Department
for Environment
Food & Rural Affairs

Bovine tuberculosis: call for views on possible future measures to accelerate disease eradication in England

A call for views exercise contributing to the delivery of the government's strategy for achieving bovine tuberculosis free status for England

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Part A: About this call for views

1. Background

1.1. Bovine Tuberculosis (bTB) is an infectious and contagious disease with a complex epidemiology, which can spread within and between cattle and badger populations. BTB is one of the most pressing and costly animal health problems in England, with a significant number of affected cattle herds. It threatens our cattle industry and presents a risk to other livestock, wildlife, pets and humans. Dealing with the disease is costing the taxpayer over £100 million each year. The latest official statistics show that more than 27,000 cattle were compulsorily slaughtered in England to control the disease in the last year, causing devastation and distress to hard-working farmers and rural communities.

1.2. The government's bTB Strategy, published in 2014, aims to achieve Officially Bovine Tuberculosis Free (OTF) status for England by 2038, whilst maintaining an economically sustainable livestock industry. The strategy complements Defra's strategic objectives of supporting and developing British farming and encouraging sustainable food production, enhancing the environment and biodiversity, managing the risk of animal disease, and the government's overarching objective of supporting economic growth.

1.3. By implementing and gradually enhancing cattle and wildlife controls since the introduction of the bTB Strategy, we are making progress in tackling the disease. Overall herd incidence and prevalence in England is stable with the long-term trend beginning to show a downward turn. We are seeing particularly encouraging progress in the High-Risk Area (HRA). We now need to bank the benefits of our approach to date and build on that momentum. In developing new disease control interventions, we need to find the right balance between managing disease risks and managing impacts on businesses. We also continue to need to deploy a combination of measures in cattle and badgers in order to achieve our TB eradication objective.

1.4. The bTB Strategy is an adaptive, evidence-based, long-term approach to disease control. This includes badger controls in areas where the disease is widespread in cattle and in badgers, to complement other measures. In 2018, Professor Sir Charles Godfray was commissioned to conduct an independent review to reflect on progress being made with the bTB strategy and consider what additional actions might be necessary now to ensure other tools and interventions are ready to be deployed in later phases of the strategy ('the Godfray Review').

1.5. The government published a response to the Godfray Review in March 2020, setting out three top priorities for the next phase of the bTB strategy:

- Accelerating work to develop a deployable cattle vaccine in the next five years.

- Evolving the wildlife control policy, by beginning to phase out intensive badger culling in the next few years. Culling would remain an option where epidemiological assessment indicates that it is needed.
- Improving diagnostic testing to root out bTB more effectively, with deployment of more sensitive tests for surveillance supported by greater use of on-farm restriction of cattle with inconclusive test results.

2. Purpose of this call for views

2.1. This call for views sets out a number of possible future changes to bTB policy, to complement the specific proposals on which we are currently consulting in a parallel consultation exercise. Together these are intended to take the bTB strategy into its next phase.

2.2. A number of ideas are set out in this call for views document. We are seeking initial input on the pros, cons, practical deliverability, costs and benefits of these to assist with the development of further potential future proposals.

2.3. Bovine TB policy is devolved. This call for views applies to England only. The possible future measures are set out in Part B. Details of how to respond are set out in Part C and views are invited by 24 March 2021.

3. Parallel consultation exercise and additional options and actions to accelerate eradication of bTB

3.1. In parallel to this call for views, we are also consulting on specific proposals designed to deliver some of the commitments set out in the government's response to the Godfray Review, aimed at accelerating eradication of bTB. The proposals are as follows:

a. TB Testing
Extending post-movement TB testing to parts of the Edge Area and amending the criteria for mandatory use of the interferon gamma test.

b. Wildlife Control
Phasing out the current intensive and supplementary badger control policies, with related updates to guidance to Natural England for licences to kill or take badgers.

3.2. Our plans for the next phase of the strategy also include a commitment to the following, which are not subject to consultation or this call for views, but will be subject to further engagement/communication:

a. Designing a successor to the TB Advisory Service (TBAS), for which the existing contract is due to expire in mid-2021;
b. Developing a bTB training offer for private sector vets, in order to improve advice provision to farmers and establishing plans for rollout;
c. Establishing a new government/stakeholder bTB Partnership, with plans to convene the first meeting in early 2021;
d. Commencing field trials of a Bacillus Calmette–Guérin (BCG) cattle vaccine and associated DIVA test (to **d**ifferentiate **i**nfected from **v**accinated **a**nimals) with the ambition of deployment by 2025.

3.3. A cattle bTB vaccine could be a game-changer in terms of providing a strong additional tool to help eradicate bovine TB. In July 2020, we announced that the Veterinary Medicines Directorate (VMD) had granted permission for field trials of both the candidate vaccine, CattleBCG, and the candidate DIVA skin test. Like other veterinary medicines, both CattleBCG and the DIVA skin test will need VMD marketing authorisations before they can be deployed. We hope that field trials will provide the evidence required for future United Kingdom (UK) marketing authorisations and for the DIVA skin test to be recognised internationally.

3.4. The aim is to start field trials in 2021 and complete them in 2024. We have now tendered for a Contract Research Organisation to run the trials. Provided the trials go as hoped and VMD considers the marketing authorisation applications satisfactory with respect to quality, safety and efficacy, the timeline envisages those authorisations being granted in 2025. This would pave the way for removing or relaxing the current legal barriers to vaccinating cattle against bTB in England. The government will work with stakeholders to develop an appropriate vaccine deployment strategy.

3.5. The World Organisation for Animal Health (OIE) sets animal health standards for international trade in animals as the principal reference for World Trade Organization members. OIE makes no provision for vaccination of cattle against bTB. In order to enable trade in vaccinated cattle, we will need the DIVA skin test to be recognised internationally and secure amendments to OIE standards, so they cover trade in vaccinated cattle and (if necessary) their products.

3.6. In February 2020, the government also published an update on the plans to reform agricultural policy, underpinning our ambitious vision for farming outside of the European Union (EU) and towards a system based on paying public money for public goods. On 1 January 2021, the agricultural transition period started. Between 2021 and 2027, we will gradually reduce and then stop untargeted Direct Payments. We will invest the money we free up to support agriculture in different ways. Farmers will have access to public money to help them deliver

environmental outcomes on the land they manage; help their businesses become more productive and sustainable; and improve animal health and welfare.

3.7. One key pillar of the new agricultural policy is the Animal Health and Welfare Pathway, which we are co-designing with industry. This will promote the production of healthier, higher welfare animals at a level beyond compliance with current regulations through financial assistance; strengthen the regulatory baseline and improve consumer transparency. Key components of the Pathway will be critical to the success of the bTB Strategy.

3.8. For example, animal health and disease support will drive improved levels of biosecurity on-farm and deliver more focussed veterinary advice. We will also provide grants so that farmers can invest in equipment, technology and infrastructure that improve health, biosecurity, welfare, productivity and environmental outcomes. This will allow us the opportunity to expand support for our bTB eradication objective, beyond the grant support options that have been available under the Rural Development for England (RDPE) Countryside Productivity Small Grants scheme to date. There may be other opportunities to align our approach as we look to implement further changes to the bTB Strategy.

