



Department  
for Environment  
Food & Rural Affairs

# Enhanced bovine TB surveillance and controls in the High Risk and Edge Areas of England

**A consultation exercise contributing to the delivery of  
the Government's Strategy for achieving Officially  
Bovine Tuberculosis Free (OTF) status for England**

**30 August 2016**



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# Part A: Background

## 1. Purpose of the consultation

1.1 Bovine TB is the most pressing and costly animal health problem in the UK. The disease threatens our cattle industry and presents a risk to other livestock and also to wildlife species (mainly badgers), pets and humans. The Government remains determined to eradicate bovine TB.

1.2 This is the latest in a series of consultation exercises aimed at introducing sensible and proportionate TB control measures in cattle that will, when combined with measures to address the TB risk posed by badgers, increase the probability that the goal of national official TB freedom will be achieved by the target date of 2038. The proposals set out in this document fall into two broad categories:

- Enhancing the TB control framework through more sensitive testing of cattle from TB breakdown herds.
- Making faster progress on the road to achieving official TB freedom for counties in the Edge Area of England.

1.3 The proposed measures, explained more fully in the main sections of this document can be summarised as follows:

### More sensitive testing of cattle from TB breakdown herds

- Increase the sensitivity of breakdown testing by making wider use of interferon-gamma parallel testing in TB breakdown cattle herds in the High Risk Area of England (HRA).
- Increase the sensitivity of skin testing of cattle traced from infected herds by using the 'severe' interpretation.
- Mitigate the risk posed by inconclusive skin test reactors that resolve upon retesting.
- Introduce more effective controls on the movement of cattle between two TB breakdown herds.
- Harmonise the scheduling of Short Interval Tests in TB breakdown herds.

### Making faster progress towards official TB freedom for counties in the Edge Area of England

- Re-define the Edge Area boundaries by incorporating as whole counties those that currently straddle the High Risk and Edge Areas of England.

- Increase the sensitivity of surveillance testing by extending six-monthly testing or radial testing to all parts of the Edge Area.

1.4 We are also using this opportunity to seek views on two further potential measures to address two control weaknesses and on possible enhancements to ibTB (an interactive map showing TB breakdown locations). The measures are:

- To introduce powers to enforce herd biosecurity measures to reduce TB reinfection risks.
- To restrict approval of slaughter sales ('red markets') of TB-restricted cattle to the HRA and Edge Area.

## **2. How this consultation fits with the parallel Call for Views on rationalising TB testing in the HRA**

2.1 This consultation has been published alongside a call for views paper on a possible alternative TB herd testing regime for the HRA. For herd owners facing the greatest TB risks, we believe that the options outlined in the call for views paper (built around a default position of six-monthly routine surveillance testing) would be more effective in detecting infection and at the same time be a simpler testing regime for all to understand and comply with. The call for views can be found at <https://consult.defra.gov.uk/bovine-tb/bovine-tb-a-call-for-views>.

2.2 We would urge consultees to read and respond to both the consultation and the call for views. The two documents are not contradictory: the proposals set out in this consultation are ones the Government is minded to introduce over the coming 12 months; whereas the call for views is an invitation to help us determine whether stakeholders agree there may be merit in developing and analysing options for a simpler and more effective TB testing regime in the HRA over the longer term.

## **3. How this consultation links to the wider strategy for achieving Officially Bovine Tuberculosis Free (OTF) status for England**

3.1 The Government's Strategy for achieving Officially Bovine Tuberculosis Free (OTF) status for England was published in April 2014, it can be found at <https://www.gov.uk/government/publications/a-strategy-for-achieving-officially-bovine-tuberculosis-free-status-for-england>.

3.2 In proposing changes to TB controls in cattle herds our aim is to strike a balance between robust disease control - aimed ultimately at achieving OTF status for England - and supporting a sustainable livestock industry. The proposals and initiatives set out in

this document were trailed in the 2014 Strategy document and build on measures we consulted on last year and introduced in April 2016, including compulsory post-movement TB testing of cattle entering the Low Risk Area of England and a more robust testing regime for TB breakdown herds in the HRA.

## Part B: Enhancing TB control measures through more sensitive testing of cattle from TB breakdown herds

### 4. Introduction

4.1 In the TB Strategy we highlight the importance of mitigating the risks from all TB transmission routes (i.e. from cattle and from wildlife) within the HRA. We also make it clear that where it is cost-effective and appropriate we will seek to extend appropriate Edge Area measures into the HRA. For example, in April 2016 we introduced the new policy of requiring a minimum of two short interval tests (SIT) at severe interpretation for all new TB breakdown herds in the HRA before movement restrictions can be lifted – this policy has been in place in the Edge Area of England since January 2014.

4.2 The Government has made clear its commitment to enable badger control in parts of the country where bTB is endemic and work is in progress to deliver that. However, if we are to achieve OTF status for the whole of England by 2038 we must continue to look for opportunities to further enhance TB cattle controls to maintain, complement and reinforce the benefits we expect to see from badger culling.

### 5. Wider use of interferon-gamma testing in TB breakdown herds in the HRA

5.1 Interferon-gamma blood testing has been widely used in TB breakdown herds outside the High Risk Area of England since October 2006. We now propose a more structured approach to the use of the interferon-gamma testing in the HRA, where to date its use has been mostly discretionary and limited to certain herds affected by persistent or explosive TB breakdowns.

