

# Regulatory Impact Assessment: Pre-Movement Testing in England

This Regulatory Impact Assessment (RIA) supports provisions in a new Tuberculosis (England) Order 2005 for the introduction of a statutory requirement for pre-movement testing. A separate RIA at annex B covers minor changes related to non pre-movement testing elements of the TB Order which were consulted on in February 2004 and for which clearance was obtained from Domestic Affairs Committee.

This RIA is intended to provide an assessment of the expected impact of policy options to reduce the spread of bovine TB through cattle movements. It assesses the costs, benefits and risks of the policy options in order to provide information to help decision-makers. The assessment has been an open attempt to evaluate options using the best evidence available. It has been necessary to make assumptions and estimates where hard information is limited and to make informed guesses about the likely business response to policy measures.

## 1 Title of Proposal

**Introduction of a statutory requirement for bovine TB pre-movement testing in England**

## 2 Purpose and intended effect of measure

### ***Objective***

2.1 The objective of testing cattle pre and/or post movement is to reduce the risk of further spread of bovine TB through cattle movements both within regions of England where disease is endemic and particularly to parts of England that are currently free of disease.

2.2 Testing cattle for bovine TB prior to movement would enable infected cattle to be identified and prevented from moving. Post movement testing cattle before integration into the recipient herd would allow infected animals to be removed before there was an opportunity for disease transmission to other cattle to have occurred.

2.3 If successful, the measure will contribute towards Defra's Public Service Agreement (PSA) 9 target that aims to reduce the spread of bovine TB to new parishes in England to below the incremental trend of 17.5 confirmed new incidents per annum by the end of 2008. Pre-movement testing is a key measure to be put in place to achieve the PSA 9 target.

## **Background**

2.4 Bovine TB is one of the most difficult animal health problems facing GB cattle owners. Currently the disease affects a small proportion of the nation's herds and its distribution has historically been confined to discrete regions within GB where it is endemic. However there is spread of disease out of these endemic regions into areas that have thus far been disease free.

2.5 Tracing cattle movements associated with a TB breakdown <sup>1</sup> and analysis of the 'TB99 Farm survey pre-Foot and Mouth Disease' conducted by the Independent Scientific Group on Cattle TB (ISG) have identified that cattle movements can spread disease and are associated with an increased risk of a herd breakdown.

2.6 Existing EU and domestic legislation govern routine testing of cattle for TB, notification of disease, slaughter valuation and compensation, and the restriction of the movement of animals in herds affected with disease. Control of bovine TB is a fully devolved matter in Scotland and Wales. Pre and post-movement testing became a statutory requirement in Scotland on 23 September 2005. There is no statutory requirement for such testing in England or Wales though it has for some time been advised as best practice.

2.7 Currently, disease is managed through regular testing of herds and slaughtering those animals that test positive. Animals reacting positively to the tuberculin skin test (known as reactors) are separated from the herd and sent for slaughter. Animals whose test result was inconclusive are also separated from the rest of the herd until a follow-up test shows either a positive reaction leading to slaughter or a negative reaction at which point they can rejoin the herd.

2.8 If TB is found in a herd, restrictions are imposed on movements onto and off the premises until all animals in the herd have been tested and been found clear on two consecutive occasions, or after one subsequent test in the case of animals tested and infection was not confirmed. In addition to the restrictions on movement, the sale of non-heat treated milk and milk products to the public is also not allowed until the restrictions are lifted. In a herd suffering a breakdown, enquiries are carried out to find the origin of the disease, movements off are traced and tested and contiguous premises are tested.

2.9 The average length of time that a herd remains under restriction has risen steadily over the last 10 years and this increase is paralleled by the increase in average herd size. Between 1997 and 2002 the average duration of a herd restriction due to a confirmed incident of TB has increased from 215 days to 292 days (the average duration due to an unconfirmed incident over the same period has increased from 113 days to 149 days).

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[http://www2.defra.gov.uk/research/project\\_data/More.asp?I=SE3026&M=KWS&V=se3026&SCOPE=0](http://www2.defra.gov.uk/research/project_data/More.asp?I=SE3026&M=KWS&V=se3026&SCOPE=0)

2.10 Movement restriction imposed on herds found to be infected during the course of routine surveillance reduces the risk of infected cattle moving out of the breakdown herd and spreading infection into other herds.

2.11 However, routine surveillance is carried out at either 1,2,3 or 4-year intervals depending on the incidence of TB which varies considerably across England (minimum testing intervals are specified in EU Directive 64/432). Where disease incidence is high, annual testing is the norm. The period between testing invariably means movements of infected cattle does occur prior to infected herds being identified.

2.12 In their 4<sup>th</sup> report, the ISG consider scientific evidence for cattle controls and advise that there is a case for pre- and post-movement testing.

### ***Rationale for Government action***

2.13 Bovine TB is a serious infectious and zoonotic disease of cattle and other animals. As a zoonotic disease ie it is transmissible to man, there are public health as well as veterinary implications. It is a significant problem in cattle in some areas of England, though on any given day, only a small proportion (approximately 3.5 to 4%) of the total national herd is affected by TB restrictions. Despite current control measures, the number of confirmed new TB incidents in cattle herds has been steadily increasing in Great Britain since 1988 at an average rate of around 18% per annum.

2.14 The disease is spreading into areas that were previously disease free. The causes of the long-term increase in TB are not well understood. There is speculation about the relative contribution of infected cattle and badgers, but no sound understanding. Although it is hard to reason that there may be any change from the current exponential increase in disease incidence without further intervention, most believe that this is the most pessimistic possible assumption.

2.15 The direct costs of a new incident consist of the lost value of animals slaughtered as reactors or contacts (which may be met by the taxpayer through compensation), the costs of organising compensation less the salvage value of the animals, the additional testing costs on the farm (partly costs of SVS and LVI time met by the taxpayer, and partly costs to the farmer), and the losses due to movement restrictions.

2.16 The average number of animals slaughtered per new incident in the 3 to 4 yearly testing areas averages about 4.8 (source VLA from VetNet) over the whole duration of the incident. These areas are used because incidents there can be presumed to be mainly due to cattle movements. Of these, 3.8 would be additional to the single moved animal which would have developed disease anyway. The cost to the farmer of each slaughtered animal is about £1,020 (based on a survey by Reading University<sup>3</sup>). The majority of that cost is the market value of the animal which would be covered by compensation provided

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[http://www2.defra.gov.uk/research/project\\_data/More.asp?I=SE3112&M=KWS&V=se3112&SCOPE=0](http://www2.defra.gov.uk/research/project_data/More.asp?I=SE3112&M=KWS&V=se3112&SCOPE=0)

by the taxpayer. Under the proposed new system of valuations the average market value is estimated to be £850, leaving other costs falling to the farmer.

2.17 The average number of tests per new incident is 3.2 and the average costs of State Veterinary Service (SVS), Local Veterinary Inspectors (LVI) and VLA per test totals about £640. These figures are simple averages of total taxpayer expenditure divided by number of tests in the most recent two fiscal years (source: Defra).

2.18 Costs to the farmer (other than those associated with the slaughtered animals) are taken from results of the survey by Reading University. These include costs of testing, isolation, movement restrictions and other minor items. The average farmer costs per TB incident, sometimes called “consequential losses”, total over £2,000 or about 40% of the value of the slaughtered animals.

2.19 Adding the elements above each TB incident caused by cattle movement costs an estimated £7,500. Indirect costs increase this to £24,000 if the initial incident triggers further control and testing on neighbouring farms and risks establishing disease in previously clear wildlife and cattle populations. See paragraphs 5.13 to 5.17 for further discussion of these estimates.

2.20 Public expenditure on bovine TB in 2004/05 was approximately £90M, including £68M on cattle testing and compensation for cattle compulsorily slaughtered. Both numbers of tests and numbers of slaughtered reactors have shown rising trends in recent years. The Veterinary Laboratories Agency (VLA) have extrapolated the trends to 2010 to demonstrate what might happen if no action is taken to reduce the spread of TB. This is considered to be a “worst case”. The trends show slaughterings rising from 23,000 to 66,000 and animals tested rising from 5 million to 9 million. If these outcomes were realised, public expenditure on testing and compensation would rise from £68M in 2004 to £145M in 2010. The 2010 figure takes account of the expected impact of a change in compensation regime which would better control compensation payments by reducing the risk of over payments to individual cattle owners.

2.21 A statutory requirement to test cattle for bovine TB pre or post-movement would reduce the risk of disease spread through cattle movements and the number of new incidents. As there are benefits to the herd owner of buying or selling cattle with some degree of disease assurance, it is intended that they should share the costs of tests which are outside the routine surveillance herd test. Government will provide the necessary tuberculin.

2.22 For the purpose of this RIA, it is assumed that farmers responsible for moving animals will be expected to arrange and pay for tests. However, there is ongoing discussion with industry to look at the possibility of spreading costs more widely across the industry.

### **3 Consultation**

3.1 Within Government: Defra has been developing the proposal and RIA in consultation with colleagues from the Scottish Executive and the Welsh Assembly as well as with delivery agents (including Local Authority Coordinators Of Regulatory Services - LACORS). The Cabinet Office is represented on the Defra Programme Board where the detailed proposal has been considered. The 2004 public consultation (see below) invited views from other Government Departments.

3.2 Public consultation: In February 2004, Defra published a consultation on the TB strategy review and short-term cattle measures, including options for reducing the risk of spreading disease through cattle movements. Defra's preferred option was for pre-movement testing of cattle moving from 1-2 year testing herds to other herds. In all options the proposal was that herd owners would pay for the tests (though Government would provide the tuberculin necessary to do the test). The written consultation was supplemented with 7 regional meetings in England and a national meeting in London.

3.3 Consultees generally supported the principle behind the proposal and agreed with Defra's preferred option – which has led to the shortlisting of options in this assessment. The proposal that herd owners should pay for the test did not find widespread support. An independently chaired stakeholder group was set up to develop a detailed proposal for pre-movement testing across GB (on the basis that costs would be shared with farmers as proposed). They presented their report to the CVO in April 2005.