3.9. Initial discussions with industry suggest that a bespoke approach to bTB eradication is still needed at present to tackle the significant challenge it poses. That said, we continue to work in partnership with industry to maximise and capitalise on the opportunities this significant period of change presents, and where appropriate to align the approach we take on bTB to that of the Pathway.

4. How this call for views is structured

4.1. The possible future measures set out in this document are presented in six sections, as follows:

Section one: Cattle movements

Section two: New approaches to improve the sensitivity of TB movement testing of cattle

Section three: Assessing the costs and benefits of alternative statutory testing regimes for bTB breakdown herds, involving new combinations of tests and potentially extending the private voluntary use of other tests with OIE-validated status

Section four: Tighter control of cattle movements following the short interval test that restores a herd's OTF status

Section five: Differentiation of compensation based on herd owners' implementation of basic ("no regrets") bovine TB biosecurity measures

Section six: Herd Health Plans for persistent TB breakdown herds

Part B: Possible future measures to help eradicate bovine TB in England

5. Section one: Cattle movements

Rationale for change

5.1. Bovine TB has the potential to spread to new herds and new areas via movement of cattle with undetected infection between OTF herds. This spread poses a risk to cattle both directly and indirectly. The latter occurs where infection seeds into local wildlife, particularly badgers, which then pose a risk to cattle (e.g. the outbreak in East Cumbria was linked to the introduction of cattle into the area from Northern Ireland).

5.2. The government and stakeholders have long been considering how best to manage the risk of spread of the disease via cattle movements. For example, mandatory pre-movement skin testing of cattle was introduced in England in March 2006 and post-movement testing of cattle entering the Low Risk Area (LRA) was made compulsory in April 2016. Both policies are now well bedded-in. Every year, pre- and post-movement bTB tests detect about 8% of all newly infected cattle herds in England, as well as approximately 550 test reactors out of 500,000 bespoke pre-movement skin tests and 55,000 post-movement tests[1]. These are cattle that would otherwise have moved off untested and potentially triggered bTB breakdowns in their destination herds. This is an underestimation as other tests not recorded as such also serve as pre- and post-movement tests.

5.3. In 2012, the government tasked a Bovine TB Risk Based Trading Group with developing voluntary measures for risk-based trading to help reduce the risk of spread of bTB. The Group reported back in 2013[2] favouring a voluntary approach but recognising that a mandatory approach might ultimately be necessary.

"Risk-based trading needs to be embedded as "business as usual" and all parts of the industry have a role to play in this. We strongly favour the voluntary approach to the introduction of risk-based trading and believe that the Government and industry working in partnership is the way forward. However, it is clear from the schemes that we have looked at, that maintaining interest at a high enough level is incredibly challenging and we believe that if a voluntary approach is not successful, a mandatory approach must be considered to ensure the success of risk-based trading".

Risk Based Trading Group, January 2013

[1] Tuberculosis (TB) in cattle in Great Britain - GB by country dataset (last updated 14 October 2020) https://www.gov.uk/government/statistical-data-sets/tuberculosis-tb-in-cattle-in-great-britain#history

[2] Defra (2013) Bovine TB risk-based trading: Empowering farmers to manage TB trading risks www.gov.uk/government/publications/bovine-tb-risk-based-trading-empowering-farmers-to-manage-tb-trading-risks

5.4. The 2018 Godfray Review also flagged cattle movements as an area for further attention in tackling bTB. In his report[3], Sir Charles Godfray noted that "the number of cattle movements in England is very high and will inevitably be a risk for disease spread". He considered the planned Livestock Information Service (LIS) could be a very important tool for providing information to help prospective purchasers to manage potential bTB risks. He also concluded that there is a strong argument for using compensation (or insurance) policies to discourage risky trading. Sir Charles also noted the benefit of post-movement testing policies for movements into the LRA in terms of reducing the volume of cattle moved from higher bTB risk areas.

5.5. In the government's response to the Godfray Review, it was accepted that more could be done to help those at risk of bringing undetected infection into their herds when sourcing new cattle. We believe that the information needed to help reduce those risks should be freely available. Currently the government's preferred options include investment to deliver LIS and make information on bTB risk available at the point of sale.

5.6. Some information on the relative bTB risks of cattle is already available to prospective purchasers, such as sourcing testing information from the seller and the publicly accessible online mapping tool ibTB. Work is in hand to increase the quality of information available, for example through new digital tools such as LIS. The aim being to ensure that the potential purchaser has the same information about the cattle as the seller (i.e. to overcome the economic problem of asymmetric information).

"LIS [The Livestock Information Service] will have multiple functions, of which providing information that can be used in bovine TB control will be one of the most important. We place a very high priority on supporting and implementing LIS, and strongly advise that considerations of how it can be used to combat this disease are taken into account at the design stage... Relatively crude indices of the risk of infection of cattle have already been developed and LIS will enable more sophisticated measures. There is, we believe, a very strong argument that these measures should mandatorily be available prior to purchase and at market ring-sides. The number of cattle movements in England is very high and will inevitably be a risk for disease spread... We believe that there is a strong argument for disincentivising risky trading by reducing compensation (or insurance payments) to reflect trading behaviour. Such adjustments would need to be relatively large to change behaviour".

Godfray Review, October 2018.

[3] Defra (2018) A strategy for achieving Bovine Tuberculosis Free Status for England: 2018 review www.gov.uk/government/publications/a-strategy-for-achieving-bovine-tuberculosis-free-status-for-england-2018-review

Options for next steps

5.7. Reducing the risk of inadvertently buying an animal infected with bTB is dependent on whether prospective purchasers have access to relevant information and, if they do, the degree to which it influences their purchasing decisions. As a first step, we need to ensure that the right sort of information is accessible, at least when that animal is in an auction ring (but ideally sooner).

5.8. There are a range of potential regulatory measures which government could introduce to encourage or require prospective purchasers to take action to reduce purchasing risks. These range from incentive-based approaches – differentiating compensation payments and/or testing requirements for example - to prohibiting those movements deemed riskier. Each has its pros and cons.

5.9. With regards to compensation-based approaches, there is a question of the extent to which taxpayers should bear the financial risk of business decisions. Where a business has taken advantage of measures available to reduce purchasing risks, there is a good argument that it should bear less of the financial risk than one which has not. That financial risk may also be shared differently by differential rates of testing, with herd owners that are deemed to have carried out higher risk cattle movements having to carry out additional testing – which is costly and burdensome in terms of farm staff time - and possibly also paying the direct costs of that additional testing.

5.10. There remains doubt about the extent to which incentives will be enough to reduce the risk of translocation of disease from cattle movements. That's why if we are to achieve bTB-free status for England by 2038, the government needs to have regulatory controls ready to introduce.

5.11. The government is keen to have views on the pros and cons of the following scenarios. We are particularly interested in views on the practical deliverability of any new approaches as well as on their likely costs and benefits. In addition, there are some specific requests for information/views within the options below.

(a) Enhancing ibTB to support responsible cattle movements

5.12. ibTB is a free-to-access interactive map showing the locations of all TB breakdowns in cattle herds in England and Wales over the last 10 years. It can be used by cattle keepers and vets to help build an understanding of the scale of the TB threat in a particular area, thereby enabling them to take proportionate steps to protect cattle herds. In a limited way, it can also be used to support responsible cattle purchasing decisions.