5.2 The proposal is to have compulsory interferon-gamma blood testing (alongside skin testing) to help resolve TB breakdowns with lesion- and/or culture-positive animals in the HRA where any of the following three criteria are met:

- **Criterion 1:** The APHA veterinary investigation concludes that the most likely TB transmission route for the affected herd was contact with infected cattle (e.g. via cattle movements, residual cattle infection from a previous breakdown, or contact with a contiguous infected herd) and measures are in place to prevent further

spread of the disease from this source - i.e. the risk of further infection from cattle from outside the herd is low. Interferon-gamma testing would happen as soon as possible after the onset of the breakdown, usually before the first short interval test (SIT) of the infected herd.

- **Criterion 2:** The infected herd is located in one of the areas where licensed badger population control is being conducted. Again, the interferon gamma testing would be conducted as early as possible in the breakdown.
- **Criterion 3:** There is clear evidence that repeat skin testing of the herd has failed to resolve a TB incident.

5.3 This measure would enhance TB breakdown testing sensitivity in the HRA. This is important as it is estimated that more than 20% of all breakdown herds in the HRA retain infected animals after all skin testing has been completed and restrictions have been lifted. This substantial residual herd infection contributes to the high rate of recurrence we see in the HRA where nearly 60% of breakdowns occur in herds that have sustained a breakdown in the previous three years. On the other hand, a substantial proportion of new herd breakdowns in the HRA are triggered by direct or indirect contact between badgers and cattle. That is why we are not advocating blanket interferon-gamma testing in all TB breakdown herds.

5.4 By applying the blood test in parallel with the severe interpretation of the skin test in TB breakdown herds we would expect to:

(a) shorten the duration of TB herd breakdowns (and hence lower the disease prevalence); and

(b) reduce the likelihood of residual cattle infection in herds that regain OTF status (and hence lower the rate of recurrent breakdowns, the risk of spreading TB to other herds via movements of infected cattle and the risk of spreading TB to local wildlife following successful badger cull operations).

5.5 Through this proposal we would gradually expand the mandatory use of the interferon gamma test in the HRA, particularly in the badger control areas. Currently we use the test in between 20 and 30 herds a year in the HRA. If this policy were introduced we would expect the test to be used in many more HRA breakdown herds – perhaps as many as 300 in the first year, depending on the location and scale of new badger control areas. There would be further increases in subsequent years – the rate of increase being, to a significant extent, dependant on the number of new badger control areas established. On average, we would expect around 3.8% of cattle in the tested herds to be positive to the more sensitive interferon gamma test only (i.e. gamma positive but skin test negative).

5.6 So, if this proposal is implemented, we could expect an initial spike/increase in TB reactor numbers lasting for, perhaps, 3 or 4 years. But in reality this would be the effect of many infected cattle being identified at an earlier stage, thereby shortening the duration of the breakdown and reducing the risk of further disease transmission within the herd, new



herds or to local wildlife. So any increase in compulsorily slaughtered cattle numbers could be expected to lead thereafter to a marked decline in these numbers in the longer-term, as disease is driven out of herds sooner.

#### 5.7 We invite your views on this proposal.

## 6. Increasing the sensitivity of skin testing of cattle traced from infected herds by using the 'severe' interpretation

6.1 Tracing involves the identification of cattle that have been moved off a breakdown holding within a defined period of time. Any animals that may have moved from a TB breakdown herd before the imposition of TB restrictions must be traced and, if still alive, TB tested to minimise the risk of disease spread to other herds. Initial skin tests of cattle on breakdown holdings are read using severe interpretation (see below), but the cattle traced from the herds are normally tested using standard interpretation. This is an inconsistency which the Government wishes to put right.

6.2 The test used is the comparative tuberculin skin test, which measures an animal's immune reaction to injections of both avian and bovine tuberculin. Depending on the degree of reaction to the test an animal is identified as: test positive (a reactor); test negative; or an inconclusive reactor (in which case a re-test is required). Because of the limitations of the test and the nature of the response to the bovine TB bacterium we may miss 20 to 25 per cent of TB-infected cattle using the standard interpretation of the test (these animals are known as false negatives). Using a severe interpretation of the comparative tuberculin skin test lowers the positive cut-off point thereby reducing the likelihood of these false-negative test results. Whilst the severe interpretation slightly increases the likelihood of false positive test results, the consequences of missing infected animals that may go untested for up to four years in the herds of destination far outweigh the costs and other implications of false positive results.

6.3 It is inconsistent to apply the standard interpretation to cattle traced from a herd that is undergoing testing at severe interpretation. **The proposal is therefore to use the severe interpretation of the test for all spread tracings from TB breakdown herds to reduce the possibility of missing infected animals.**

## 7. Mitigating the risk posed by inconclusive skin test reactors (IRs)

7.1 If an animal's skin test result falls between the measurements for it to be classed negative or positive, the test result is deemed inconclusive and the affected animal is placed under movement restrictions, isolated and scheduled for a further skin test. In extensive or explosive TB breakdowns IR animals not designated as reactors through

severe interpretation of the skin test can be removed at the discretion of APHA as 'direct contacts' without a re-test – if that happens compensation is paid.

7.2 The soonest an IR can be re-tested is 60 days after the previous test. If the second test is negative APHA will lift the movement restrictions and the animal can re-join the herd. If the IR is either positive or inconclusive for a second time the animal will be considered test positive and will be compulsorily slaughtered and, if it has not already happened, restrictions would be placed on the herd.

7.3 Of 5,899 IRs disclosed in non-breakdown tests in England in 2013:

- 4,792 (81.2%) passed the re-test;
- 397 (6.7%) became reactors
- 602 (10.2%) had a second successive inconclusive reaction and were thus removed.
- 108 (1.8%) were privately slaughtered by their owners or died before they could be retested.