3.4 Government has considered the recommendations and now proposes proceeding with a detailed proposal based largely on the recommendations of the independent stakeholder group except where significant practical or legal constraints were identified. The proposal is at Annexe A.

### **4 Options**

4.1 Options for movement testing are summarised below. Option 1 is the baseline, against which the costs and benefits of other options can be measured. Options 2 to 7 were all included in the consultation document "Preparing for a new GB strategy on bovine tuberculosis" of February 2004<sup>2</sup>. Based on responses to the consultation and expert advice, Options 5, 6 and 7 were ruled out following the consultation on the grounds summarised on the following pages. Option 2 was Government's preferred option following the 2004 consultation and was the basis for the deliberations of the TB pre-movement testing stakeholder group. Option 8 is a variation of Option 2 and arose from the work of the TB pre-movement testing stakeholder group.

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<http://www.defra.gov.uk/animalh/tb/pdf/pre-movementtest.pdf>

#### **4.2 Option 1: Do nothing ie no statutory requirement for movement testing**

Currently, if as a result of routine TB surveillance testing a herd is identified as containing reactors (animals that give a positive result to the tuberculin test), infected animals are sent for slaughter. Animals whose test result was inconclusive are separated from the rest of the herd until a follow-up test shows either a positive reaction leading to slaughter or a negative reaction at which point they can rejoin the herd. Movement restrictions are imposed on the whole herd until the herd tests clear to two subsequent rounds of testing 6 months apart, or one test in the case of animals tested and infection was not confirmed.

4.3 Movement restrictions prevent the risk of infected cattle moving out of the breakdown herd and spreading infection into other herds.

4.4 However, routine surveillance of cattle herds is carried out at either 1,2,3 or 4 year intervals depending on the incidence of TB which varies considerably across England (minimum testing intervals are specified in EU Directive 64/432). Where disease incidence is high, annual or biennial testing is the norm reflecting the higher risk of animals in the herd being or becoming infected. The period between routine surveillance tests invariably means movements of infected animals does occur prior to disease being detected.

4.5 At present there is no statutory requirement for pre and post movement testing in England of animals moving from high risk herds to other herds. Government has recognised the risks of disease spread due to cattle movements and does advise that it is best practice although there is little evidence it is being done.

#### **4.6 Option 2: Pre-movement testing for all cattle moving from 1 and 2 year testing herds to any other herd (with exemptions)**

TB pre-movement testing is a measure that can be introduced in the near future to help contain disease whilst tools such as improved diagnostic tests and vaccines, which could offer long term prospects for elimination of disease, are developed.

4.7 This option is a risk based approach and would reduce the risk of disease spread both within endemic areas and to clean areas of GB. By targeting cattle moving from 1 and 2 year testing herds, the intention is to focus on herds at most risk of spreading TB thus minimising the disruption imposed on the cattle industry and the cost of implementing the measure whilst realising maximum disease control benefit. Testing prior to movement, enables diseased animals to be identified and prevented from moving thereby containing disease and reducing the risk of spread.

Option 2 is assessed in detail in this RIA.

**4.8 Option 3: Post-movement testing for all cattle moving from 1 and 2 year testing herds to 3 and 4 year testing herds**

This is a risk based approach that would reduce the risk of geographic spread of disease to clean areas of GB but not within endemic areas. It targets high risk animals moving to low disease risk destinations by testing animals at their destination, after they have moved but before they are integrated into the destination herd. This option would identify diseased animals only after they had been moved.

Assessed further in this RIA.

**4.9 Option 4: Pre-movement testing for all cattle moving from 1 and 2 year testing herds and subsequent post-movement testing at all 3 and 4 year testing receiving herds**

This risk based approach is similar to option 3 but involves a more robust testing regime. It would reduce the risk of geographic spread of disease to clean areas of GB but not within endemic areas. As with option 3, it targets movement of high risk cattle into low disease risk destinations but requires they are tested prior to movement in addition to post-movement. The advantage of testing twice is that it increases the probability of detecting diseased animals when using a test that is not 100% accurate as is the case with the tuberculin skin test which would be used.

Assessed further in this RIA.

**4.10 Option 5: Pre- and post-movement testing of all cattle sold for breeding and production regardless of herd of origin and destination**

This is the option likely to yield the greatest gross benefits, but it would also have the greatest costs. It is not at all targeted nor risk based so has been rejected as a disproportionate response. Not assessed further.

**4.11 Option 6: A pre-movement testing system based upon herd TB history. i.e. cattle to be tested that come from herds that have experienced an outbreak in the past five years**

This option would have the advantage of being risk based, but would be administratively costly and complex given the need for veterinary advisors to assess the risk associated with each herd and movement. Currently, using databases storing TB breakdown information, it would be resource intensive to identify herds that would be subject to testing and consequently difficult to enforce compliance with the policy. Not assessed further.

**4.12 Option 7: Zoning. i.e. banning all cattle movements from areas of high TB incidence to areas of low TB incidence without some form of risk assessment and assurance testing**

Zoning was an option preferred by the ISG and would involve banning all cattle movements from areas of high TB incidence to areas of low TB incidence. It would not address the risk of spread of disease through cattle movements within high risk areas.

4.13 To make it work, we would have to divide England and Wales along a north-west to south-east axis and manage any movements across the line. We

would need to adjust zone boundaries if new hotspots developed and consider how we would treat small areas of endemic disease in otherwise clear areas. The high risk zone would also include a large number of 3 and 4 yearly testing parishes where the TB risks are low.

4.14 The measure would be complex to administer, expensive to deliver and a disproportionate response, bearing in mind the costs and disease control benefits plus the scientific uncertainty around the relative contribution of cattle and badgers to the spread of bovine TB. Not assessed further.

**4.15 *Option 8: Pre-movement testing for all cattle over 15 months moving from 1 and 2 year testing herds to any other herd (with exemptions)***

This is a variation of Option 2 and arose from the work of the independently chaired pre-movement testing stakeholder group. The group recommended that if pre-movement testing was implemented in the short-term it should be limited to animals over 15 months of age from high risk herds. Moving immediately to testing all high risk cattle over 6 weeks of age (option 2) would present extreme logistical difficulties for sectors of the industry and there is also concern about veterinary resource availability. The Group suggested that timing the extension of pre-movement testing to younger animals, ie implementing option 2, be reviewed (see Annex A for detailed policy proposal).

Assessed in this RIA

## **5 Costs and benefits of the options**

5.1 This assessment relates to the introduction of policy measures applied in England only. However, the estimated costs and benefits of the measures include the impacts of the England measures on firms and individuals in all parts of the UK where relevant. The impacts of similar policy measures applied in Scotland and Wales are analysed in their own RIAs (to be published separately).

5.2 Calculations in this RIA assume that pre-movement testing will be introduced in England and Wales and Scotland and that there are common compensation levels across GB. A separate RIA has been produced for the proposed changes to the compensation regime. This recognises that the current compensation regime may be providing a disincentive for cattle farmers to invest in biosecurity (which includes pre-movement testing), but does not attempt to quantify the impacts of a new regime on farmer behaviour.

5.3 All figures are stated on an annual basis unless otherwise specified. The assessment of Option 2 is explained in detail. The general approach and the main assumptions apply equally to the assessment of Options 3, 4 and 8.

## Option 2

### Benefits of Option 2

5.4 The benefits of the measure are the costs avoided by preventing new TB incidents in herds to which diseased animals would no longer move. These movements would be cases in which animals would otherwise have moved untested but where:

- TB was detected correctly in pre-movement tests under the measure; or
- Timing was rearranged by the original keeper of the cattle so that movements would take place within 60 days of the routine herd test, and TB was correctly detected; or
- The existence of the measure prevented the movement taking place at all because the benefit to the keeper was small in relation to the cost of the test.

5.5 The numbers of cattle movements in each category are estimated as 390,000, 125,000 and 45,000 respectively. The Costs section (paragraphs 5.24 to 5.33) describes the method of estimation using basic data from the Cattle Tracing System.

5.6 In general it is assumed that, if the movement had taken place, disease would have been detected in the moved animal after it reached the destination herd. Hence the loss of the moved infected animal would have occurred in due course on the destination holding as a cost which may have attracted compensation. Allowance is made for the possibility that a small proportion of such animals carrying TB would have remained untested throughout their life and shown no visible lesions at slaughter. It is assumed that detection would have triggered tracing back to the holding of origin and movement restriction there. In some cases there would be benefits due to earlier detection and control of a TB incident on the originating holding, but in others there would be business costs as movement restrictions and testing could involve larger numbers of cattle. Reduced movements may lead to higher stocking rates in some areas which may have negative disease implications. These relatively minor gains and losses are assumed to balance each other out.

5.7 The number of new disease incidents avoided is calculated by estimating the prevalence of the disease in animals moving from herds with 1 to 2 yearly testing intervals. This estimate is critical to the economic evaluation of pre-movement testing and considerable effort has been made to obtain the best available information. Nevertheless, this parameter is not known from any previous monitoring so there remains uncertainty and it will be important to update the evidence on this point in particular. The starting point is the number of reactors to the TB test compared with the cattle population in 1 and 2 year testing parishes in recent years (source: VLA from VetNet). This gives an average animal incidence in 1 and 2 year testing parishes of about 0.3% (about one in three hundred cattle). This figure is normally the highest figure during the year since it represents the incidence at the annual test when there has been a full twelve months since the previous clear test in which the

disease has been able to spread. Hence it must be adjusted down to give prevalence. A further adjustment is needed to take account of different prevalence in the age of cattle moving from 1 and 2 year testing herds to other herds. The estimate of prevalence used in the main calculation here is that 0.17% (about one in six hundred) cattle moving from 1 and 2 yearly testing herds to other farms has TB. This assumption is consistent with assuming that all TB incidents in 3 and 4 year testing areas is due to cattle movement.