5.13. To better help keepers safely manage the introduction of new cattle into their herds, we are considering the possibility of sharing through ibTB limited information about the TB history of all cattle herds in England. Currently ibTB only shows the locations of herds that are under restrictions due to having a bTB breakdown or that have had a breakdown in the previous 10 years.

5.14. The number of consecutive years a herd has remained officially TB free is an indicator of risk. **We have it in mind to add a new map to ibTB to show the number of years that currently unrestricted cattle herds have been officially TB free**. The intention behind this would be to enable keepers to take more informed decisions about the cattle they purchase and to take appropriate steps to manage the risks from bringing in new cattle. Those steps may include isolation and post-movement testing of those cattle before their full integration into the herd.

5.15. If this option is pursued, a legislative change would be required. It would not result in any costs to industry. The main benefits would be to cattle keepers who would be better able to understand and manage the risk of bringing TB infected cattle into their herds through cattle purchases or other movements.

(b) Mandating the sharing of information at point of sale

5.16. The option of enhancing the ibTB interactive map to better support responsible cattle movements, relies on cattle keepers and vets accessing the data. To complement that voluntary approach, another option would be to require farmers to provide bTB information for cattle sold at livestock markets, with market operators required to clearly display the information on an electronic screen. The bTB history that would be shared could include some, or all, of the following:

- Date of the animal's most recent pre-movement test (if applicable).
- Date of the selling herd's most recent routine surveillance test.
- If the animal is being sold on the back of a clearing test in a breakdown in its herd of origin.
- If the herd has ever had a bTB breakdown, the date the herd achieved OTF status, or number of years since the last bTB herd breakdown finished.
- Animal and Plant Health Agency (APHA) herd bTB risk score (see Annex A).
- Cattle Health Certification Standards (CHeCS) accreditation or other relevant accreditation/assurance status (if applicable).

5.17. If this option is taken forward, the sale of an animal could be prohibited unless this information was provided.

5.18. Currently, whilst sellers (including auctioneers) are encouraged to provide this information, there is no statutory obligation to do so.

(c) Rewarding responsible cattle movements

5.19. The provision of information is the first stage of enabling farmers to assess the risks associated with cattle movements, helping them to take proportionate steps to protect cattle herds. If this does not happen voluntarily, there are other options that could be considered in order to reward responsible cattle movements.

(i) Rewarding responsible cattle movements through compensation policy

5.20. This scenario would mean that for farmers to benefit from a maximum rate of statutory compensation for bTB test-positive animals, their herds must have been either truly closed or they have observed defined responsible purchasing policies (e.g. purchased only from herds with similar or lower bTB risk level) for a defined period.

5.21. **We would welcome views on what should constitute a 'truly closed' herd and how best to assess the risk of movements, e.g. by herd location, by APHA herd bTB risk score, or at least by number of years since the last bTB herd breakdown etc.**

5.22. Currently compensation policy is used as an incentive to reward:

- Timely bTB testing, with graded percentage reductions applied to cattle slaughtered to control bTB disclosed via overdue tests.
- Compliance with industry's clean livestock policy, with a 50% reduction applied to cattle slaughtered to control bTB that are presented with dirty hides at slaughter.
- Purchasing decisions in non-OTF herds, with a 50% reduction applied to any cattle licensed into the herd and slaughtered to control bTB before the herd regains its OTF status.

(ii) Rewarding responsible cattle movements through the testing policy

5.23. This scenario would involve extending the concept of 'earned recognition' on bTB testing frequency to High Risk and Edge Area herds which have been either truly closed or have observed defined responsible purchasing policies (e.g. purchased only from herds with similar or lower risks) for a defined period. **We would welcome views on how best to assess the risk of movements e.g. by the herd of origin's location, by APHA herd bTB risk score, etc.**

5.24. Roll-out of six-monthly herd testing in the High-Risk Area started in two counties in September 2020. This policy is already in place in the higher risk parts of the

Edge Area. Herds are eligible for less frequent (i.e. annual) surveillance testing if they meet either of the following criteria – so called 'earned recognition':

- The herd has been in existence for at least six years and has not had a bTB breakdown in that six-year period. A single break from keeping cattle of less than four months during the six-year period is permitted.
- The herd is registered to a bTB health scheme accredited under the Cattle Health Certification Standards (CHeCS) at level 1 or above.

(iii) Rewarding responsible cattle movements through testing costs

5.25. This scenario would involve requiring farmers to pay for any additional bTB testing, imposed as a result of risky cattle purchasing practices. That might be additional surveillance testing, or the additional testing required when bTB is detected in a herd.

5.26. The default herd testing frequency in the Low Risk Area is four-yearly. However, APHA has discretion to impose annual testing on specific herds with more risky trading practices. Currently the cost of this additional testing is covered by the taxpayer. Breakdown testing is also covered by the taxpayer.

(d) Regulating movements between certain herds

5.27. The significance of cattle movements as a bTB risk and to achievement of official TB-freedom for the whole of England by 2038 is such that the option of prohibiting certain risky movements cannot be ruled out. The government's preference is for non-regulatory measures, but thought is being given now to what might be necessary should those measures not be sufficient. To help with that thinking, we would welcome views on the following options:

(i) Requiring isolation of purchased cattle pending results of a negative post-movement test

5.28. Under this scenario, farmers would be required to isolate any purchased cattle eligible for statutory post-movement testing pending negative test results.

5.29. Currently cattle moving from annually and six-monthly tested herds in England are subject to statutory pre-movement testing, with some exceptions. Additionally, eligible cattle moved into the Low Risk Area from herds located in another part of England, or in Wales, also require a post-movement skin test to be undertaken no fewer than 60 days, but no more than 120 days, after the date of arrival.

5.30. Although these animals cannot be moved on to other holdings and isolation is advised pending a negative post-movement test, there is currently no statutory

isolation requirement. In the meantime, they pose a potential risk to animals in the receiving herd and local wildlife.

5.31. This option raises issues around practicality and enforcement, but the government does not rule it out on those grounds.

(ii) Restricting movements to herds of lower bTB risk status

5.32. This scenario could involve prohibiting one or more of the following types of cattle movements:

- To any herd with a lower APHA bTB risk score.
- From herds with higher APHA bTB risk scores (e.g. 4 or 5) to any herd with a lower APHA bTB risk score.

5.33. Currently there are no bTB-related restrictions on movements between officially TB-free herds other than the statutory pre- and post-movement testing requirements outlined above. APHA generates risk scores, but these are not publicly available to inform responsible cattle movements.

5.34. Determining relative risk solely by number of years since the last bTB herd breakdown, rather than by APHA bTB risk scores, could be an alternative option. However, this does not include the risk via cattle purchases.

(iii) Restricting movements between defined zones or risk areas

5.35. This scenario could involve prohibiting one or more of the following types of cattle movements:

- Movements into the Edge Area from the HRA and movements into the Low Risk Area from the HRA and Edge Area (i.e. 'zoning').
- Movements from Eradication Areas designated by Defra, comprising groups of one or more counties. A similar approach was deployed in the 1950s as part of an eradication plan that resulted in attestation of UK herds in 1960.
- Movements into areas subject to effective badger control other than from equivalent areas or from the Low Risk Area.

5.36. Movements to slaughter, either directly or via approved finishing units, would be exempt.

5.37. Currently there are no bTB-related restrictions on movements between OTF herds other than the statutory pre- and post-movement testing requirements outlined above.