7.4 Importantly, of the 4,792 IRs with a negative result at the retest, 265 (6.1%) went on to be reactors or IRs and 20 more became TB slaughterhouse cases within the 15 months following their initial inconclusive result.<sup>1</sup> Epidemiological studies of 'resolved' IRs in a high bTB prevalence country like Ireland have demonstrated that such animals have significantly higher odds of becoming reactors at a subsequent test in the same or another herd.<sup>2</sup>

7.4 Immediate slaughter of all IRs would increase the probability of rapidly removing infected animals in herds, thus improving the sensitivity of surveillance and breakdown testing. However, it would be at a disproportionate cost, as increased numbers of bTB-free cattle would be slaughtered resulting in a number of additional herds being unnecessarily placed under movement restrictions. An alternative approach would be to continue with the one re-test policy but requiring owners to retain those which are negative on the re-test in the herd.

**7.5 To reduce the risk presented by movements of cattle with undisclosed infection, we propose that all IRs in the HRA and Edge Areas (and in TB breakdown**

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<sup>1</sup> APHA (2015). Bovine tuberculosis: Infection status in cattle in England – annual surveillance report for the period January to December 2014 (section 8). Report available online at: <https://www.gov.uk/government/publications/bovine-tb-surveillance-in-great-britain-2014>

<sup>2</sup> Clegg, T. A. et al. Shorter-term risk of *Mycobacterium bovis* in Irish cattle following an inconclusive diagnosis to the single intradermal comparative tuberculin test; Preventive Veterinary Medicine 102(4):255-64.

herds in the LRA) that have a negative result on re-testing remain restricted for the rest of their life to the holding in which they were identified. The only permitted off movements for such animals would be to slaughter (either directly or via an Approved Finishing Unit). This has been the policy of the Republic of Ireland since 2012.

## 8. More effective control on the movement of cattle from one TB breakdown herd to another

8.1 Applications for licences to allow the movement of cattle from one TB restricted herd to another are subject to a satisfactory veterinary risk assessment. This APHA risk assessment will incorporate information known about the two herds (e.g. their TB testing history) at the time of the assessment. However the understanding of the disease status of the herds may subsequently change and could potentially undermine the assessment.

8.3 To understand the problem, we have set out below a simple example:

- Cattle are moved from farm 1, which will be released from TB restrictions if its next scheduled short interval test (SIT) gives a negative result.
- Farm 2 is in the same situation i.e. one more negative test is needed to allow TB restrictions to be lifted.
- However, the SIT on farm 1 discloses test reactors with visible lesions of TB. As a result that herd now needs at least two further SITs at severe interpretation.
- No reactors are disclosed on farm 2 following the SIT that included the cattle moved from farm 1. The holding reverts to OTF status (movement restrictions lifted) and cattle can be sold onto the open market.

8.4 It is not possible to quantify the risk accurately, but the worst case scenario would be infectious cattle from farm 2 being sold on the open market to other OTF herds.

8.5 There is another possible scenario, with farm 1 having a negative SIT and being released from TB restrictions, but with one or more of the cattle that moved from it found to be TB reactors at the SIT on farm 2. The origin of the infection (farm 1 or farm 2) could be difficult to determine, but had those animals become infected on farm 1, it could mean that the movement restrictions had been lifted prematurely.

8.6 We seek to introduce proportionate changes to address this risk. Our proposal is that **we should only allow movements of cattle between two TB-restricted holdings where the destination herd is due to have at least two Short Interval Tests at severe interpretation. That would mean that the moved cattle would be required to undergo those two skin tests at severe interpretation, the first of which should not take place until at least 60 days from the date of the arrival of the cattle from the TB restricted herd of origin. This proposal would not address the small risk described in**

paragraph 8.5 above on the basis that imposing further controls on the herd of origin would be dis-proportionate.

## 9. Harmonising the scheduling of Short Interval Tests in TB breakdown herds

9.1 Currently some short interval tests (SITs) will be carried out 60 days or more after the reading of the last test where reactors were identified. Whereas in other cases SITs are scheduled for 60 days (or more) after reactors identified at the previous test had been removed i.e. 60 days after the last possible day those cattle could have infected other animals on the farm.

9.2 TB test reactors and IRs must be isolated from the rest of the herd pending their removal or re-testing. However, the effectiveness of on-farm isolation for TB reactors can vary markedly between different farms.

9.3 On that basis, to ensure a consistent, logical approach and robust management of the disease risks in line with statutory obligations, **we propose that, when reactors are identified in a TB breakdown herd, the next SIT should take place at least 60 days after removal (rather than detection) of all of those reactors.**

## Part C: Making faster progress towards official TB freedom for the Edge Area counties of England

### 10. Introduction

10.1 In our August 2015 consultation on improving TB cattle controls we included a 'call for views' on enhanced surveillance measures in the Edge Area. We have now reviewed the responses received and further developed these proposals, which are included here.

10.2 Since the initial call for views Defra has commissioned a TB prevalence survey of badgers found dead within the Edge Area. This study is due for completion during 2017 and is expected to provide us with data on the estimated prevalence and geographic distribution of *Mycobacterium bovis* infection in badgers in the Edge area. This should help to clarify the role that this species plays in spreading TB in certain parts of the Edge Area. Furthermore, the counties in which expressions of interest for a badger control licence have been submitted include Cheshire, which is currently partly in the Edge Area and which would fall wholly in the Edge Area if the proposal set out below is adopted.