5.8 For this calculation, the skin test is assumed to have an animal-level sensitivity of about 80%, i.e. it will detect as reactors (or inconclusive reactors) eight out of ten infected cattle and miss two.

5.9 Based on these assumptions, the expected number of batches of animals containing at least one TB case and prevented by the proposed measure from moving from 1 to 2 yearly testing herds can be calculated. It is assumed that every such movement to 3 to 4 yearly testing herds would cause a new incident. However, some movements to 1 and 2 yearly testing herds would not cause a new incident because some of these herds would have developed TB anyway through wildlife or local cattle contact, and an allowance is made in the calculation.

5.10 The number of new incidents avoided as a result of the proposed measure would be:

- About 300 in 3 and 4 yearly testing herds
- About 420 in 1 and 2 yearly testing herds.

5.11 To put this into context, the proposed measure applied in England would avoid about 720 new incidents each year compared to the total of about 3,300 new herd incidents taking place in GB in 2004; including about 300 of the 550 incidents in the 3 to 4 yearly testing areas of GB.

### ***Direct costs saved***

5.12 Each TB incident caused by cattle movement costs an estimated £7,500. The details of this estimate are presented in the rationale section of the RIA (paragraphs 2.13 to 2.20).

### ***Indirect costs saved***

5.13 In addition to the direct costs, each new incident may trigger further immediate testing on neighbouring holdings with repeat testing twelve months later. A small proportion of new incidents causes further new TB breakdowns on nearby farms in “controlled hotspots” and there is a very small risk of much more serious uncontrolled hotspots as appears to be the case in Staffordshire.

5.14 Additional testing applies only where the testing interval is not already annual. The cost of additional testing is estimated to be £15,700 for 3 and 4 year testing parishes.

5.15 New hotspots are assumed to apply only in 3 and 4 yearly testing parishes. The proportion of new incidents which become “controlled hotspots”

is about 2% and each is assumed to involve about 4 other holdings as new incidents. The chance of a new incident becoming an uncontrolled hotspot involving costs of about £10M is assumed to be about 0.01% (1 in 10,000). The expected value of new hotspot costs is then about £1,700.

5.16 In some instances, new incidents may increase the testing interval in a parish or county. However, possible increased routine surveillance has not been taken into account so the benefit presented is potentially understated.

#### ***Total costs saved per new incident avoided***

5.17 The total costs of a new incident are estimated to be about £7,500 in 1 to 2 yearly testing parishes and £24,000 in 3 to 4 yearly testing parishes.

Applying these average cost savings to the expected number of new incidents avoided (see earlier) gives the estimate of total benefit.

#### **Environmental Benefit**

5.18 Reducing infected cattle movements will reduce the risk of potential spread of TB from cattle into previously uninfected wildlife as well as cattle populations. This risk is difficult to quantify or value and is included in the monetary estimates only as a possible contributor to onward spread of disease to cattle.

#### **Social Benefit**

5.19 Recent research by the University of Exeter has shown that TB incidents may be the cause of serious distress for farm families and employees, leading to demands on welfare services. As bovine TB is a zoonotic disease there is a risk of transmission to humans, and also to domestic pets. Measures are in place to prevent transmission via milk (pasteurisation) or meat (inspection of carcasses) and the very few cases of bovine TB in humans in the UK are believed to have arisen from infection abroad or via unpasteurised milk in the past. There is evidence that TB incidence in pets, particularly cats, is increasing although the numbers remain very small. None of these social aspects is quantified or valued in this RIA, but they are all social benefits of controlling TB spread in cattle.

#### ***Total benefit***

5.20 The total economic benefit of Option 2 would be about £10.6M per year.

5.21 These benefits accrue mainly to taxpayers under the arrangements whereby Defra carries the major costs of TB surveillance, through the testing and compensation regime. Savings to taxpayers would be about £6.7M. The remaining £3.8M benefits would be to farms receiving cattle from high TB risk areas which would avoid new disease incidents.

5.22 The benefits include a reduction of about 2,800 per year in the number of cattle slaughtered as a result of TB.

## Costs of Option 2

5.23 The main costs of the measure fall into three categories:

- Costs of carrying out pre-movement testing of cattle for all movements to which the measure would apply.
- Lost benefits to cattle businesses from movements which are rearranged or foregone in order to avoid the cost of pre-movement testing, including costs of increased stocking rate where that occurs.
- Costs incurred when the pre-movement test result is a false positive and further testing and restrictions apply where there would have been no disease and no testing in the absence of the measure.

5.24 The average testing cost per animal is likely to be about £9. This estimate includes the cost of LVI time, plus cost of tuberculin, plus costs to the farmer of arranging and conducting the test. The cost of LVI time is based on an informal survey of LVIs carried out on behalf of the Stakeholder Group, and allows for variations in the average size of batch of animals presented for testing. Cattle Tracing System (CTS) data analysed by VLA suggest that the average size of a batch of animals moving together from the same farm to the same destination on the same day is about five animals. Farmers would be able to test together all the animals they intended to move over the coming 60 days in order to reduce the veterinary fee per animal tested.

5.25 The number of cattle movements to which testing will apply has been estimated on the basis of an analysis of actual movements in 2002 and 2003, which are the most recent data available in a form suitable for analysis. The numbers of movements likely to be affected are:

- 130,000 from farms to auction markets intended for slaughter
- 380,000 from farms direct to other farms for breeding or feeding
- 280,000 from farms via auction markets to other farms for breeding or feeding.

5.26 Of the 130,000 movements via auction market to slaughter, it is likely that a substantial proportion will avoid the cost of testing in one of two ways. Some auction sales of finished cattle will become "Slaughter Markets" and so exempt; and some farmers will choose to market their stock direct to slaughter. In both cases there will be a cost in the form of benefits from a traditional auction sale which would be foregone. For this analysis it is assumed that the cost of the former is negligible and for the latter is on average about half of the cost of the test avoided i.e. £4.50. In the absence of better information it is assumed that about half of the total 130,000 previously indirect movements to slaughter will be made via slaughter market, one quarter direct and one quarter continuing via traditional sale with full pre-movement testing.

5.27 The other two categories of movements total about 670,000 cattle moving from 1 or 2 year testing herds to other farms either directly or via

auction markets. Again it is likely that a substantial proportion of these movements will avoid the cost of testing in one of several ways:

- 30,000 moving within one month of movement onto the holding (estimated from a sample of movements in 2003)
- 80,000 moving within 60 days of the routine herd test (assuming current movements are distributed randomly in the year in relation to current tests)
- 60,000 moving within 60 days of the routine herd test where the test has been rearranged to fit the off-movements (assumption based on Stakeholder Group discussion)
- 60,000 movements rearranged to fall within 60 days of the routine herd test or the on-movement (assumption based on Stakeholder Group discussion)
- 45,000 movements which would be deterred by the extra charge and will not take place at all (assumption based on Stakeholder Group discussion )

5.28 The proposed measures for pre-movement testing provide for establishment of Exempt Finishing Units (EFUs) which would also avoid the costs of testing but incur other costs, producing a net cost saving if they were to be a viable business proposition. At this stage it is not possible to estimate the likely extent of development of EFUs by the industry. EFUs would replace some of the cost-avoiding movements and would add further to the number of movements avoiding testing. Significant development of EFUs would reduce the costs of pre-movement testing but has not been included in this calculation.

5.29 All the above 280,000 movements would avoid additional testing costs. However both the last two (totalling 110,000) would incur non-negligible costs to the business, assumed to average about half of the cost of the test avoided i.e. £4.50. In addition, the third group (60,000) would incur some additional costs in the event of a false positive test which would result in greater numbers of cattle about to be moved but subject to restrictions.

5.30 Taking all the above 280,000 movements from the initial total (660,000) leaves about 390,000 movements onto farms which would be subject to special pre-movement testing at a unit cost of £9, giving a total of £3.6M. In addition, about 125,000 extra animals (the third and fourth categories above) would be included in routine herd tests resulting in extra costs of around £1.2M.

5.31 Cattle movements onto farms foregone would be about 45,000 (the final group above) at a unit cost of £4.50 (from paragraph 5.26), giving a total of £0.2M.

5.32 False positives (reactors) will occur as a result of the extra tests. Assuming an animal-level specificity of 99.8% for the skin test used in GB, we can expect about 2 spurious reactors per 1,000 tests. These are tests which

appear to show the possibility of disease although there is in fact no disease present. The number of false test results would be about 280. The cost resulting from a false positive includes loss of slaughtered cattle, cost of additional testing and cost of movement restrictions. They are estimated on the same basis as the equivalent figures for true positive cases (see above under Benefits) and amount to about £5,000 per false positive and £2,800 per inconclusive. Total costs of false test results would be about £1M.

5.33 The total number of movements subject to testing would be about 560,000, which includes 45,000 finished animals moving to auction markets, 390,000 special pre-movement tests of stores and breeding stock, and 125,000 moving on the basis of routine surveillance tests (all as mentioned above).

#### ***Other costs***

5.34 Administration and enforcement costs for TB pre-movement testing are estimated on the assumption that legislation will require evidence of the TB testing status to remain on the farm of origin. The annualised cost is about £110,000. This covers publicity, SVS administration and enforcement costs (based on checking approximately 5% of cattle movements from 1-2 year tested herds using BCMS reports against TB testing records) and Local Authority enforcement activities. Assuming the level of compliance is approximately 80%, the cost to individual local authorities for issuing warnings and cautions should be negligible.

5.35 The cost of veterinary testing is included in the main cost estimates described earlier. It is assumed that sufficient veterinary testing capacity will be available to deal with about 0.5M extra animal tests in the 1-2 year testing areas of England, which is a 23% increase in the number of animals tested in those areas and a 57% increase in the number of testing visits (assuming a batch size of 25). If veterinary capacity is not readily available, there may be extra costs and/or a reduction in the benefits achieved.

