other significant carriers?
- Are there any specific reasons why Scotland is TB free?
- Are farming practices different in Scotland?
- Did Scotland have a badger cull?
- Why is England so high when Scotland is TB free?
- What happens in the rest of Europe?

- Why are we the highest in Europe- is this linked to arming practices? Do we have more badgers?
- Is Wales part of this? (badgers may not respect country borders!)
- The disparity between government funding and government losses. What, if any, are the other options available? Are there any countries which have tackled bTB differently?
- How often are cattle/carcases tested?
- Changes to abattoir policy- loss of local facilities?
- Road traffic accidents- more badgers will be tested- not often you run over a cow!
- Why not use measures at the entrance of farms like with foot and mouth?
- How are vaccines applied- oral or injection?
- Has there been a vaccination programme trial for badgers?
- Why not just inject all the cows?
- Why do we not just immunise all cattle as early in their lives as possible? Is it considered uneconomic?
- Are cattle now resistant to antibiotics?
- Vaccination vs contraception?
- Why 10 years time for vaccination when there is only a 25 year expected time to try and clear bTB. Surely this should be a priority?
- As bTB can be spread by inhalation is it not possible to deliver the vaccines by the same route- some kind of automated aerosol system positioned by badger sets?
- How certain is the link between badgers and cows?
- Other cases of culls?
- The short term affects of the cull so far?
- Hunting ban? Culling? Protected status of badgers?
- What about ecological impact of removing a species from the food chain?
- Why is it considered to be badgers and not foxes?
- Apart from badgers, do other wildlife such as hedgehogs also carry bTB?

- Do badgers only carry TB or are they affected?
- Badger cull- why kill healthy badgers? Lazy actions
- Badgers are a protected species in the UK. Is this the same in the EU?
- Increase of badgers after cull- is this because they are breeding more to make up for the ones that are being killed?
- How can culling badgers be a long term solution if you don't kill every badger in the South West?
- Badgers vs transport- which is worse?
- Cost to farmers if cattle are found with TB? Cost for testing cows?
- The amount of funding for the vaccine?
- Is it plausible that we could be bTB free in 25 years? At what cost?
- Research is an expensive activity. How much is currently spent on research into bTB?
- Information about cattle history of exposure to infected animals. Those that survive and don't catch TB would make good breeding stock?
- More animals on land- is this because land is so expensive per acre/hectare so less land means more animals on the land farmers have?

### ***Newcastle***

- Is it connected to GM farming and bees dying?
- How is Scotland bovine TB free and not England?
- Why is Scotland free of it? Can we learn from them?
- Are there no badgers in Scotland?
- Why Scotland? What are they doing right? Are they killing badgers?
- Why is Scotland free of bTB? Do badgers not have 'cross country' setts on the borders?
- If heat kills TB how can we prove humans are getting it from cattle as we all cook our food at a temperature which would kill the infection in meat
- Is there a cure for Bovine TB?
- How has it reduced in humans?

- Pasteurisation is so important
- How can humans catch it? Is meat safe?
- What is the impact on humans?
- Is it always fatal in humans? And how are we still getting it?
- Does it spread to crops and spread that way?
- Why will it take 25 years to fix it?
- Why were cases so low in the past?
- Argentina and the US have a big cattle industry. Why is it not such a big problem there?
- When did testing start and why has the problem increased if we are carrying out more testing?
- Why does England have the number 1 problem?
- Is it spread into the UK from Europe?
- Have all the pathways of transmission of Bovine TB been established?
- Why has the government allowed it to escalate to such a high level?
- Why are we not culling other species?
- Could the infection be spread through animal faeces?
- Why are we low risk?
- How are other countries free of it?
- Can it be carried on lorries to other parts?
- What makes it common in different animals?
- Why is it more of a problem for cows than other animals?
- Why do cats get it but not dogs?
- Why are the areas confined to specific regions?
- Are there any other countries that have got this problem?
- Is there a cure? Is there a vaccine or an inoculation?