10.3 In developing our proposals we have focussed on changes that would add to the effectiveness of the current disease surveillance strategy for cattle herds in the Edge Area

and would contribute to the targets for achieving OTF status in the Edge Area set out in the 25-year TB eradication strategy.

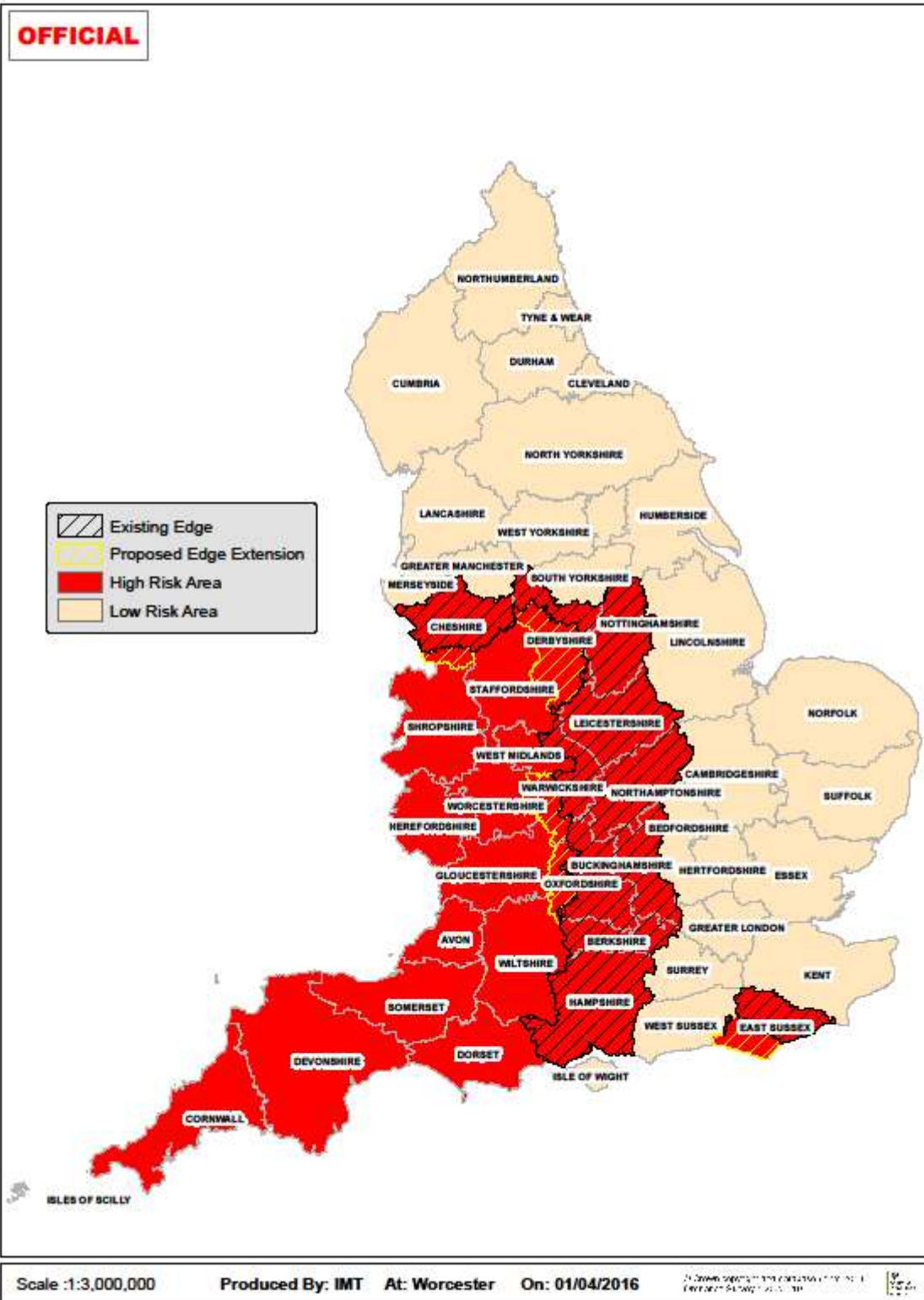
## **11. All counties that straddle the High Risk and Edge Areas of England to be incorporated completely into the Edge Area**

11.1 Our starting point in reviewing our interventions in the Edge Area is our ambition to achieve OTF status for the counties that make up this Area as soon as possible – and well in advance of the 2038 target date for achieving national OTF status. We are confident of OTF status for the Low Risk Area (LRA) being achieved by 2019, following which it should be possible to extend the OTF area further south and west – county by county - from the middle of the next decade onwards.

11.2 To allow this we have considered whether all counties currently split between the Edge Area and HRA should in future fall wholly in the Edge Area. This would facilitate whole counties in the Edge Area achieving OTF status, rather than smaller administrative units- which is both in line with our ambition and administratively simpler. The counties are:

- Oxfordshire
- Warwickshire
- Derbyshire
- Cheshire
- East Sussex

11.3 This change would mostly affect cattle keepers in the part of the county currently designated HRA. They would benefit from stronger disease surveillance and breakdown controls, with more frequent herd surveillance testing (see proposals below) and greater Government-funded use of the more sensitive interferon-gamma blood test to clear infection from TB breakdown herds.



11.4 We propose that the five counties currently split between the Edge Area and HRA should in future fall wholly in the Edge Area.