5.36 The assumed changes in movement patterns include a reduction of about 14% in the number of cattle moving from 1-2 year testing herds via auction markets. This is a combination of a 30% reduction in finished stock and 7% in store and breeding cattle. It is assumed that resources from the auction sector would be released for other productive purposes, which assumes a reduction in capacity.

#### ***Total economic cost***

5.37 The total economic cost of Option 2 would be around £6.5M per year.

5.38 About three quarters of the costs (£4.9M) would fall on businesses moving potentially TB carrying cattle from high-risk herds (1 and 2 yearly testing) either to other farms or via traditional auction sales. The other quarter (£1.6M) would be a cost to taxpayers mainly to pay for extra cattle at routine herd tests when farmers chose to time their routine tests to take place shortly before movements.

5.39 Hence the measure represents a partial transfer of responsibility for the costs of potential disease spread by cattle movements to the farm business where the movement originated. The immediate response of businesses to the extra cost involved has been taken into account in the calculations.

### **Costs for a typical business**

5.40 The following table compares the estimated costs of pre-movement testing with the existing cost structure of farms in the Farm Business Survey in the ten worst TB-affected counties of England. The extra veterinarian testing fees for pre-movement testing would increase existing veterinary and medicine costs by about 7 percent for the average farm with cattle, and about 13 percent for the average upland cattle and sheep farm. Adding the extra costs of handling cattle and of movement restrictions gives a total cost of pre-movement testing which would be less than one third of one percent of the total costs of an average farm business. The figures take account of the various steps which farmers can take (as set out above) to modify their cattle movements and TB testing to reduce the costs of the measure or transfer part of the cost to government though including cattle to be moved in their routine herd tests. These averages of course conceal a wide range of individual circumstances.

<b>Farm Type</b>	<b>Number of cattle per farm</b>	<b>Additional veterinarian testing fees (£/year)</b>	<b>Additional veterinarian testing fees (as % of previous veterinary and medicine costs)</b>	<b>All extra costs arising from the measure as a % of total costs of the business</b>
<b>Cattle &amp; sheep (Less Favoured Area)</b>	113	262	13	0.7
<b>Cattle &amp; sheep (Lowland)</b>	113	213	12	0.5
<b>Dairy</b>	180	139	3	0.2
<b>Mixed</b>	143	200	6	0.2
<b>All farms</b>	146	187	7	0.3

### **Net benefit of Option 2**

5.41 The net benefit of the proposed measure is estimated to be £4.1M per year, with a benefit cost ratio of 1.6:1. This includes a net cost to industry of £1M and a net benefit to taxpayers of £5.1M.

### **Effect of varying the assumptions made for Option 2**

5.42 The assessment of costs and benefits has been made on the basis of analysis of available data and veterinary and technical advice. Several areas of uncertainty remain and the final calculation relies on a set of reasonable assumptions. This section shows the effect of varying the main assumptions on the final result.

5.43 A critical parameter in deciding the cost-effectiveness of pre-movement testing is the prevalence of TB in cattle which are moved from a high risk herd to another herd. The assumption above is that 1.7 per 1,000 cattle moved are carrying TB. This is consistent with the limited available information but it remains an assumption.

	Low	Most likely	High
Prevalence of TB in animals moving from 1-2 year testing	1.2 per 1,000	1.7 per 1,000	3 per 1,000
Net social benefit	+£1.0M	+£4.1M	+£12.1M

5.44 The cost of veterinary time to conduct the tests may vary according to size of batch tested and negotiation between the parties. The current figure in routine tests is about £5.50 per animal and a higher figure is likely in smaller batches.

	Low	Most likely	High
Veterinary cost per animal in pre-movement test	£5.50	£6.70	£9
Net social benefit	+£4.7M	+£4.1M	+£2.9M

5.45 There is little available information on how farmers would adapt their cattle movements. The assumptions above are based on views expressed by the Stakeholder Group including representatives from dairy and beef farm sectors, the auction trade and the private veterinary sector.

	Low	Most likely
Farmer adjustment	None (cattle movements not affected)	Cattle movements as in text
Net social benefit	+£2.1M	+£4.1M

5.46 Average cost to the farmer of an animal slaughtered is taken as £1,020 although some people argue that true costs to the business may be higher. The animal's average market value alone is about £850 and this will be the basis of compensation in future. Throughout the cost-benefit calculation it is assumed that compensation levels and true market values are on average identical.

	Low	Most likely	High
Value of animals slaughtered in TB incident	£850	£1,020	£1,500
Net social benefit	+£3.6M	+£4.1M	+£5.4M

5.47 The number of animals slaughtered in a new incident has averaged about 4.8 over the past 10 years in 3-4 year testing herds (source: VLA from VetNet), where TB incidents can be assumed to be due mainly to cattle movements. This is close to the figure for 2000, before the period of disruption due to foot and mouth disease when the average was higher. A higher figure would be justified if recent experience throughout GB were to apply to these movements.

	Low	Most likely	High
Number of animals slaughtered in TB incident	1 (no spread in herd)	4.8	7
Net social benefit	+£0.4M	+£4.1M	+£6.2M

5.48 A new incident in 3-4 year testing herds is assumed to trigger contiguous testing, and to risk onward transmission.

	Low	Most likely	High
Expected spread of TB impact from the receiving farm	No onward spread. Neighbour herds tested once.	Extra routine testing for neighbour herds, 2% chance of “mini hotspot”	Extra routine testing, 10% chance of “mini hotspot”
Net social benefit	+£2.8M	+£4.1M	+£4.8M

5.49 Expected values (probability multiplied by cost) are used for the cost of onward transmission to create a major hotspot. This is a crude approach and an alternative is “safety first”.

	Low	Most likely	High
Chances of a new major hotspot developing from a TB movement	1 in 100,000	1 in 10,000	1 in 1,000
Net social benefit	+£3.9M	+£4.1M	+£6.0M

5.50 The sensitivity of the TB skin test is an important factor in pre-movement testing. The test is assumed to be able to detect 80% of TB infected animals. The lower the assumed sensitivity of the test, the greater the proportion of false-negative animals.

	Low	Most likely	High
Sensitivity of the TB skin-test	60%	80%	90%
Net social benefit	+£1.7M	+£4.1M	+£5.3M

5.51 The specificity of the skin test is the proportion of non-infected cattle that are detected as negative by the test. The lower the assumed specificity of the test, the greater the proportion of false-positives.

	Low	Most likely	High
Specificity of the TB skin-test	99%	99.8%	99.9%
Net social benefit	+£1.9M	+£4.1M	+£4.6M

5.52 Cattle movements which fail to comply with pre-movement testing will avoid some costs but also lose benefits by causing disease risk. Where non-compliance is detected, there will be additional costs on receiving farms. The net result would be that non-compliance would cause net costs to farmers.

	Low	Most likely
Level of compliance	20% of moves do not comply	Negligible impact of non-compliance
Net social benefit	+£2.4M	+£4.1M

### Costs and benefits of Option 3

5.53 Option 3 involves post-movement testing for all cattle moving from 1 and 2 year testing herds moving to 3 and 4 year testing herds in England. Costs and benefits are calculated on the same basis as Option 2 except where stated.

5.54 The measure would apply to about 260,000 cattle movements per year, which includes both direct farm-to-farm movements and movements farm-to-farm via markets. The benefit per TB movement detected is lower than for pre-movement testing. This is because restrictions and testing will apply on both the origin and destination holdings in the event of a test reactor post-movement. The total benefits of Option 3 would be about £4.1M, distributed £1.6M to industry and £2.5M to taxpayers under the compensation and testing regimes. Total costs would be £3.8M, of which £2.5M would fall on industry and £1.4M on taxpayers. However this calculation does not take into account any extra costs of providing new isolation facilities for animals moved on the destination farm, where these may not exist. No extra provision has been made for potential practical problems in administering and enforcing this option.

5.55 The net benefit of Option 3 is estimated to be £0.3M per year, with a benefit cost ratio of 1.1:1.

### Costs and benefits of Option 4

5.56 Option 4 combines pre-movement testing for all cattle moving from 1 and 2 year testing herds in England (as Option 2) with subsequent post-movement testing at all 3 and 4 year testing receiving herds in England. This calculation assumes that cattle originating outside England would also have been pre-movement tested. The post-movement part of the measure would apply to about 260,000 cattle movements per year, as for Option 3.

5.57 The total benefits would be about £11.3M, distributed £4.1M to industry and £7.2M to taxpayers. Total costs would be £10M, of which £7.2M would fall on industry and £2.8M on taxpayers. As for Option 3, this calculation does not take into account any extra costs of providing new isolation facilities for animals moved on the destination farm, where these may not exist. No extra provision has been made for potential practical problems in administering and enforcing this option.

5.58 The extra net benefit of Option 4 compared with Option 2 is estimated to be *minus* £2.7M per year, with a benefit cost ratio of 0.2:1. This is the extra net

cost (negative net benefit) from adding post-movement testing to the basic pre-movement testing measure.

5.59 The total net benefit of Option 4 would be £1.3M, with a benefit cost ratio of 1.1:1.

### **Costs and benefits of Option 8**

5.60 Option 8 is similar to Option 2 but exempts from testing all movements of cattle under 15 months old. For the purposes of this assessment it is assumed that the exemption is achievable in practice with no extra administration cost and without affecting the effectiveness of the remaining pre-movement testing. A practical benefit of Option 8 is that it would avoid some of the potential problems in providing sufficient veterinary practitioner capacity to carry out testing at times of peak animal movements.

5.61 Recent data on movements of cattle over 15 months old have been used on a similar basis as for Option 2. About 53 percent of the farm-to-farm movements under Option 2 whether direct or via market would be exempt. The exemption would mean a reduction in the volume of testing carried out. About 275,000 fewer individual animals would be tested per year under Option 8 than under Option 2 (about 210,000 fewer special pre-movement tests and 65,000 fewer individuals in routine herd tests).