- Are all cows vaccinated?
- Are cows carriers?
- How do you cull badgers?
- How is spread controlled within herds of cows?
- If it is controlled why has there been this big increase?
- Has it ever been proven 100% that it comes from badgers?
- Where did it originate from?
- How did it get here originally?
- Is it in the food chain?

## **Workshop 2**

### ***Birmingham***

- What happens to badgers after being shot?
- £20 million – why has it not worked? –Shooting
- Culling badgers will only reduce TB by 16% - why?
- Eradicated in the 70s – why not now? Shoot badgers?
- The government banned fox hunting as a sport – why can't the law be looked at to ban 'badger hunting' but allow killing badgers under the same rules as foxes?
- How to tell which badgers have been vaccinated
- How can we define such large amounts of money to kill a badger? – How is it so expensive per badger?
- Would double fencing make any difference?
- Why is there such a big difference in costs? – We're not doing a good job.
- Farmers attitude seem to be he's doing every thing he can?
- Not the farms fault
- Why slaughter healthy newborn cows? – Also the farmers borrow money from banks?
- Help farms

- Some farmers in the long run might give up on keeping cattle
- All about money
- More effort and money put to changing the attitude of the public regarding the lawful protection of badgers. Allowing farmers to kill badgers (as foxes) and leave Defra to monitor badger numbers appears a simple solution.
- Shooting badgers make BT free areas? – How do you know what badgers are unaffected before killing? – Why so long? - How are areas BT free? – Trying to stop cattle dying and being put down, yet shoot newborn healthy cattle? = money loss!
- Why compensation like for isn't like or cover expenses?
- £50 million on trials? - Why not vaccinate deer? – Compensation is or isn't cost effective? – Farmer loses out if one cattle infected?
- 25 years plan to eradicate bovine – Why that concrete evidence cost needed?
- What lessons have we learned from past history (25 years ago)?
- What about the rest of the world? USA etc.
- Why are the government not talking to Scotland?
- Why did human vaccination stop when TB was at the highest level?
- Can you be infected by a bite?
- How long in gestation and what's the litter size? – Do they have mating seasons?
- Are we finding more cases of TB because we are testing more animals?
- Are there more culling projects in the pipeline?

### ***Exeter***

- If the cull is deemed “unsuccessful” will this lead to gassing?
- Wasn't the government responsible for the eradication of BSE or was it a joint effort between farmers and the government?
- The size of herds has increased significantly since the 1980s. Should we not be looking to reduce numbers as farms are small?

### ***Newcastle***

- What is Biosecurity?

- What don't auctions put in biosecurity measures?
- What roughly is the time period for transmission from badgers to cattle?
- How long does it remain dormant in a cow?
- Latency period tests aren't 100% accurate. Does that mean we could be carrying a disease?
- Why don't you quarantine the cows?
- Why aren't low risk cows tested?
- Why not test more frequently when alive?
- Why not test other farmed species?

## Appendix 9: Stakeholder wall quotes chart

Quote	Birmingham	Newcastle	Exeter
What happens if we let TB spread? Is it absolutely essential to spend all this money trying to stop it?	1 green	1 red, 3 green	3 red
The government needs to better communicate the details of the badger cull to the public. Currently there is a significant misunderstanding, which impacts on the public's attitude.	18 green	2 green	11 green
Badgers are protected by law, and to take away that protection there should be hard evidence that there is some justification for such and extreme measure as culling. In reality, killing badgers would not actually substantially reduce instances of bovine TB.	N/A (quote was only added in the Newcastle and Exeter workshops)	6 green	6 green