## 12. Extension of 6 monthly surveillance testing (and radial testing) to additional parts of the Edge Area

12.1 In January 2014 enhanced TB surveillance of cattle herds was introduced around herds in the Edge Area of Cheshire and Derbyshire that had had their official TB-free status withdrawn (OTFW) due to a new TB breakdown. All herds within (or straddling) the 3km radius around the restricted holding were subject to an immediate skin check test (the 'radial' test), followed by a further test six months later before reverting to annual surveillance testing. Through this enhanced surveillance regimen we aimed to identify infected cattle herds earlier and reduce the risk of TB spread in the Edge Area by restricting the movement of high risk animals. This way we protect both other cattle herds and prevent the establishment of new infection in badgers in the Edge Area.

12.2 Radial testing remains in place in East and North Derbyshire to supplement background annual herd testing. However, since 1 January 2015, in lieu of annual and radial testing, herds in the Edge Area of Cheshire have been subjected to six-monthly whole herd testing. This change was made because the high incidence of TB breakdowns and density of herds in that part of Cheshire during 2014 meant that significant numbers of cattle farms were caught within two or more overlapping radial test zones over a short period, creating administrative difficulties for cattle keepers and for APHA.

12.3 The early experience of six-monthly and radial testing in these two counties suggests there may be benefits in rolling out these enhanced surveillance strategies more widely across the Edge Area. We therefore propose the following changes:

**Table 1: Proposed Edge Area changes**

County	Current boundaries	Current testing regime(s)	Proposed changes
Berkshire	Fully Edge	Annual	Berkshire West <sup>1</sup> <i>6 monthly testing</i>
			Berkshire East <sup>2</sup> <i>Annual with radial testing</i>
Buckinghamshire	Fully Edge	Annual	<i>Annual, with radial testing</i>
Cheshire	Part Edge & part HRA	Cheshire South (HRA) Annual testing	Fully Edge <i>6 monthly testing.</i>
		Cheshire North (Edge) 6 monthly testing	<b>NO CHANGE in testing regime</b>
Derbyshire	Part Edge & part HRA	Derbyshire West (HRA) Annual testing	Fully Edge <i>6 monthly testing</i>
		Derbyshire (Edge) Annual with radial testing	<b>NO CHANGE in testing regime</b>

East Sussex	Part Edge & part HRA	Annual	Fully Edge <i>Annual, with radial testing</i>
Hampshire	Fully Edge	Annual	Hampshire North West <sup>3</sup> <i>6 monthly testing.</i>
			All other areas <i>Annual with radial testing</i>
Leicestershire	Fully Edge	Annual	<i>Annual, with radial testing</i>
Northamptonshire	Fully Edge	Annual	<i>Annual, with radial testing</i>
Nottinghamshire	Fully Edge	Annual	<i>Annual, with radial testing</i>
Oxfordshire	Part Edge & part HRA	Annual	Fully Edge <i>6 monthly testing</i>
Warwickshire	Part Edge & part HRA	Annual	Fully Edge <i>6 monthly testing</i>

Notes <sup>1</sup> Approximately the area west of Newbury. <sup>2</sup> Approximately the area east of Newbury. <sup>3</sup> NW corner delineated approximately by the A34 road to the East and the A303 (or A342) road to the South

12.4 In summary, these changes amount to:

- Six-monthly herd testing in Warwickshire, Oxfordshire, Cheshire (the south of which is currently in the HRA) the west of Berkshire, northwest Hampshire and west Derbyshire – i.e. where incidence of the disease is highest and where radial testing may be impractical or administratively complex.
- Radial testing around OTFW incidents in all other parts of the new Edge Area, as currently happens in the LRA.

12.5 Where we have recommended undertaking different testing regimes in parts of counties (e.g. Derbyshire, Hampshire, Berkshire), this reflects differences in disease incidence and the surveillance regime that veterinary advice recommends will be most effective in specific areas.

12.6 We recognise that increasing the frequency of herd testing throughout the Edge Area will have cost implications for both government and industry. We have, therefore, undertaken a cost-benefit analysis (CBA) of these proposals, a summary of which is included below.

12.7 Overall, the CBA calculates that the Edge Area proposals above would generate in excess of 400,000 additional cattle tests per year. This would create additional aggregate gross costs for farmers of approximately £1.5 million per year. However, the CBA also notes that we could expect to see tangible financial benefits, mainly from decreasing numbers and severity of TB breakdowns in the medium to long term (although there may be a spike in breakdowns in the short term following the introduction of more intensive surveillance), these have been estimated at approximately £490,000 in benefits to farmers



annually. Over a 20 year appraisal period, our analysis in the central case estimates that the proposals would be a net benefit overall. However, this is based on the assumption that Edge Areas would revert to annual testing after 5 years, and that reductions in disease incidence are at least maintained.

12.8 We also believe that less tangible benefits – in particular, the realistic prospect of OTF status for some or all of the Edge Area counties within the next 10 years – would also be significant and bring economic and reputational benefits for the cattle industry and government. Specifically, if some Edge counties were to achieve OTF status this would enable us to implement a testing regime that is similar to the low risk area, which includes four-yearly surveillance herd testing. Compared to the current annual testing regime, this would represent a significant reduction in the cost of testing to farmers and government. Declining disease incidence would also mean that cattle farmers in the Edge would expect to face reduced burden of operating businesses under restrictions and the associated impact of losing valued cattle. While qualitative evidence exists in this area, the impacts are difficult to quantify or value.

12.7 We would welcome your views on **whether we should make the changes to the Edge Area, as described above**. If these proposals are taken forward following public consultation we envisage they would be implemented in mid-2017.