5.62 The changes in movement patterns by farmers adapting to minimise the costs are assumed similar to those for Option 2. In practice it is likely that extra shift in movements would take place as some animals would be moved just under 15 months old rather than just over. TB prevalence in this age group would be higher than the average in the exempt age group as a whole and although the shift would save costs, it would also reduce benefits, increase TB risks, and result in a small reduction in the net benefit of Option 8. This is difficult to quantify and has not been included in the calculation.

5.63 The total number of movements subject to testing would be about 270,000, which includes 30,000 finished animals moving to auction markets, 180,000 special pre-movement tests of stores and breeding stock, and 60,000 moving on the basis of routine surveillance tests.

5.64 The prevalence of TB in individual animals over 15 months old moving from 1-2 year testing herds is estimated to be 0.26 percent (26 per 10,000). This figure has been derived from detailed analysis of the age distributions of animals moved and the ages of reactors compared to the expected age pattern in the national herd (basic data provided by VLA from VetNet and CTS). It implies that the prevalence in animals over 15 months is about 1.5 times the average of all animals moved (0.17%, see Section 5.1 above), whereas prevalence in animals under 15 months is just over half the average. It is possible that this understates the risk of TB spread caused by the exemption, because the current low number of young reactors in the national herd may be partly due to the lower likelihood that these cattle will be tested in routine herd tests. There is therefore some uncertainty remaining.

5.65 On these assumptions, Option 8 would achieve a reduction in new TB incidents of about 520 each year, compared to the reduction of about 720 under Option 2. The total costs of Option 8 would be £3.4M and the total benefits £7.3M, giving net benefits of £3.8M a year and a benefit:cost ratio of 2.1:1.

5.66 The impacts on industry would be: costs £2.6M, benefits £2.7M and net benefits £0.1M. The impacts on taxpayers would be: costs £0.8M, benefits £4.6M and net benefits £3.8M.

### **Sectors and groups affected**

5.67 This assessment takes account of the effects of the proposals on farm businesses moving cattle (either as buyers, sellers or otherwise), on auction markets and on private veterinary practices. Costs and benefits to farm businesses are set out in the text. Costs include immediate cash costs and also the costs of administration and adjustment to existing business operations. For auctions and vets, costs and benefits are assumed to balance out (changes in sales are matched by changes in costs), but changes in business throughput are estimated.

### **Environmental costs**

5.68 No significant environmental costs of the policy options have been identified. There may be minor localised impacts of increased cattle stocking rates if movements of store cattle out of breeding herds are deterred.

### **Social costs**

5.69 Minor social costs may arise. Figures from the Health and Safety Executive show that livestock operations cause more than one in ten injuries in agriculture: handling of cattle for extra testing will increase the risk to the staff involved. Issues of compliance are noted elsewhere in this RIA. Some reduction in use of auction markets is possible and this has a social dimension. These costs are not quantified.

## **6 Equity and fairness**

6.1 The basis of the proposal for pre-movement testing is that businesses choosing to initiate the movement of potential TB-carrying cattle in high risk areas share the cost of reducing the disease spread caused by those movements. Hence a major part of the cost of the proposal falls (at least in the first instance) on the sellers of non-exempted cattle from 1 to 2 year tested herds. The benefits of reduced disease affect farm businesses buying those cattle, or their neighbours, both in low risk areas (3 to 4 year parishes) and high risk (1 to 2 year parishes). However, under the present compensation and testing regime, the main costs of TB management are borne by taxpayers

and the proposal will help contain the future cost of the government-funded regime and increase its affordability.

6.2 The eventual distribution of costs and benefits within the farming industry depends on the market balance between buyers and sellers of store and breeding cattle from 1-2 year testing herds (including the elasticities of demand and supply). Increased freedom from TB risk could be reflected in some increase in market price for these cattle (although there is an alternative view that it will reinforce the existing stigma). If that is the case, then the net cost of the proposal would be shared between sellers and buyers. If not then the gross cost (£4.9M a year for Option 2) is borne mainly by sellers and the gross benefit (£3.5M) falls to buyers.

6.3 Under the options assessed in this RIA, government continues to bear the main costs of bovine TB incidents and TB testing, while industry takes some financial responsibility for reducing spread by cattle movements. However, looking only at the costs arising from movement testing, the distribution of the gross costs between the affected groups is as shown in the following table.

Distribution of gross costs	Farms in 1-2 year testing that sell cattle	Farms in 3-4 year testing that buy cattle	Taxpayers	Overall
Option 2: Pre-movement testing	75%	0%	25%	100%
Option 3: Post-movement testing	6%	59%	36%	100%
Option 4: Pre- and post-movement testing	51%	21%	28%	100%
Option 8: Pre-movement testing over 15 months	76%	0%	24%	100%

6.4 The different elements of the cost are distributed differently between groups, as shown in the next table for Option 2. Farmers would incur almost all of the costs of special pre-movement tests but only about a third of the cost where they were able to include animals to be moved in their herd test.

Gross costs of Option 2 (£million)	Farmers	Taxpayers
More animals in routine tests	0.4	0.7
Special pre-movement tests	3.6	0.2
Other amended/foregone movements	0.4	0.0
False test results in previously untested animals	0.5	0.5
Administration, publicity, enforcement	0.0	0.1
Total	4.9	1.6
	75%	25%

## 7 Small firms impact test

7.1 For the purpose of RIAs small firms are firms with:

- fewer than 50 employees; and
- no more than 25% of the business owned by another enterprise (which is not a small business); and either
- less than £4.44 million annual turnover; or
- less than £3.18 million annual balance sheet total.

7.2 Based on these criteria, virtually all farms in England are small firms and only 0.2% of farms are not small firms. The impact of the proposal on farms is set out above, and includes both cash costs and non-cash costs such as disruption to existing business activity.

7.3 The Stakeholder Group comprised individuals from the main sectors affected, who were themselves small business people. Exemptions and special provisions have been incorporated into the measure to reduce the impact on businesses where possible without disproportionately affecting the potential impact of the proposal on reducing TB.

## **8 Competition assessment**

8.1 Introducing a requirement to pre-movement test certain cattle would have minimal impact on competition in the sector. The market in question is the international beef market, since imports of beef (both live cattle and carcass meat) are considerable. Affected beef farmers comprise a small section of that market.

8.2 EC Council Directive 64/432/EEC governs intra-Community trade in bovine animals and swine. This has been amended and updated, most recently by Commission Regulation EC/1226/02. Whilst there is no EU requirement for pre-movement testing of cattle in order to trade, the Directive ensures that only animals with proven disease-free status can be exported to another Member State. Pre-movement testing would assist farmers in achieving and maintaining officially tuberculosis-free status by reducing the risk of acquiring disease.

8.3 No business has more than 10% of the market, and the three largest businesses have less than 50% market share. The regulation will affect some farms substantially more than others, since only those farms subject to 1 and 2 yearly TB testing that sell cattle other than directly to slaughter will be affected. The requirement would not lead to extra set-up or ongoing costs when compared to farms already operating. The sector is not characterised by technological change.

8.4 The requirement will have minimal impact on market structure, although there will be some deterrent to selling cattle via an auction market rather than direct to another farmer or to slaughter. This would be likely to reduce the number of auctions operating and there may be some impact on market transparency. However, consumers are unlikely to suffer because of this.

8.5 Additional costs to affected cattle producers are small (see paragraph 5.40: less than one third of one percent of total costs) and will not normally affect their competitive position. Reduction in TB overall will tend to enhance the international competitiveness of the UK cattle sector.

## **9 Enforcement and sanctions and monitoring**

9.1 The proposal takes into account better regulation principles, the Hampton Review and the Better Regulation Task Force (BRTF) 'Less is More Report'.

9.2 Government legislation will make pre-movement testing a statutory requirement for all cattle movements with the exemptions of a number of well-defined movements. It will be an offence not to comply with the measure. It will also be an offence to not have evidence of TB tests having been carried out unless cattle movements meet an exemption criteria.

9.3 Where it is found that no pre-movement test has been carried out when it should have been, the recipient herd owner should isolate the cattle as soon as possible, arrange and pay for a TB test to be carried out and inform their local AHDO. Where the SVS detect that a herd has received cattle that have not had a TB test (within 60 days of their movement) and were not exempt from pre-movement testing, the DVM will contact the receiving herd owner and place the received cattle under movement restrictions stating a date by which the received cattle must be tested. Failure to do so will result in movement restrictions being imposed on the whole of the recipient herd until there has been a negative TB test on the brought in animal at the recipient farmer's expense (if the test is positive, further testing will be funded by Defra). This will apply regardless of whether the animals has been brought in from a high risk herd in England, Wales or indeed Scotland. In England, as an offence will have been committed by the initiator of the movement, they will be liable to prosecution and to be fined.

9.4 Pre-movement testing will be delivered by LVIs. This will be a private transaction between cattle owner and vet and the proposal is that herd owners will pay for the tests although tuberculin would be provided and paid for by Defra. Herd owners will be given a copy of all test results, listing the animals tested, where the herd is eligible to move cattle. Animals with a clear test would then be certificated or assured as TB tested and can be moved within a 60-day period. Completed test charts would continue to be sent by the LVI to the DVM as is usual.

9.5 The responsibility would lie with the owner of an animal to ensure it is tested prior to movement and to retain evidence of compliance i.e., evidence of a clear skin-test. Cattle keepers are advised to keep evidence of exemption from pre-movement testing for at least 3 years. Recipients seeking assurance that cattle have been moved in compliance with pre-movement testing requirements may request evidence of TB testing from the initiator of the movement.

9.6 As is common with other Animal Health and Welfare enforcement, pre-movement testing should be enforced by Local Authorities.

9.7 County Councils, Unitary authorities, London Boroughs and Metropolitan Borough Councils are the statutory enforcement body for animal health and welfare legislation relating to farm animals, and therefore would be responsible for the enforcement of TB pre-movement restrictions.