Quote	Birmingham	Newcastle	Exeter
Linking compensation to biosecurity measures on the farm will add to the stress levels of an already stressed farmer with a TB breakdown.	1 red, 1 green	-	10 red
Badger vaccination just a drop in the ocean at the moment, done to pacify people but it's not a practical solution in the long run.	5 red, 1 green	7 red	4 red
I wouldn't put my stock in an area of land surrounded by other farms now as I'd be too worried about passing on TB. I'd hate to be accused of taking TB to that area.	-	-	1 red
It's very difficult to be completely secure on your farm, even if you have the best intentions.	1 green	1 green	1 green
We have what represents about 25% of the badger population in Europe... we should be proud of this natural legacy and heritage	2 red, 4 green	1 red, 1 green	3 red
The effect on farming families has to be considered. The devastation for farmers involved in a farm breakdown is a real factor.	-	2 red, 3 green	1 red
At the moment within the government Strategy, cattle vaccination, cattle histories and biosecurity have very limited coverage. We believe that there's a lot more could be done to encourage biosecurity, to limit the amount of interactions between the	N/A (quote was only added in the Newcastle and Exeter workshops)	1 red, 1 green	6 green

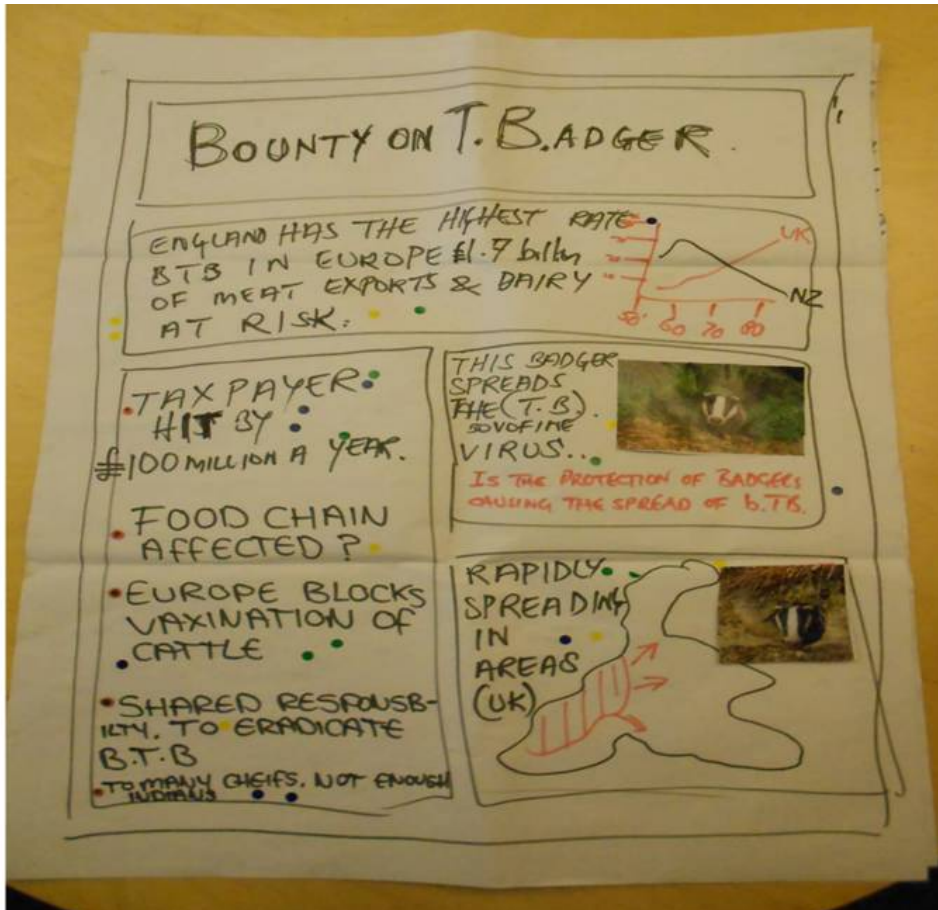
Quote	Birmingham	Newcastle	Exeter
cattle and the carriers of the disease.			
I think you hear the statistics about cattle slaughter and the number of outbreaks but that takes no account at all of the trauma people experience.	-	-	1 green
People need to pay more for their food. Levies on supermarkets could also help provide funding for the bTB Strategy.	24 red	22 red	1 red, 2 green
Government caused the problem by failing to address the issue, therefore they should be responsible for paying for it.	2 red, 8 green	17 green	4 red, 2 green
Why are we not mentioning the risk that Bovine TB seems to be being suppressed.	2 red, 2 green	1 red, 3 green	1 red, 1 green
Total	36 red, 36 green	35 red, 37 green	28 red, 30 green