## Part D: A call for views on other possible measures

### 13. Powers to enforce biosecurity measures to reduce reinfection risks

13.1 Statutory Veterinary Improvement Notices (VINs) were introduced in Wales on 1 January 2011. These notices – now known as Veterinary Requirement Notices (VRNs) – provide powers to require cattle keepers in Wales to take certain actions by a specified date to reduce the risk of spreading TB either within their own herd or to others.

13.2 These actions may include:

- erecting fences (including gates and stiles);
- adopting effective methods of excluding groups of animals from specified parts of the premises;
- protecting silage, feed storage and feeding areas from wildlife including birds;
- taking reasonable steps to ensure that people who enter the keeper's land take reasonable precautions against the spread of disease;
- any other requirement that a veterinary inspector believes necessary for the purpose of preventing the spread of disease.

13.3 Cattle farmers in Wales who fail to comply with a VRN, and subsequently suffer a TB breakdown in their herd, will have a percentage reduction applied to their statutory compensation.

13.4 We are considering the merits of having similar powers in England, A simpler alternative might be to add biosecurity conditions to restocking licences issued by APHA to owners of TB restricted herds. However we believe that the VRN option may be a more transparent and flexible mechanism.

**13.4 We would welcome your views on whether introduction of VRNs in England is something that we work up further with a view to full consultation thereafter.**

## **14. Limiting approval of slaughter sales ('red markets') of TB-restricted cattle to the HRA and Edge Area**

14.1 The incidence of TB in the LRA is very low and stable and most cases disclosed are associated with movements of cattle with undisclosed infection from outside the LRA. Consequently, we are well on the road to achieving officially TB free status for the LRA and if current progress is maintained we will have met the necessary qualification criteria by 2019.

14.2 To help safeguard progress towards this significant milestone — which would bring financial and reputational benefits for industry and eventually provide scope for reducing TB surveillance testing in the LRA – we would welcome your views on a proposal to end dedicated slaughter sales of TB restricted cattle in the LRA.

14.3 While there are measures in place to mitigate the risks posed by such sales, checking compliance can be difficult. The consequences of a leakage of TB-restricted cattle from such markets are potentially great – and could, in the worst case scenario affect the achievement of official TB free (OTF) status for the LRA.

14.4 There are very few red markets for TB restricted cattle in the LRA in any year and keepers in the LRA have the opportunity to take their stock to red markets in the Edge and the HRA. So we believe that this measure would have a very limited impact on the industry but would provide further important support to the OTF status application for the LRA. **We would welcome your views on whether we should limit TB red markets in future to the HRA and Edge Area of England only.**

## **15. Sharing TB breakdown information – ibTB**

15.1 In summer 2015 we launched a freely accessible online interactive mapping tool – [www.ibTB.co.uk](http://www.ibTB.co.uk) – which shows the location of ongoing TB breakdowns and TB

breakdowns resolved in the previous 5 years in England and Wales. We launched the application because many farmers, vets and their representative organisations wanted government to share more information about the local TB situation, so that cattle keepers are better aware of the disease risks to their herds and can take appropriate precautions.

15.2 This year we are launching Version 2 of ibTB which has been developed following feedback from farmers who requested that it should be fully compatible with mobile devices. In response to feedback received we have also added an additional map showing all TB breakdowns resolved over the previous five years i.e. these can all now be viewed at the same time rather than having to load individual years.

15.3 We will continue to look for opportunities to further enhance ibTB. With that in mind we would welcome your views on possible further developments, for example:

- What additional information might you want to see on ibTB?
- Should ibTB be extended to other cattle diseases?

## Part E: Tell us what you think

### 16 How to respond

16.1 If you wish to respond, please submit your comments by **8 November 2016**.

16.2 You can respond in one of three ways.

- **Online** by completing the questionnaire at <https://consult.defra.gov.uk/bovine-tb/bovine-tb-cattle-controls-post-movement-testing>
- **Email** to [bTBengage@defra.gsi.gov.uk](mailto:bTBengage@defra.gsi.gov.uk)
- **Post** to:  
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16.3 Our preferred method is online because it is the fastest and most cost-effective way for us to collate, analyse and summarise responses. If you require a different format please let us know.

16.4 Given our obligations under the Freedom of Information Act and the Environmental Information Regulations, the responses we receive may be published. If you do not wish to be identified as the author of your response, please state this clearly.

16.5 Final decisions will be made by Ministers.

## Cost benefit analysis of enhanced TB surveillance in the Edge Area

### 1. Analysis summary

1.1 The analysis assesses the proposals outlined in Section 12 over a 20 year appraisal period. We present the key results here with the counties grouped by incidence level as described in the consultation document:

- Low incidence group: *Berkshire, Buckinghamshire, East Sussex, Hampshire, Leicestershire, Northamptonshire, Nottinghamshire*
- High Incidence group: *Cheshire, Derbyshire, Oxfordshire and Warwickshire.*

#### Low incidence group

1.2 Overall, we estimate a net benefit in present value terms **£1.8m** over the appraisal period, of which farmers is **£330k** and government is **£1.5m**. The table below presents the sensitivity analysis.

	Pessimistic	Central	Optimistic
Net Benefit (£m, present value)	-0.5	1.8	4.5

1.3 *Impact on cattle testing:* During the first five years of the appraisal period, we estimate that the measures proposed will generate an additional **116 thousand** tests per year, at an annual cost of **£415k** to farmers and **£375k** to government. However, this is partially offset by abolishing around **5 thousand** contiguous tests per year. We estimate the annual benefit (cost savings) is **£15k** to farmers and **£14k** to government over the appraisal period.