We want your views

5.38. We are currently considering the following potential options to meet our aims on cattle movements:

- **Option 1:** Enhancing ibTB to support responsible cattle movements.
- **Option 2:** Mandating the sharing of information at point of sale.
- **Option 3:** Rewarding responsible cattle movements. Three sub-options are outlined in the call for views, including rewarding through the: compensation policy; testing policy; and/or testing costs.
- **Option 4:** Regulating movements between certain herds. Three sub-options are outlined in the call for views, including requiring isolation pending results of a negative post-movement test; restricting movements to herds of lower bTB risk status; and restricting movements between defined zones or risk areas.

5.39. **We would welcome views on these options and their potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

- The potential benefits and risks with these options (and sub options).
- The practical deliverability of the options outlined (and sub options).
- Factors that are potentially missing from the current options.
- The most appropriate combinations of options (and sub options).
- Implications for your business or those that you support (if applicable).

6. Section two: New approaches to improve the sensitivity of TB movement testing of cattle

Rationale for change

6.1. Another way we can reduce the risk of disease spread is by improving the sensitivity of bTB testing before and after cattle are moved between holdings.

6.2. The government is already seeking views on the following policy proposals and options to further reduce the risk posed by the movements of cattle with undetected bTB infection:

- Extending the compulsory post-movement testing policy to include cattle moved into parts of the Edge Area where herds remain on annual TB surveillance testing from higher risk areas of GB – see separate consultation document.

- Enhancing ibTB by sharing limited information on the TB history of all cattle herds in England (the number of years that currently unrestricted cattle herds have enjoyed OTF status) – covered earlier in this call for views.
- Stopping the practice of allowing cattle to be moved to live in a new herd on the back of the final (clearing) short interval test at the end of a persistent TB breakdown. Cattle could not be moved out of such herds until they have had a further test with negative results – covered later in this call for views.

6.3. Currently the single intradermal comparative cervical tuberculin test (SICCT)[4] is the primary diagnostic method for bTB in live cattle. The only exception is the small number of cattle over 42 days old intended for export from Great Britain (GB) to the EU each year, which are screened using a 'bovine tuberculin-only' interpretation of the test. This ignores any skin reaction to the concurrent injection of avian tuberculin and thus maximises the skin testing sensitivity[5].

6.4. The comparative test read at the standard interpretation[6] has a very high specificity[7], but a moderate to good sensitivity, at the individual animal level. This means that there is a very low risk of a false positive test results (approximately one in 6,500 uninfected cattle tested), but conversely up to one in four or five infected animals may be missed at a single skin testing event. This is not so much a problem when screening whole herds for bTB, since the larger the herd the more likely it is to detect at least one infected animal. We only need to identify a single animal as a skin test reactor to declare a bTB breakdown in that herd, suspend its OTF status and apply additional control measures (including a more sensitive testing regime), until infection has been eliminated and the herd regains its OTF status. However, as the size of the group of animals being tested decreases (such as in most bespoke pre- and post-movement tests), the herd-level sensitivity of the skin test decreases.

Options for next steps

6.5. There are potential options available to us, aimed at enhancing the sensitivity of mandatory bTB movement testing of cattle. These could help further reduce the risk of moving animals with undetected TB infection between herds.

6.6. We would welcome views on the following potential options.

[4] The SICCT is the internationally accepted standard and primary screening test for TB in cattle in Great Britain. The test is comparative as the animal's immune response to injections of both bovine and avian tuberculins is measured and compared.

[5] Sensitivity is the probability that a diagnostic test will correctly identify an infected animal as positive. The higher the sensitivity of a test, the lower the probability of incorrectly classifying an infected animal as uninfected (a false negative result).

[6] The comparative skin test can be interpreted at either standard or severe interpretation. Using the severe interpretation involves lowering the cut-off point for an animal to be classified as a reactor.

[7] Specificity is the probability that a diagnostic test will correctly identify an animal that is free from infection as negative. The higher the specificity, the lower the probability of incorrectly classifying an uninfected animal as infected (a false positive result).

(a) Wider use of severe interpretation of the comparative skin test

6.7. We could continue to use the comparative skin test for statutory pre- and post-movement testing, but read its results under the severe interpretation normally applied in bTB-infected (breakdown) herds and any spread tracings thereof. Using the severe interpretation lowers the cut-off point for an animal to be classified as a reactor thus increasing the sensitivity of TB movement testing.

(b) Use of bovine only interpretation of the comparative skin test

6.8. This is similar to option (a) above, but we would apply the even more sensitive 'bovine-only' interpretation of the comparative skin test (as for pre-export testing of cattle), to determine whether an animal can be moved to another herd or not.

(c) Supplementary blood testing

6.9. We could supplement the existing comparative skin test with a private interferon-gamma (IFN-γ) blood test, or one of the two OIE-validated antibody blood tests (IDEXX or Enferplex), following a negative post-movement skin test result. Blood sampling of the moved animal(s) would take place immediately after reading the results of the post-movement skin test (for IFN-γ tests), or 10 to 30 days after the injection of tuberculin (for antibody tests). This additional post-movement blood test would also have to be arranged and paid for by the keeper of the destination herd. Combining the skin test with ancillary blood tests would:

- Increase the sensitivity of post-movement testing.
- Identify different cohorts of bTB-infected animals, including those that never became skin test-positive.
- In the case of the IFN-γ test, detect infected animals earlier compared to when they become skin test-positive.

(d) Suspend movements in the event of an inconclusive reactor

6.10. We could suspend a planned movement when at least one inconclusive reactor (IR) is found in a batch of animals undergoing pre-movement testing, pending the re-test of all the IRs with a negative result. This would reduce the risk of clear-tested but infected (false negative) animals moving to another herd before re-testing of all IRs with a negative result.

(e) Amend the validity of a pre-movement test

6.11. We could shorten the period during which a pre-movement test with negative results remains valid, from the current 60 days to 30 days after tuberculin injection, as for skin testing of cattle intended for export. This would not affect the sensitivity of the pre-movement test itself but would reduce the risk of

negative-testing animals becoming infected in the interval between the administration of the test and their departure from the farm.

6.12. Options (a) to (e) are not mutually exclusive and could be adopted in tandem - for example (a) or (b) and any (or all) of (c), (d) and (e). They would complement the range of potential regulatory options (outlined elsewhere in this document) to encourage or require prospective cattle purchasers to take action to reduce the risk of inadvertently buying in animals infected with TB.

6.13. We are not proposing to replace or supplement the skin test with the IFN-γ blood test for compulsory pre-movement screening of cattle, given the higher cost and logistical complexity of the blood test and the considerable pressure that an additional half a million blood samples a year would put on APHA laboratories. Nevertheless, private use of the IFN-γ blood test to supplement a mandatory pre-movement skin test will remain a voluntary option for cattle keepers.

We want your views

6.14. We are currently considering the following potential options to improve the sensitivity of TB movement testing of cattle:

- **Option 1:** Wider use of severe interpretation of the comparative skin test
- **Option 2:** Use of bovine only interpretation of the comparative skin test
- **Option 3:** Supplementary blood testing
- **Option 4:** Suspend movements in the event of an inconclusive reactor
- **Option 5:** Amend the validity of a pre-movement test

6.15. **We would welcome views on these options and their potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

- The potential benefits and risks with these options.
- The practical deliverability of the options outlined.
- Factors that are potentially missing from the options.
- The most appropriate combination of these options.
- Implications for your business or those that you support (if applicable).