9.8 The enforcement approach by local authorities will depend on legislation that requires confirmation of testing to be held on the farm of origin. SVS will use monthly BCMS reports and cross check approximately 5% of cattle movements from 1 and 2 year tested herds against their TB testing record. Where the records suggest non-compliant movements have occurred, SVS will contact LVIs or exceptionally the owner if a breach is detected during an on-farm visit, to confirm the situation. SVS will report suspected breaches to Local Authorities who will have responsibility for enforcement under the new TB Order. Local Authorities will issue cautions or warnings as appropriate. We would expect this to form part of their existing enforcement activities.

9.9 Levels of compliance will be dependent on the acceptability of the measure to the cattle industry and the deterrent for non-compliance. The cost/benefit calculations above assume that the effects of non-compliance are negligible and that applies uniformly to all the Options. Introduction of the policy will raise awareness across the whole industry of the importance of reducing risk through cattle movements. There is also an expectation that the policy will create a commercial incentive for those buying cattle to comply with pre-movement testing. Amended compensation arrangements would only strengthen this incentive.

## **10 Implementation and delivery plan**

10.1 This RIA will support a new Tuberculosis (England) Order 2005 which will introduce the statutory provisions for pre-movement testing. This is being drafted in co-ordination with new compensation Orders.

10.2 The Pre-movement Testing Stakeholder Group's key recommendation was that if pre-movement testing is to be introduced in the short-term, it should be phased in for reasons of practicality. Government accepts their recommendations that, for the proposal to be workable and deliverable, it should be limited to animals in 1-2 year testing herds over 15 months of age in the first instance. Whilst this will reduce the disease control benefits in the short-term, it reflects concerns that there is insufficient veterinary resource to deal with the increased testing demands if there is an immediate move to test all animals over 6 weeks of age. Immediate introduction of testing of all animals over 6 weeks of age would also present extreme logistical difficulties for sectors of industry, particularly beef suckler herds. A phased approach would mitigate issues of practicality identified by stakeholders and still enable significant disease control benefits to be gained in the relatively short term.

10.3 The State Veterinary Service is developing a detailed delivery plan to determine when pre-movement testing can be extended to animals between 6 weeks and 15 months from 1-2 year testing herds. Their current proposal is for extension to younger animals after 12 months.

10.4 SVS will be informing herd owners of their herd testing frequencies and putting in place a mechanism for providing herd owners with their test results as evidence of having had a pre-movement TB skin test.

10.5 Pre-movement testing will be supported by a comprehensive package of advice and guidance making clear in particular this is a risk-reduction measure.

## **11 Post implementation review**

11.1 A review of the policy following implementation of option 8 (phase 1) will be carried out to inform whether any modifications are required prior to implementation of option 2 (phase2) (see Annex 1). This will be part of the normal policy management process and will include consideration of the practical experience gained from pre-movement testing of animals over 15 months, LVI capacity, an assessment of the epidemiological impact of the measure, use of the Gamma-interferon (IFN- $\gamma$ ) test, level of compliance and a further review of the Regulatory Impact Assessment. Any changes to the policy will be considered by stakeholders.

11.2 If low levels of compliance are being achieved, we will look to strengthen the enforcement regime.

11.3 In the RIA the number of new disease incidents avoided is calculated by estimating the prevalence of the disease in animals moving from herds with 1 to 2 yearly testing intervals. This estimate is critical to the economic evaluation of pre-movement testing and considerable effort has been made to obtain the best available information. Nevertheless, this parameter is not known from any previous monitoring so there remains uncertainty and it will be important to update the evidence on this point in particular when reviewing the RIA.

11.4 The legislation and RIA will be reviewed within three years of coming into force.

## **12 Compensatory Simplification Measures**

12.1 There is limited scope for compensatory simplification measures without compromising disease control benefits. However, the pre-movement testing proposal that has been developed utilises existing practices so as minimise new administrative burdens.

12.2 Compliance with the measure will, at least for phase 1 of the measure, utilise existing IT systems that record cattle movements, herd testing frequencies and TB test records. Requirements to strengthen the enforcement regime if level of compliance is found to be unsatisfactory may require additional data to that already available. In the medium term the 'livestock register' will provide a more integrated solution that will facilitate cross referencing of these various records thereby enhancing monitoring capabilities.

12.3 SVS will use monthly BCMS reports and cross check approximately 5% of cattle movements from 1-2 year tested herds against TB testing records. Where the records suggest non-compliant movements have occurred, SVS will contact LVIs or exceptionally the owner if a breach is detected during an on-farm visit, to confirm the situation. SVS will inform and provide evidence of breaches to local authorities who will issue cautions and warnings as part of their existing enforcement activities.

12.4 Evidence of compliance with the pre-movement testing requirement will come from existing documentation or from slight modifications to existing practices e.g provision of test results to farmers in addition to SVS thereby keeping administrative burdens to a minimum.

12.5 Farmers will be able to move animals following a clear TB skin test including tests carried out as part of routine surveillance testing funded by Government. This allows farmers to take advantage of existing testing practices to facilitate movement of cattle.

### 13 Summary and recommendation

13.1 The following table and figure summarise the estimated costs and benefits of the options. The figures are expressed as annual costs and benefits.

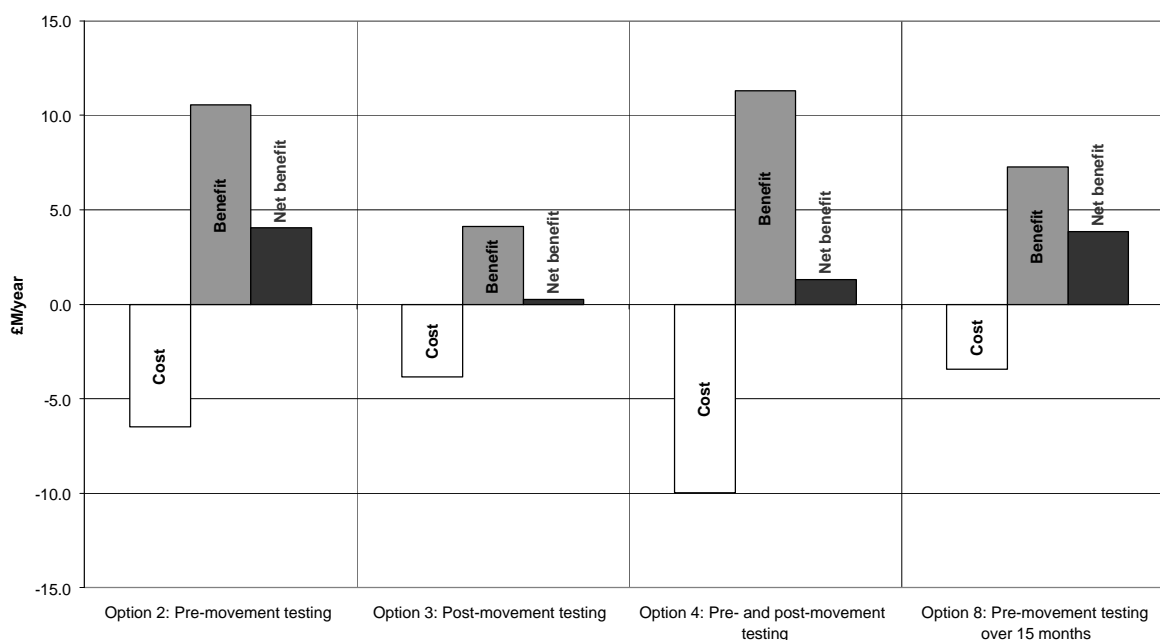
13.2 All of the active options have a positive net social benefit and benefit:cost ratio greater than one. This assessment supports the implementation of a requirement for TB testing of cattle moving from high-risk herds, rejecting Option 1.

13.3 Option 3 (post-movement testing) offers the lowest net benefit and is the least effective in terms of disease control. Option 4 (pre-movement testing plus post-movement testing) gives the greatest disease control but at the highest cost. The addition of post-movement testing is estimated to prevent a further 70 TB incidents per year at a cost of about £50,000 each, which appears high in relation to the benefits. This assessment would support the rejection of Options 3 and 4.

	<b>Annual value £M</b>	
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Option	Total cost	Total benefit	Net benefit	Benefit: cost ratio
Option 1: Do nothing	Baseline			
Option 2: Pre-movement testing	£6.5M	£10.5M	+£4.1M	1.6:1
Option 3: Post-movement testing	£3.8M	£4.1M	+£0.3M	1.1:1
Option 4: Pre-movement testing (as Option 2) plus post-movement testing	£10.0M	£11.3M	+£1.3M	1.1:1
Option 8: Pre-movement testing over 15 months	£3.4M	£7.3M	+£3.8M	2.1:1

Costs and benefits of the options applied in England



13.4 Further consideration of Options 2 and 8 is required. The next table (below) sets out the distribution of costs and benefits of the two options between taxpayers and industry.

13.5 Option 2 is pre-movement testing for cattle moving from high risk herds, while Option 8 is a variation of Option 2 which would exempt cattle under 15 months old. Option 2 is estimated to be more effective in disease control, preventing an estimated 200 more new TB incidents per year. The benefits of preventing these incidents are estimated to exceed the costs so Option 2 has a higher net social benefit.

13.6 Option 8 has a better benefit:cost ratio. This results from limited available evidence which suggests that cattle under 15 months individually have a lower risk of carrying TB. However they make up the majority of animal movements and so they contribute substantially in aggregate to TB spread. Veterinary advice is that cattle under 15 months from herds in high TB-prevalence areas should not be considered an insignificant risk.

13.7 The costs of the measure are shared roughly one quarter to taxpayers and three quarters to industry. The benefits accrue more to taxpayers under the arrangements whereby Defra carries the major costs of TB through the testing and compensation regime. However there are significant estimated benefits to industry from reduced TB incidence, so that the net effect on industry is close to neutral (a small net cost for Option 2 and a small net benefit for Option 8). This assessment takes into account a range of actions by industry to mitigate costs whilst responding to the additional incentive to reduce potential disease risk through cattle movement.