1.4 *Impact on disease control costs:* We estimate the disease control benefits (cost savings) to be **£370k** per year over the appraisal period, of which **£150k** is to farmers and **£220k** is to government.

#### High incidence group

1.5 Overall, we estimate a net benefit in present value terms of **£3.1m** over the appraisal period. This represents a net benefit to government of **£3.1m**, and a negligible net cost of **£20k** to farmers. The table below presents the sensitivity analysis.

	Pessimistic	Central	Optimistic
Net Benefit (£m, present value)	-1.8	3.1	8.8

1.6 *Impact on cattle testing:* During the first five years of the appraisal period, we estimate that measures proposed will generate an additional **311 thousand** tests per year, at an annual cost of **£1m** to farmers and **£990k** to government. However, this is partially offset by abolishing around **16 thousand** contiguous tests per year. We estimate the annual benefit (cost savings) is **£55k** to farmers and **£47k** to government over the appraisal period.

1.7 *Impact on disease control costs:* We estimate the disease control benefits (cost savings) to be around **£870k** per year over the appraisal period, of which **£340k** is to farmers and **£530k** is to government.

## 2. Analytical approach

### Proposed measures

- 2.1 For the majority of Edge Area counties, we propose that the existing annual testing regime is changed to either:
- Annual surveillance herd testing, supplemented with radial testing
  - Six-monthly surveillance herd testing
- 2.2 In addition, we propose abolishing contiguous testing in these areas. For more detail on the proposals please see **Section 12** of the main consultation text.

### Overview: monetised impacts

- 2.3 We assess the impact of the proposed measures on farmers and to government over a 20 year appraisal period. The analysis monetises the impact in two key areas: **(1) cattle testing** and **(2) disease control costs**. We use a discount rate of 3.5% when assessing cost and benefit streams over the appraisal period in present value terms, in line with HM Treasury Green Book assumptions<sup>3</sup>.
- 2.4 In the baseline (business as usual), herds are annually tested.
- 2.5 Under the proposals, the analysis assumes that the length of either intervention is up to 5 years (depending on the level of disease reduction), after which we would revert all areas back to annual herd testing. We assume that, based on the experience of Cheshire and Derbyshire, disease control benefits would be achieved within the first five years which would then be maintained by annual testing. The five year period also acknowledges the additional costs of the measures to both farmers and government.
- 2.6 There is also an impact on disease incidence and control costs under the measures proposed. Over the course of the appraisal period we expect:
- an initial sharp increase in the number of breakdowns due the introduction of more intensive surveillance, followed by reductions thereafter.
  - a proportion of breakdowns to be detected up to six months earlier compared to the baseline during the more intensive surveillance regime.
  - the reduction in disease incidence to be at least maintained once the areas revert back to annual surveillance testing after 5 years.
- Disease control benefits (costs savings) are based on the estimated costs of a lesion or culture positive breakdown. These are presented in **Table 1**.
- 2.7 We have based the disease incidence profile on the experience of the Cheshire Edge since 2013, which is presented in **Table 2**. While the short-term spike in incidence will pose additional costs to farmers and government, the expectation is that both will benefit in the medium and long term from a reduction in disease control costs compared to the baseline. However, we address the uncertainty in our assumptions and underlying data by using sensitivity analysis to develop central, pessimistic and

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<sup>3</sup> [The Green Book: appraisal and evaluation in central government](#)

optimistic scenarios. This is presented in **Table 3**, while **Figure 1** presents a graphical representation of the disease incidence profile over the appraisal period.

### Overview: non-monetised impacts

- 2.8 Over the 20-year appraisal period, we expect many counties to accrue other benefits that are not formally monetised in this analysis. For instance, we expect the measures to contribute significantly to counties in the low prevalence group achieving officially TB free (OTF) status. This would enable us to implement a testing regime that is similar to the low risk area, which includes four-yearly surveillance herd testing. Compared to the current annual testing regime, this represents a significant reduction in the cost of testing to farmers and government.
- 2.9 Declining disease incidence means that cattle farmers in the Edge would expect to face reduced burden of operating businesses under restrictions and the associated impact of losing valued cattle. While qualitative evidence exists in this area<sup>4</sup>, the impacts are difficult to quantify or value.

## 3. Tables and Figures

Table 1: Estimated costs of a breakdown (*breakdown farm only*)

Variables	Range of costs (£, low to average severity)
Total Cost ( <i>of which</i> )	13,100 - 18,800
Farmers ( <i>of which</i> )	3,675 - 6,325
<i>Net economic loss</i> <sup>1</sup>	1,375 - 3,450
<i>Productivity loss from skin and gamma testing</i>	2,125 - 2,575
<i>Cost of isolating reactors</i>	50 - 125
<i>Cost of movement restrictions</i>	125 - 175
Government ( <i>of which</i> )	9,425 - 12,475
<i>Total compensation (net of salvage)</i>	1,550 - 3,850
<i>Skin and gamma testing</i>	7,275 - 7,650
<i>Reactor costs (includes slaughter, haulage etc.)</i>	250 - 625
<i>Administration</i>	375

Notes: constituent parts may not add up to totals due to rounding. The cost of an average severity and low severity breakdown is based on typical outcomes in the Edge Area. The key difference is that under a low severity breakdown, fewer reactors are detected and herds are under restriction for a shorter duration. The costs estimated are first-order, meaning it only includes the costs of dealing with the breakdown farm itself. Costs of any additional testing (e.g. radial, tracing, and contiguous) and subsequent breakdowns detected are excluded.