7. Section three: Assessing the costs and benefits of alternative statutory testing regimes for bTB breakdown herds, involving new combinations of tests and potentially extending the private voluntary use of other tests with OIE-validated status

Rationale for change

7.1. The Godfray review identified bTB diagnostics and surveillance in cattle as key to eradicating bTB in England by 2038. The Godfray review stated that we need to do more to find TB-infected cattle as quickly as possible, so we can stop bTB spreading and eradicate the disease.

7.2. The government's current strategic priorities in the field of cattle TB diagnostics are threefold:

- Expand APHA's IFN-γ testing capacity to support the increased statutory use of this test across the HRA and Edge Areas.
- Optimise and field-validate an effective DIVA skin test platform for use in BCG-vaccinated cattle.
- Potentially replace avian and bovine tuberculins with more specific, defined *M. bovis* antigens in a new single-injection format of the skin test.

7.3. The early detection and rapid removal infected cattle form a cornerstone of the government's bTB strategy for England. Different diagnostic tests tend to identify slightly different populations of bTB-infected cattle, including animals at different stages of disease progression. Therefore, combinations of complementary tests applied in parallel interpretation (which means that a positive result to any of the tests would constitute an overall positive result) can speed up the detection and eradication of bTB in infected herds, although, in some cases, at the expense of a higher probability of false positive results if the additional test has lower specificity.

7.4. To this effect, since 2006 the IFN-γ blood test has increasingly been deployed in England as an official statutory test to supplement the primary diagnostic test (i.e. the comparative tuberculin skin test) in bTB breakdown herds with lesion and/or culture-positive animals, among other scenarios. The IFN-γ test is likely to remain the statutory supplementary blood test of choice in cattle herds in England for the foreseeable future. The consultation exercise published alongside this call-for-views includes specific proposals to update the government's policy for mandatory IFN-γ testing of bTB breakdown herds in the HRA and Edge Areas of England in 2021.

7.5. The sensitivity of the two officially approved tests in cattle could, however, be augmented by the use (also in parallel interpretation) of antibody tests and other diagnostic techniques if they were properly validated, cost-effective and internationally recognised for use in cattle. But there is a question around the diminishing returns from adding a third or fourth test, due to the potential loss of specificity and increased implementation costs to government and herd owners.

7.6. We have been following with interest all significant technical developments that could lead to the validation and potential field deployment of new diagnostics for bTB in cattle. Defra, the devolved administrations and APHA have facilitated validation trials and pre-validation studies by the developers of different diagnostic tests for bTB in cattle and other species in GB. At the end of August, Defra and the Scottish and Welsh Governments also announced the award of five £100,000 grants to support proof-of-concept research into innovative technologies to detect bTB infections in cattle[8].

7.7. In addition to the IFN-γ test kit (Bovigam™) of cellular immunity, two commercially available diagnostic kits that measure the presence of circulating antibodies against *M. bovis* in serum are currently registered with the OIE, as validated supplementary diagnostics for the detection of bTB-infected cattle. They are the IDEXX ELISA (IDEXX Laboratories, USA) and the Enferplex 'multiplex' enzyme immunoassay (Enfer Scientific, Ireland). It is possible that other bTB diagnostic kits for cattle will attain a similar OIE-validated status in the future.

7.8. At present, neither the IDEXX test nor the Enferplex test are approved in EU animal health legislation as official tests for bTB in cattle. Even so, both tests are approved by Defra for statutory and private screening of South American camelids (alpacas and llamas) for bTB alongside the tuberculin skin test. Additionally, because of its simplicity, low cost and need for minimal capital investment, APHA has for some time been using the IDEXX ELISA as a third-line statutory parallel test to supplement the skin and IFN-γ tests in limited exceptional circumstances such as:

- Chronic bTB breakdowns that do not resolve after repeated rounds of skin and parallel IFN-γ testing and where the presence of infected animals is suspected (and/or a partial or full herd slaughter is not a feasible option).
- Blood testing of known infected groups of calves under six months of age that are not eligible for IFN-γ testing due to their young age.

7.9. Furthermore, since 2017 Defra has also allowed limited applications in England from private veterinary surgeons for private, voluntary Enferplex or IDEXX testing of skin and IFN-γ test-negative cattle at the farmer's expense in herds with persistent bTB breakdowns that have already undergone an IFN-γ blood test

[8] https://tbhub.co.uk/preventing-tb-breakdowns/about-bovine-tb/bovine-tb-research-and-development/

(where mandatory under the current Defra policy). Defra does not require immediate slaughter or pay compensation for any bTB positive animals identified through private IDEXX or Enferplex testing. However, APHA will not restore the OTF status of the affected herd until such animals have been privately removed (or subsequently skin and IFN-γ tested with negative results). More information about the IDEXX and Enferplex tests, including the protocol for private bTB testing of cattle and handling of positive animals, is available on the TB Hub[9] and the APHA Vet Gateway[10].

Options for next steps

7.10. There are three potential options that we wish to consider further and on which we would welcome views. They are explained below.

Option 1 - Owners of herds sustaining a lesion- or culture-positive bTB breakdown (OTF herd status withdrawn) would be able to apply to APHA for approval of privately funded supplementary antibody testing without the need to wait for the completion of a statutory IFN-γ herd test.

7.11. This would be a voluntary option. Keepers of herds with Officially TB Free Withdrawn (OTF-W) breakdowns could apply for permission to undertake a private blood test, at their own risk and cost, to accelerate the detection of additional bTB-infected animals potentially missed by the statutory (skin and IFN-γ) testing regime. Where the infected herd was not eligible (or the owner did not wish to wait) for a government-funded IFN-γ test, the keeper could apply for permission to undertake a private blood test. Only new tests validated to OIE standards could be used to that effect, namely the IFN-γ test (already available), and the IDEXX and/or Enferplex antibody tests at present.

7.12. An important factor that herd owners would need to acknowledge is that even if the affected herd had successfully completed all the required statutory testing, it would not be able not regain OTF status until all the bTB antibody-positive (seropositive) animals that did not react to a skin or IFN-γ test had been privately culled. The government would not pay compensation for such animals.

7.13. Applications for private use of non-validated tests would continue to be assessed under the existing rules available on the APHA Veterinary Gateway.

[9] https://tbhub.co.uk/tb-testing-cattle/blood-testing/the-idexx-antibody-test/
https://tbhub.co.uk/tb-testing-cattle/blood-testing/exceptional-private-use-of-non-validated-tests-in-cattle/

[10] APHA Vet Gateway: exceptional private use of non-validated tests for TB on cattle in England.
http://apha.defra.gov.uk/vet-gateway/non-valid-tb-testing/index.htm

Option 2 - Extend the voluntary private use of the two OIE-validated antibody tests (IDEXX and Enferplex) to certain non-breakdown situations in which private IFN-γ testing may already be authorised. This would include rapid re-testing of inconclusive reactors to the skin test (IRs) in OTF herds, as well as resolved IRs subjected to life-long movement restrictions in OTF herds.