NB: Participants carried out this exercise during the morning break of Workshop 2 rather than at tables under the direction of a table facilitator. Perhaps for this reason, the number of red and green dots applied at each workshop does not always exactly match the total number of workshop participants.

## Appendix 10: Newspaper articles

The images below give three examples of the newspaper articles developed by participants as part of the 'Communicating bovine TB' session, near the end of the second workshop. There were 17 newspaper articles created in total across the three locations. Photographs of all newspaper articles will be archived.

### Birmingham



# BTB DOESN'T KILL!

The diagram shows a circular flow of money and goods. At the top, 'Exports go Down' with a downward arrow. On the right, 'Price Income' with an upward arrow. At the bottom, 'Market Prices go up' with an upward arrow. On the left, 'We pay more for food' with a downward arrow. The arrows form a clockwise cycle.

Q - Does it harm Humans?  
A - No Not in health - But in Pocket

Q - WHATS THE ISSUE?  
A - We HAVE THE HIGHEST RECORD OF BTB IN EUROPE.

Q - WHY IS THIS IMPORTANT?  
A - It Doesn't Kill us - it Kills the export market affecting economically

Q - Why has it got to this stage & not been solved earlier?  
A - THERE HASN'T BEEN ONE BODY TO TAKE OWNERSHIP OF THE PROBLEM.

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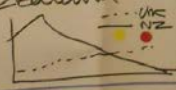
## SOLUTIONS

**\* ONE UNITED BODY WITH REPRESENTATIVES FROM EACH BODY.**

<ul style="list-style-type: none"> <li>* NATURE ORG</li> <li>* NPU</li> <li>* FARMING</li> <li>* GOVERNMENT</li> <li>* DEFRA</li> <li>* VETS</li> </ul>	<ul style="list-style-type: none"> <li>* FOOD INDUSTRY</li> <li>* SUPERMARKETS</li> <li>* SLAUGHTER HOUSES</li> <li>* Auction houses.</li> </ul>
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all of these are accountable  
each putting in percentages  
money and says.

**BOVINE TB - WE ARE WORST IN EU**  
**BADGERS - FRIEND & FOE?**

<p><u>COSTS</u></p> <ul style="list-style-type: none"><li>• HEALTH</li><li>• ECONOMY</li><li>• YOU ARE PAYING!</li><li>• £100million!!!</li></ul> 	<p><u>SOLUTIONS</u></p> <ul style="list-style-type: none"><li>• Testing / Research / Control</li><li>• Multi-Stakeholder Lense</li><li>• BIO SECURITY</li><li>• FOOD INDUSTRY</li></ul>
<p><u>CASE STUDIES</u></p> <ul style="list-style-type: none"><li>• New Zealand</li><li>• Eire</li></ul> 	<p><u>FACTS</u></p> <ul style="list-style-type: none"><li>• BADGER POPULATIONS</li><li>• CULLING or VACCINATION?</li><li>• WHAT ARE THE HEALTH RISKS</li></ul> <p>↓ CATTLE or BADGER HEALTH RISKS</p>
<p><u>CONCLUSION</u></p> <p>ACTION IS NEEDED NOW TO STOP THE SITUATION WORSENING, TO STOP THE DISEASE SPREADING, TO SAFEGUARD OUR FARMING EXPORTS. <del>A</del> BALANCED SOLUTION IS NEEDED, NOT JUST CULLING.</p> 