<sup>1</sup> estimated by subtracting the compensation paid from the economic value of the cattle slaughtered.

<sup>4</sup> Defra, [Impact Assessment "Measures to address bovine TB in badgers"](#). Please see paragraph 6.47.

Table 2: Cheshire Edge Data

Year	Testing Regime	(1) cattle tests		(2) total breakdowns <sup>1</sup>		Early detection rate
		Number	% change (y-on-y)	Number	% change (y-on-y)	
2013	Annual surveillance herd testing	249,185	n/a	117	n/a	
2014	Annual surveillance with radial testing	381,845	53.2%	136	16.2%	48% <sup>2</sup>
2015	Six-monthly surveillance herd testing	392,072	2.7%	113	-16.9%	32% <sup>3</sup>

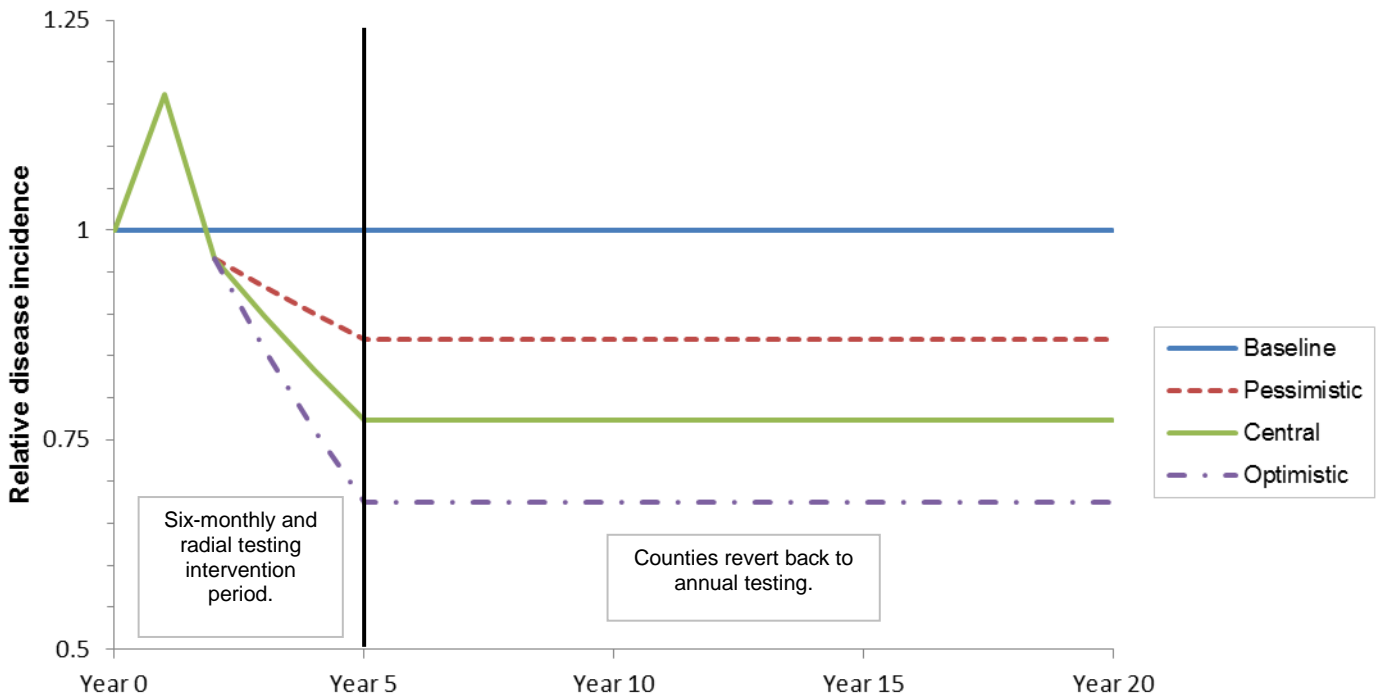
Notes: Data taken from [latest bovine TB statistics](#) and [epidemiology reports](#). <sup>1</sup> refers to the total number of new incidents. <sup>2</sup> please see the Cheshire (edge area) year-end epidemiology report for 2014. <sup>3</sup> estimated by dividing the number of breakdowns detected by six-monthly testing (36) by the total number of breakdowns (113).

Table 3: Assumptions and sensitivity analysis summary

Variables	Scenario		
	Pessimistic (low benefit / high cost)	Central	Optimistic (high benefit / low cost)
% change in breakdowns in the baseline (cumulative)	0%	0%	0%
% of breakdowns in the baseline found earlier by 6 monthly or radial testing	32%	40%	48%
% change in the number of breakdowns in year 1 (compared to baseline)	16.2%	16.2%	16.2%
% change in the number of breakdowns in year 2 (year on year, compared to year 1)	-16.9%	-16.9%	-16.9%
% change in breakdowns between years 3 and 5 (cumulative)	-10%	-20%	-30%
% change in breakdowns between years 6 and 20 (cumulative)	0%	0%	0%
Cost of a breakdown	-10%	0%	10%



# Figure 1: Disease incidence profile



**Notes:** trends based on the scenario assumptions presented in **Table 3**. The baseline is used for comparative means only and is not reflective of current disease incidence or prevalence across the Edge Area, which varies widely. The latest Bovine TB statistics can be found [here](#).