7.14. Apart from its main use in government-funded statutory testing of bTB-infected herds, private veterinarians in England may apply to APHA for permission to undertake farmer-funded IFN-γ testing of cattle in OTF and bTB breakdown herds, subject to certain conditions. This voluntary option has been available since April 2016. However, the uptake thus far of private IFN-γ testing has been low. This is probably due to the relatively difficult logistics of ensuring same-day/overnight delivery of unclotted blood samples in temperature-controlled specialist packaging to the IFN-γ testing laboratory.

7.15. Blood samples for private bTB antibody testing would have to be taken 10-30 days after day 1 of the skin test that disclosed the IR and a high specificity setting of the private antibody test would be used where applicable (e.g. Enferplex testing). Any unresolved or resolved IRs with a seropositive result on a private antibody test for bTB would be removed by APHA with payment of compensation and would trigger a new bTB herd breakdown.

Option 3 - As a lower priority with a longer timeframe, widen the statutory use of government-funded antibody testing in some types of infected herds (those with persistent and/or recurrent bTB breakdowns).

7.16. This will require a full cost-benefit analysis, which would be informed by the experience gained (and data gathered) through the private use of the Enferplex and IDEXX tests in England. Defra and the Scottish and Welsh Governments are also evaluating the possibility of funding a small field trial run by APHA that would compare the performance of these two tests and the IFN-γ test used simultaneously ('head to head') in selected herds. In the meantime, the IDEXX ELISA will remain the statutory antibody test of choice for occasional discretionary use by APHA in chronic TB breakdowns in England.

We want your views

7.17. We are currently considering the following potential alternative statutory testing regimes for bTB breakdown herds:

- **Option 1:** Owners of herds sustaining a lesion- or culture-positive bTB breakdown (OTF herd status withdrawn) would be able to apply to APHA for approval of privately-funded supplementary antibody testing, without the need to wait for the completion of a statutory IFN-γ herd test.

- **Option 2:** Extend the voluntary private use of the two OIE-validated antibody tests (IDEXX and Enferplex) to certain non-breakdown situations in which private IFN-γ testing may already be authorised. This would include rapid re-testing of inconclusive reactors to the skin test (IRs) in OTF herds, as well as resolved IRs subjected to life-long movement restrictions in OTF herds.
- **Option 3:** Widen the statutory use of government-funded antibody testing in some types of infected herds (those with persistent and/or recurrent bTB breakdowns).

7.18. **We would welcome views on these options and their potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

- The potential benefits and risks with these options.
- The practical deliverability of the options outlined.
- Factors that are potentially missing from the options.
- The most appropriate combinations of options.
- Implications for your business or those that you support (if applicable).

8. Section four: Tighter control of cattle movements following the short interval test that restores a herd's OTF status

Rationale for change

8.1. Due to the TB skin test's imperfect performance characteristics, there will be occasions when undetected infection is left in a herd after OTF status is restored at the end of a breakdown. This is evidenced by the relatively high rate of recurrent TB breakdowns in the HRA and Edge Areas of England. We have already taken some steps to reduce that risk, for example, by requiring two consecutive short interval tests (SIT) with negative results in all TB-breakdown herds in the HRA and Edge Area before lifting restrictions. But we believe more could be done to reduce the risk of cattle with undisclosed TB infection joining new herds.

Options for next steps

8.2. We are seeking views on the option of tightening the control of movements of cattle from certain recently de-restricted herds. **Specifically, cattle to be moved out of a herd for which OTF status has been restored following a long-term breakdown (i.e. lasting 18 months or longer) could be required to have a further clear test before being permitted to move.** Effectively, this would introduce a further 60 day delay after the herd's clearing SIT before animals could be moved off herds that have experienced a 'persistent TB breakdown'.

Cattle moved to slaughter, either directly or via an Approved Finishing Unit, would not need a further test.

8.3. Focussing attention on herds often referred to as persistent TB breakdowns (i.e. those lasting at least 18 months) would be more proportionate than applying it to all breakdown herds. Often persistent breakdown herds will have had a more extensive TB problem and a higher number of infected animals than herds with a more typical, shorter duration breakdown. In the last few years, around 230 persistent breakdown herds in England have regained their OTF status each year.

8.4. This policy has been in place in Wales since 2017. If we pursue this option, we would adopt the same delivery approach as used in Wales. That would mean that when the notice restoring a herd's OTF status is issued, the herd owner would receive a letter advising them that they could not use the last herd test as a pre-movement test. Any animals they wish to move would need a further test (paid for by the owner). Alternatively, the keeper could await the government-funded six-month post-breakdown check test before moving any cattle. Advance notification for potentially impacted cattle keepers would be included in a letter sent by APHA to owners of herds that have been restricted for 12 months.

8.5. If this option is pursued a legislative change would be required. It would result in an additional cost for keepers who move cattle from herds that have had a persistent breakdown, with the herd owner required to pay for an additional test.

8.6. In considering the cost implications for industry, we have assessed what the impacts would have been if this option had been operating in 2017, 2018 and 2019. We have also considered how many cattle typically moved from individual herds i.e. the batch sizes. The key results from those analyses were:

- The average number of cattle that would have needed an additional test each year was 5,898.
- The average number of keepers that would have been impacted each year was 113.
- There was a wide range of batch sizes, from single animals up to a batch of 611 in one case. Over the three-year period the average number of cattle (from a single herd) requiring an additional test was 52.

8.7. We estimate that the cost of TB testing a batch of 52 animals would be in the region of £210 to £320. This estimate includes vets' fees and the cost of keepers' time to support the test.

We want your views

8.8. We are currently considering an option to require a further test for cattle moved out of herds that have recently come out of TB restrictions.

8.9. **We would welcome views on this option and its potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

- The potential benefits and risks with this option.
- The practical deliverability of this option.
- Factors that are potentially missing from the option.
- Implications for your business or those that you support (if applicable).

9. Section five: differentiation of compensation based on herd owners' implementation of basic ("no regrets") bovine TB biosecurity measures

Rationale for change

9.1. Defra compensates livestock keepers for cattle compulsorily slaughtered in England for bovine TB control purposes. In 2019/20, government spend on bTB compensation in England totalled nearly £30 million. In nearly all cases compensation payments are determined through monthly table valuations, with all livestock keepers receiving the same level of compensation (i.e. 100% of the average open market value for same category cattle) regardless of whether or not they are taking reasonable steps to reduce the risk of a TB breakdown in their herd through basic biosecurity measures.

9.2. The 2014 bTB Eradication Strategy for England committed Defra to 'adapt the way in which compensation funding is used both to improve the implementation of control measures and to incentivise risk reduction actions at individual farms '. Reductions to compensation are currently only applied in limited circumstances:

- for significantly overdue TB tests,
- a 50% reduction is applied to any cattle brought into a TB restricted herd that are subsequently removed due to bTB while the herd is still restricted,
- a 50% reduction is also applied to cattle slaughtered to control TB that are presented with dirty hides at slaughter.

9.3. The Godfray Review highlighted a disappointingly low uptake by cattle keepers of relatively cheap, practical 'no regrets' biosecurity measures. The Government's response to the review highlighted that providing the same level of compensation

to all keepers, regardless of whether they maintained basic biosecurity controls, was not equitable.

Options for next steps

9.4. We have already highlighted the opportunities to expand our support for bTB eradication, through plans for grants for herd owners to invest in equipment, technology and infrastructure that improve amongst other things health and biosecurity outcomes, as we progress our ambitions for agricultural reform. There is still, however, a case for going further and recognising the efforts of those who have committed to meeting higher standards of biosecurity through membership of appropriate assurance or accreditation schemes. It is that principle on which we are now seeking views and evidence.