13.8 A disadvantage of Option 2 is that it may be difficult and more costly to implement in full in the short term given constraints in veterinary testing capacity and the ability of industry to adapt rapidly.

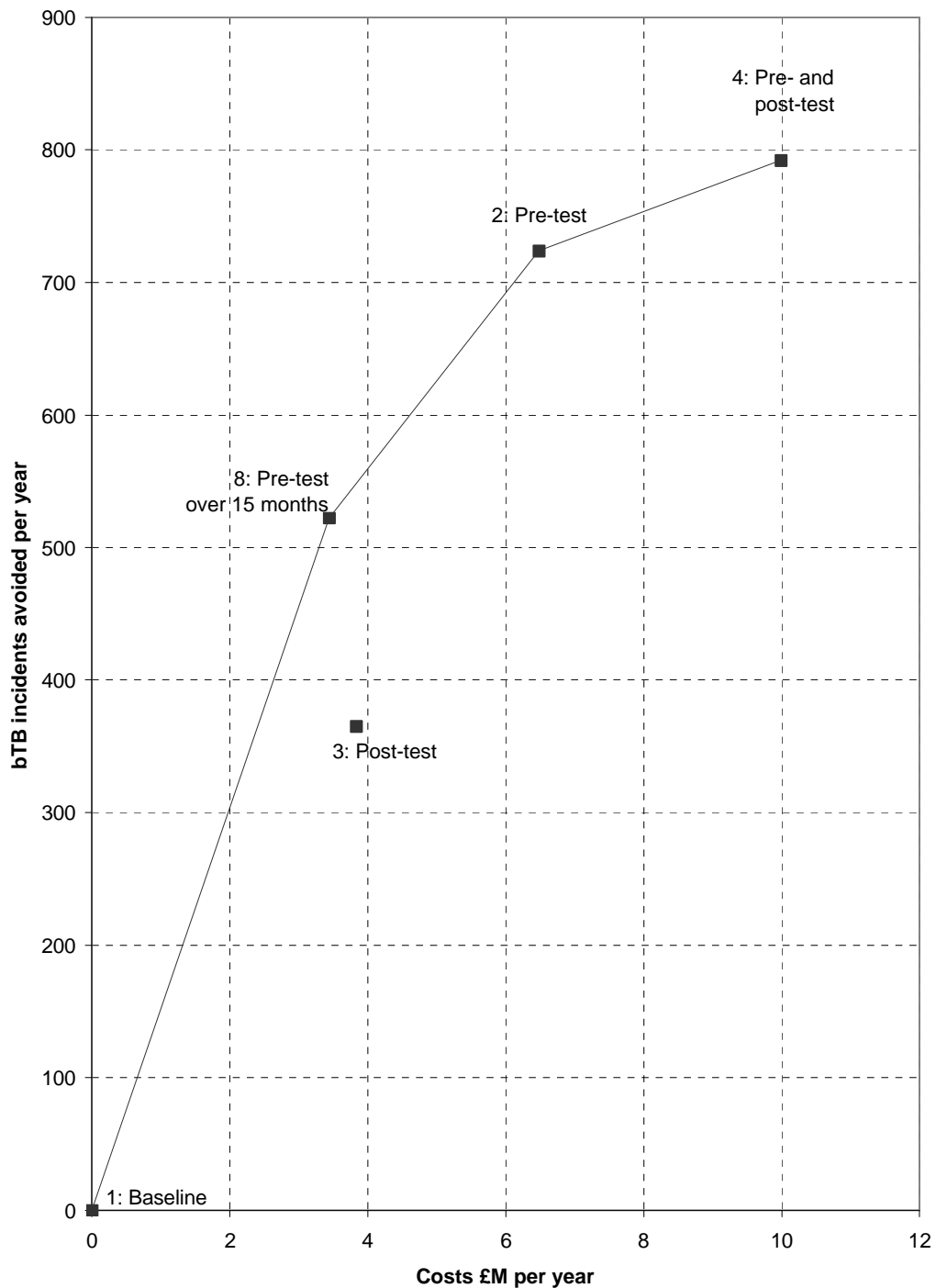
(All figures are per year)	<b>Option 2</b>	<b>Option 8</b>
New incidents avoided	720	520
<b>Benefits</b>		
Total	£10.5	£7.3
Government	£6.7	£4.6
Industry	£3.8	£2.7
<b>Costs</b>		
Total	£6.5	£3.4
Government	£1.6	£0.8
Industry	£4.9	£2.6
<b>Net benefits</b>		
Total	+£4.1	+£3.8
Government	+£5.1	+£3.7
Industry	-£1.0	+£0.1

13.9 The table above shows the expected reduction in new TB incidents per year from applying Option 2 or Option 8 in England alone. Similar measures for Wales are assessed in a separate RIA. Pre-movement testing as in Option 2 applied both in England and Wales, would avoid about 920 new incidents each year across GB, while with exemption of animals under 15 months as in Option 8 it would avoid about 650 incidents. This is out of a total of about 3,000 new herd incidents in GB in 2004.

13.10 This analysis depends on estimates and assumptions as set out above. However varying the assumptions within reasonable limits does not alter the main conclusions.

13.11 **Recommendation:** This assessment supports proceeding with Option 2 pre-movement testing ie testing animals over 6 weeks of age. However, Option 2 is considered by Ministers to be impracticable in the short term. Ministers support the policy outline in Annex A ie to proceed with Option 8 (pre-movement testing for cattle over 15 months of age) as a first step, with extension to younger animals (option 2) a year after initial implementation.

Comparing the costs with the TB risks avoided  
 (Moving up the page means more risk avoided. Moving to the right means higher costs.)



Moving up the line

From Option 1 to Option 8 costs £3.4 M to save 520 TB incidents (£7,000 per incident saved)

From Option 8 to Option 2 costs £3.0 M to save 200 TB incidents (£15,000 per incident saved)

From Option 2 to Option 4 costs £3.5 M to save 70 TB incidents (£50,000 per incident saved)

## 14 Declaration and publication

*I have read the regulatory impact assessment and I am satisfied that the benefits justify the costs.*

Signed.....

Date.....

Minister's name, title, Defra

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## **Annex A**

### **Policy for bovine TB pre-movement testing (England)**

1. A new Tuberculosis (England) Order 2005 will introduce the statutory provisions for pre-movement testing.

#### **Phase 1 (option 8) - 20 February 2006**

2. To be practical and deliverable, for the first 12 months the requirement for pre-movement testing will be limited to the movements of cattle over 15 months of age from 1-2 year tested herds.
3. It would be an offence to move cattle off premises without having had them pre-movement tested unless they qualify for exemption. Pre-movement tests will be paid for by the herd owner. Routine TB surveillance tests paid for by the Government qualify as pre-movement tests, if animals are moved within 60 days of that test. Government will continue to fund the provision of tuberculin.
4. Written confirmation of TB test results for all herds that are not subject to cattle movement restrictions (served as a result of a TB breakdown) will be provided to cattle keepers by the LVI.
5. Cattle keepers will be required to retain evidence of TB testing having been undertaken, and are strongly advised to retain evidence of any appropriate exemption from the requirement, for a minimum of 3 years and 60 days and 3 years respectively. Cattle keepers are likely to be asked for copies by recipient cattle keepers keen to be assured that testing has been carried out. Copies may also be needed to demonstrate compliance in the event of enforcement action.
6. Farmers receiving cattle from 1-2 yearly tested herds that have not been pre-movement tested and that are not exempt should arrange and pay for them to be TB tested immediately on arrival and inform their local AHDO. Where the SVS detect that a herd has received cattle that have not had a TB test (within 60 days of their movement) and were not exempt from pre-movement testing, the DVM will contact the receiving herd owner and place the received cattle under movement restrictions stating a date by which the received cattle must be tested. Failure to comply will result in movement restriction being imposed on the whole of the recipient herd until there has been a negative TB test on the brought in animal (if the test is positive, further testing will be funded by Defra).
7. Legislation will require testing of all cattle prior to movement, with the following exemptions to accommodate practical limitations and lower risk animals and movements:

7.1 cattle in herds subject to 3-4 yearly routine surveillance testing or annual testing for the following reasons: in an open or city farm, producer/retailer status, AI studs.

7.2 cattle moving off premises within 1 month of arrival (no limit to the number of times this exemption is used consecutively).

7.3 cattle under 6 weeks of age

7.4 cattle between 6 weeks and 15 months of age from 1-2 year tested herds (until 1 March 2007).

7.5 cattle moving direct to slaughter or to slaughter markets

7.6 cattle moving directly to approved finishing units or markets for animals not pre-movement tested

7.7 cattle moving directly to approved TB collection centres or to approved TB finishing units for cattle under movement restrictions for TB

7.8 cattle moving directly to agricultural shows (providing they return to the premises of origin or go direct to slaughter)

7.9 cattle moving for veterinary treatment

7.10 cattle movements within a Single Occupancy Authority (SOA) or within premises sharing rights of common.

7.11 Divisional Veterinary Manager discretion

8. Free movement of an animal will be permitted for a period of 60 days from the date of a clear TB skin test (including from tests carried out as part of routine surveillance testing funded by Government).
9. There will be provision for establishment of new approved finishing units and special markets for animals from 1-2 year tested herds that have not been pre-movement tested.
10. SVS will use monthly BCMS reports and cross check approximately 5% of cattle movements from 1-2 year tested herds against TB testing records. Where the records suggest non-compliant movements have occurred, SVS will contact LVIs or exceptionally the owner if a breach is detected during an on-farm visit, to confirm the situation. Suspected breaches will be reported to local authorities who have responsibility for enforcement under the new TB Order. Receiving herds will be put under movement restriction (see paragraph 12).