9.5. To enable further differentiation of compensation, in line with the commitment in the Government's response to the Godfray Review, we would need to amend the Cattle Compensation (England) Order 2019. **The suggestion is that we do so in a way that would allow Defra (at a future stage and subject to the results of a further consultation on specific measures) to pay different levels of compensation to herd owners depending on whether they are complying with specific biosecurity measures**.

9.6. The Government response to the Godfray Review envisages that herd owners who meet basic biosecurity standards should continue to receive full compensation, meaning average replacement cost for same category cattle. But since we are seeking views at this stage with a view to future consultation, we do not rule out the possibility of paying higher rates of compensation. This might be justified on the basis that, all other things equal, the likelihood of a TB breakdown in those herds is lower and when they do occur, they are likely to be less severe.

9.7. Since there needs to be an objective means of judging compliance, we have in mind that to benefit from higher rates of compensation herd owners would need to be members of a herd accreditation or assurance scheme approved for this specific purpose by Defra Ministers. We have already started thinking about the accreditation standards that herd owners would need to meet and have commissioned the design of a new scheme which will include meaningful, but practical and proportionate, biosecurity measures that every herd owner should be able to achieve without significant cost, time or effort. If we proceed with this measure, we would consult separately on the new scheme in 2021. Any changes to compensation would only be triggered once an agreed accreditation or assurance scheme has been approved and that approval would only be given following a period of at least six months after a scheme has opened for applications, to allow herd owners time to join.

9.8. If this option is adopted a legislative change would be required. We would produce an impact assessment as part of any future consultation on whether to approve a specific accreditation/assurance scheme for this purpose.

We want your views

9.9. We are currently considering an option to differentiate compensation payments based on herd owners' implementation of basic ("no regrets") bovine TB biosecurity measures.

9.10. **We would welcome views on this option and its potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

- The potential benefits and risks with this option.
- The practical deliverability of this option.
- Factors that are potentially missing from the option.
- Implications for your business or those that you support (if applicable).

10. Section six: Herd Health Plans for persistent TB breakdown herds

Rationale for change

10.1. The number of persistent breakdowns in England (those lasting at least 18 months) varies from month to month, but after remaining consistently high for some time there has been a reduction in numbers over the last year. These prolonged breakdowns are challenging to resolve and require more intensive attention when compared to the more typical, shorter breakdowns.

10.2. Dealing with persistent breakdown herds is particularly resource intensive for APHA and such herds also account for a significant proportion of Defra's spend on TB testing and compensation. While under restrictions, keepers may be able to bring new cattle into their herd, subject to securing the necessary movement licence from APHA.

10.3. In the last 18 months, we have seen a marked and welcome drop in the number of herds with persistent breakdowns from around 270 in January 2019 to 158 in September 2020. We now want to build on that positive development and bring even more herds out of long-term restrictions, thereby benefiting the herd owners and minimising the risks for other cattle herds in the area.

10.4. As detailed in the government's response to the Godfray Review, we believe there is scope for some keepers to take more responsibility for managing their TB risks and help resolve these long-term breakdowns.

Options for next steps

10.5. We recognise that some keepers with TB-restricted herds must restock for business sustainability reasons and we do not want to stop that. However, cattle moved into TB-affected herds are at a greater risk of becoming infected than those moved into TB free herds.

10.6. To reduce the risk of exacerbating a TB incident by bringing cattle into a holding with inadequate biosecurity, we are inviting views on the possibility of requiring owners of persistent breakdown herds who wish to source new stock to develop a bTB-specific herd health plan with their private vet. We hope that this would provide an added incentive for good biosecurity in the most intractable TB breakdowns, thereby benefiting directly affected herds as well as neighbouring herds. It would also support our objective of strengthening the role of private vets in helping farms through their breakdown. We envisage the private vet's costs for developing a herd health plan (and reviewing/updating it) would be met by the herd owner.

10.7. We have worked with representatives from the veterinary profession and cattle industry to develop a framework for what we believe should be included in the proposed bTB specific herd health plans (see Annex B). The plans would need to be reviewed and updated at least once a year whilst the herd is still under movement restrictions due to bTB. The plans would need to be shared and agreed with APHA.

10.8. A legislative change would not be needed to make this change and we would provide herd owners with a good lead in time before it came into effect. Whilst having a bTB-specific herd health plan in place would not be mandatory, we recognise that for those herd owners who require a plan in order to be able to restock there would be a cost. There are clear links again with the work to develop the Animal Health Pathway, where health and disease support are key components. We will work to align any approach taken on herd health planning, as appropriate.

10.9. We estimate the cost of developing a bTB-specific herd health plan would be in the region of £200 to £250 (based on two hours of a private vet's time). We estimate the cost of updating the plan on an annual basis would be in the region of £100 to £125 (based on one hour of a private vet's time). Closed herds (herds where no cattle have been brought onto the holding for four years or more) account for approximately 38% of persistent breakdown herds. There would be no cost to these owners if they choose not to have a plan.

We want your views

10.10. We are currently considering requiring owners of persistent breakdown herds who wish to source new stock to develop a bTB-specific herd health plan with their private vet.

10.11. **We would welcome views on this option and its potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

- The potential benefits and risks with this option.
- The practical deliverability of this option.
- Factors that are potentially missing from the option.
- Implications for your business or those that you support (if applicable).

Part C: How to respond

11. We want your views

11.1. We are seeking comments on the pros, cons, practical deliverability, costs and benefits of the options set out in this call for views. In addition, there are some specific requests for information/views within the individual options. All questions are also set out in Part C, section 2. Please submit your comments by 24 March 2021

11.2. You can respond in one of three ways:

- Online by completing the questionnaire at https://consult.defra.gov.uk/bovine-tb-2020/bovine-tuberculosis-call-for-views-on-possible-fut/
- Email to bTBengage@defra.gov.uk
- By post to:

Consultation Coordinator,
Defra 2nd Floor,
Foss House,
Kings Pool,
1-2 Peasholme Green,
York,
YO1 7PX

11.3. **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.

11.4. 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.

11.5. Following analysis of the responses, final decisions on next steps will be made by Ministers.

12. Call for views – questions and information sought

Question (i): What is your name?

Question (ii): What is your email address?

Question (iii): What is your organisation?

Question (iv): Do you want your response to be confidential?

Section one: Cattle movements

1. **We would welcome views on what should constitute a 'truly closed' herd.**

2. **We would welcome views on how best to assess the risk of movements**. For example, by herd location, by APHA herd bTB risk score (or at least by number of years since the last bTB herd breakdown), or other.

We are currently considering the following potential options to meet our aims on cattle movements:

- **Option 1:** Enhancing ibTB to support responsible cattle movements.
- **Option 2:** Mandating the sharing of information at point of sale.
- **Option 3:** Rewarding responsible cattle movements. Three sub-options are outlined in the Call for Views including rewarding through the: compensation policy; testing policy; and/or testing costs.
- **Option 4:** Regulating movements between certain herds. Three sub-options are outlined in the Call for Views including requiring isolation pending results of a negative post-movement test; restricting movements to herds of lower bTB risk status; and restricting movements between defined zones or risk areas.