11. A guidance booklet for all herd owners will support the introduction of pre-movement testing making clear in particular that this is a risk-reduction, rather than risk elimination, measure.
12. As part of normal policy management, the policy will be subject to review. We envisage discussion with stakeholders prior to introduction of phase 2. In reviewing the policy we will consider the practical experience gained from pre-movement testing of animals over 15 months, LVI capacity, an assessment of the epidemiological impact of the measure, enforcement and compliance, use of the IFN- $\gamma$  test and a further review of the Regulatory Impact Assessment.

*Movements to England from 1-2 year tested herds in Wales and Scotland*

13. Where an animal has been brought in from a one or two year testing herd without pre-movement testing, the recipient farmer should arrange and pay to have those animals tested immediately. If this is not done movement restrictions may be imposed on the brought in cattle which will need to be isolated and tested at the recipient farmer's expense within a period set by the DVM. Failure to do so will result in movement restrictions being imposed on the whole of the recipient herd until there has been a negative TB test on the brought in animal (if the test is positive, further testing will be funded by Defra). This will apply regardless of whether the animal has been brought in from a high risk herd in England, Wales or Scotland.
14. If the animal has been moved within England, there will also be the possibility of prosecuting the farmer selling/moving an animal that should have been pre-movement tested.
15. If the animal has been brought in from Wales it will not be possible to prosecute the Welsh farmer until the Welsh legislation is in place.
16. If the animal has been brought in from Scotland, it will not be possible to prosecute the Scottish Farmer under Scottish legislation unless the animal was moved from a 1 or 2 year tested parish in Scotland (of which there are currently none).

**Phase 2 (option 2) – to be implemented 1 March 2007**

17. Phase 2 will extend the measure to animals between 6 weeks and 15 months of age from 1-2 year tested herds.
18. Cattle herds within an SOA should be subject to the most rigorous TB testing interval prevailing within the SOA and, as far as practicable, be synchronised between all herds.

19. Cattle herds sharing common grazing should be subject to the most rigorous routine testing prevailing and should, as far as practicable, be synchronised between all herds who share a similar right of common.

## **Annex B**

### **REGULATORY IMPACT ASSESSMENT FOR REVISIONS (OTHER THAN PRE-MOVEMENT TESTING) TO THE TB ORDER**

#### **Purpose and intended effect of the measures**

##### **Objective**

1. The proposed changes to the TB Order, detailed here, clarify government powers in relation to official tuberculin tests, and introduce a duty to notify the suspicion of *M. bovis* infection in the carcase of any farmed animal or pet (mammalian).
2. It should be noted that the most significant revision (in terms of impact on stakeholders) facilitates the introduction of pre-movement testing for certain specified cattle movements.

##### **Background**

3. The Defra consultation 'Preparing for a new GB strategy on bovine tuberculosis', issued in February 2004, included details of our proposals for a revised TB Order. And these were covered by the partial regulatory impact assessment (Annex A of the Strategic Framework consultation document).

##### **Measures to be introduced by revised Order**

4. These are:
  - i) introduction of a duty to notify the suspicion of *M. bovis* infection in the carcase of any farmed animal or pet (mammalian)
  - ii) introduction of a duty to notify the isolation of the organism *M. bovis* (*Mycobacterium bovis* – bacteria which causes bovine TB) in any mammalian species (other than man) when identified in a sample tested in a laboratory;
  - iii) clarification of the Secretary of State's power to impose movement restrictions on herds where an official tuberculin test has not been carried out by the due date;
  - iv) prohibition of the movement of a bovine animal between the first and second stages of an official tuberculin test; and
  - v) clarification of the role of the Secretary of State in relation to the use, and results of, any diagnostic test for TB;
  - vi) amend the definition of "bovine animals" to include buffalo and bison.

##### **Impact of the changes**

5. None of these measures introduce extra costs to farmers or Government.

## Annex B

### Glossary Of Terms and Abbreviations

<b>AFU</b>	Approved Finishing Unit
<b>AHDO</b>	Animal Health Divisional Office
<b>AHO</b>	Animal Health Officer
<b>AHWS</b>	Animal Health & Welfare Strategy
<b>AMES</b>	Animal Movement Enforcement System
<b>AMLS</b>	Animal Movements Licensing System
<b>BCMS</b>	British Cattle Movement Service: organisation established to manage the Cattle Tracing System in Great Britain
<b>BCVA</b>	British Cattle Veterinary Association
<b>Biosecurity</b>	A series of measures and protocols designed to prevent the spread of potentially harmful biological agents
<b>Bovine tuberculosis (bTB)</b>	A disease caused by the mycobacterium <i>M.bovis</i>
<b>Breakdown (or bTB incident)</b>	When one or more reactors are revealed by the tuberculin test, or when disease is suspected in live cattle showing clinical disease or in carcasses with lesions at post-mortem examination
<b>BRTF</b>	Better Regulation Task Force
<b>BVA</b>	British Veterinary Association
<b>CAP</b>	Common Agricultural Policy
<b>Cow</b>	A female that has had one or more calves
<b>CPHH</b>	County Parish Holding Herd Number
<b>CTS</b>	Cattle tracing system
<b>Cull cow</b>	A cow that has been removed from the dairy herd or beef breeding herd to be sent to slaughter

<b>CVO</b>	Chief Veterinary Officer
<b>Dairy Cow</b>	A cow that is kept mainly for producing milk or rearing calves for a dairy herd
<b>Dam</b>	Mother of a calf
<b>Defra</b>	Department for Environment, Food and Rural Affairs
<b>DVM</b>	Divisional Veterinary Manager
<b>Endemic disease</b>	A disease present in an animal population in GB on a continuous basis
<b>EFU</b>	Exempt Finishing Unit – a finishing unit approved for cattle that have not been TB pre-movement tested
<b>Exempt markets</b>	Markets for cattle that have not been TB pre-movement tested.
<b>Finishing (or fattening)</b>	The final stage of beef production on a farm, involving appropriate feeding of cattle to produce good quality beef animals for slaughter
<b>FMD</b>	Foot and mouth disease
<b>Gamma interferon <i>g-IFN (IFN<sub>γ</sub>)</i></b>	A product of white blood cells generated during an immune response
<b>Heifer</b>	A female yet to calve
<b>IR</b>	Inconclusive Reactor
<b>Incidence</b>	The rate at which new cases of infection arise in a population
<b>ISG</b>	Independent Scientific Group on Cattle TB
<b>LA</b>	Local authority
<b>LAA</b>	Livestock Auctioneers Association
<b>LACORS</b>	Local Authority Coordinators of Regulatory Services
<b>LVI</b>	Local Veterinary Inspector
<b>M</b>	Million
<b><i>M. bovis</i></b>	<i>Mycobacterium bovis</i> – bacteria which causes bovine TB

<b>MDC</b>	Milk Development Council
<b>MLC</b>	Meat and Livestock Commission
<b>NBA</b>	National Beef Association
<b>NFU</b>	National Farmers' Union
<b>NVL</b>	No visible lesions on post-mortem examination
<b>Older animals</b>	Cattle over 15 months of age
<b>OTF</b>	Officially tuberculosis free
<b>PSA</b>	Public Service Agreement
<b>Prevalence</b>	The proportion of a population infected at a particular time
<b>RABDF</b>	Royal Association of British Dairy Farmers
<b>RADAR</b>	Rapid Analysis and Detection of Animal Risks
<b>RBCT</b>	Randomised Badger Culling Trial
<b>RCVS</b>	Royal College of Veterinary Surgeons
<b>Reactor</b>	An animal which gives a positive result (i.e. reacts) to the tuberculin test
<b>Replacement(s)</b>	Cattle bred on farm to replace breeding stock
<b>RHT</b>	Routine Herd Test
<b>RIA</b>	Regulatory Impact Assessment
<b>SAHO</b>	Senior Animal Health Officer
<b>SEERAD</b>	Scottish Executive Environment and Rural Affairs Department
<b>SOA</b>	Sole Occupancy Authority
<b>Specificity</b>	Proportion of uninfected animals correctly identified
<b>Spoligotyping</b>	A molecular typing technique used to distinguish different strains of the TB organism

<b>Store Cattle</b>	Young beef cattle that are kept on a low maintenance diet over the winter months in preparation for finishing in the summer
<b>Steers (or Bullocks)</b>	Male calves that are raised for beef production and usually castrated at 6 to 12 weeks
<b>Suckler (or beef cow)</b>	A cow kept mainly for producing and rearing cows for a beef herd
<b>Suckler calf</b>	The offspring of a suckler cow
<b>SVS</b>	State Veterinary Service: A GB Wide government Agency operating a network of veterinary, technical and administrative staff
<b>TB2</b>	Notice prohibiting movement of bovine animals
<b>TB</b>	Tuberculosis
<b>Tuberculin</b>	A sterile protein extract derived from the tubercle bacterium, used to diagnose TB in cattle by skin testing
<b>TVI</b>	Temporary Veterinary Inspector
<b>Vaccine</b>	That used to prevent disease by stimulation of an immune response to the causative agent
<b>VeBus</b>	Veterinary e-Business System
<b>Veterinary Surveillance</b>	Process of collecting information about all aspects of animal health and welfare so as to characterise animal diseases and assess their level and distribution in order that action can be taken if necessary
<b>VetNet</b>	The State Veterinary Service Animal Health IT System
<b>VIPER</b>	Veterinary instructions, procedures and emergency routines
<b>VL</b>	Visible lesion
<b>VLA</b>	Veterinary Laboratories Agency: Executive agency of DEFRA that provides all sectors of animal health industry with animal disease surveillance, diagnostic services and veterinary scientific research
<b>VO</b>	Veterinary Officer

<b>WAG</b>	Welsh Assembly Government
<b>WHT</b>	Whole Herd Test
<b>Young bulls</b>	Male calves that have not been castrated
<b>Younger Animals</b>	Cattle between 6 weeks and 15 months of age
<b>Zoonosis</b>	Disease communicable between animals and man