3. **We would welcome views on these options and their potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:
    - The potential benefits and risks with these options (and sub options).
    - The practical deliverability of the options outlined (and sub options).
    - Factors that are potentially missing from the current options.
    - The most appropriate combinations of options (and sub options).
    - Implications for your business or those that you support (if applicable).

Section two: New approaches to improve the sensitivity of TB movement testing of cattle

We are currently considering the following potential options to improve the sensitivity of TB movement testing of cattle:

- **Option 1:** Wider use of severe interpretation of the comparative skin test
- **Option 2:** Use of bovine only interpretation of the comparative skin test
- **Option 3:** Supplementary blood testing
- **Option 4:** Suspend movements in the event of an inconclusive reactor
- **Option 5:** Amend the validity of a pre-movement test

4. **We would welcome views on these options and their potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

    - The potential benefits and risks with these options.
    - The practical deliverability of the options outlined.
    - Factors that are potentially missing from the options.
    - The most appropriate combination of these options.
    - Implications for your business or those that you support (if applicable).

Section three: Assessing the costs and benefits of alternative statutory testing regimes for bTB breakdown herds

We are currently considering the following potential alternative statutory testing regimes for bTB breakdown herds:

- **Option 1:** Owners of herds sustaining a lesion- or culture-positive bTB breakdown (OTF herd status withdrawn) would be able to apply to APHA for approval of privately-funded supplementary antibody testing, without the need to wait for the completion of a statutory IFN-γ herd test.

- **Option 2:** Extend the voluntary private use of the two OIE-validated antibody tests (IDEXX and Enferplex) to certain non-breakdown situations in which private IFN-γ testing may already be authorised. This would include rapid re-testing of inconclusive reactors to the skin test (IRs) in OTF herds, as well as resolved IRs subjected to life-long movement restrictions in OTF herds.

- **Option 3:** Widen the statutory use of government-funded antibody testing in some types of infected herds (those with persistent and/or recurrent bTB breakdowns).

5. **We would welcome views on these options and their potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

    - The potential benefits and risks with these options.
    - The practical deliverability of the options outlined.
    - Factors that are potentially missing from the options.
    - The most appropriate combinations of options.
    - Implications for your business or those that you support (if applicable).

Section four: Tighter control of cattle movements following the short interval test that restores a herd's OTF status

We are currently considering an option to require a further test for cattle moved out of herds that have recently come out of long-term TB restrictions.

6. **We would welcome views on this option and its potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

    - The potential benefits and risks with this option.
    - The practical deliverability of this option.
    - Factors that are potentially missing from the option.
    - Implications for your business or those that you support (if applicable).

Section five: differentiation of compensation based on herd owners' implementation of basic ("no regrets") bovine TB biosecurity measures

We are currently considering an option to differentiate compensation payments based on herd owners' implementation of basic ("no regrets") bovine TB biosecurity measures.

7. **We would welcome views on this option and its potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

    - The potential benefits and risks with this option.
    - The practical deliverability of this option.
    - Factors that are potentially missing from the option.
    - Implications for your business or those that you support (if applicable).

Section six: Herd Health Plans for persistent TB breakdown herds

We are currently considering requiring owners of persistent breakdown herds who wish to source new stock to develop a bTB-specific herd health plan with their private vet.

8. **We would welcome views on this option and its potential impact. Please include any information or evidence you feel could be relevant to inform our assessment and decisions.** If possible, can you please consider:

    - The potential benefits and risks with this option.
    - The practical deliverability of this option.
    - Factors that are potentially missing from the option.
    - Implications for your business or those that you support (if applicable).

Annex A - Spread of bTB via cattle movements

Why the problem occurs

Movement of cattle underpins the economics of the UK cattle sector.

There were just over 2.7 million cattle movements within Great Britain in 2019, excluding movements to a slaughterhouse, directly and indirectly (which would not spread the disease). There were 63,000 fewer movements than in 2018[11]. Cattle move for a variety of reasons including specialised rearing, fattening and breeding and to shows.

Approximately 45% of cattle are traded by direct purchase between farms, with the rest bought through markets. Live auctions bring together hundreds of cattle from a wide regional catchment on a single day. The geographic direction of cattle movements is generally from the west of England to the east. One reason for this is that crops for cattle feed are better grown in the east and it is cheaper to transport beef cattle for fattening to the feed once rather than continuously moving large volumes of feed to the animals.

While cattle are moved between the three different bTB risk areas in England, some 75% of cattle movements in 2019 were intra-risk area (87% within LRA; 80% within HRA; 64% within Edge). Cattle are also moved into England from other parts of GB. In 2019, around 140,000 cattle moved from Wales to England and 63,000 cattle moved from Scotland to England. Smaller numbers of cattle (40,000 in 2017) are imported annually to England from further afield (e.g. Northern Ireland and other European countries)[12].

Despite existing measures in place to reduce the risk of spread of bTB through movement of cattle between OTF herds, we know that the problem continues to occur. This is principally because these measures are based on bTB testing and no bTB test is 100% sensitive (i.e. there will always be a risk of false negatives – failing to detect infected animals).

The scale of the problem

APHA's Bovine tuberculosis in England in 2019 – Epidemiological analysis of the 2019 data and historical trends report[13] indicates that 278 of 1,844 (17%) bTB herd incidents starting in 2019 and investigated, were likely to be the direct result of introduction of infection via cattle movements. Unsurprisingly, such cases comprised the highest proportion in the Low Risk Area where wildlife play a much-reduced role in spread of the disease. However, the Low Risk Area accounted for the lowest number of such cases.

[11] APHA (2020) Bovine TB epidemiology and surveillance in Great Britain, 2019
https://www.gov.uk/government/publications/bovine-tb-epidemiology-and-surveillance-in-great-britain-2019
[12] Cattle Health and Welfare Group (2018) Cattle Health and Welfare Report 2018
https://projectblue.blob.core.windows.net/media/Default/Beef%20&%20Lamb/CHAWG/CHAWG-Fourth-Report-2018.pdf

[13] APHA (2020) Bovine TB epidemiology and surveillance in Great Britain, 2019
www.gov.uk/government/publications/bovine-tb-epidemiology-and-surveillance-in-great-britain-2019

- HRA = 10.9% of 1,147 investigations (125 new herd incidents)
- Edge = 20.6% of 559 investigations (115 new herd incidents)
- LRA = 37.6% of 138 investigations (52 new herd incidents)

These figures may underestimate the role that cattle movements play in spreading infection, as they exclude new incidents resulting from infection in contiguous herds, which may have been introduced via cattle movements. These figures also exclude new incidents for which no cause was identified.

How we mitigate the problem

The government's bTB surveillance programme aims to detect infection in OTF herds as quickly as possible. The programme includes regular herd testing (more frequent in higher risk areas and herds), mandatory pre- and post-movement testing, tracing tests[14], tests of herds located in the proximity of infected herds, and routine post-mortem meat inspection of cattle slaughtered for human consumption.

Once infection is detected, a herd loses its OTF status and is placed under movement restrictions until it has completed the required number of herd tests with negative results. The sensitivity of tests used in non-OTF herds and the criteria for re-instating OTF status determine the risk of leaving undetected infection in the herd when restrictions are lifted. However, as above, no bTB test is 100% sensitive so there will always be a risk of false negative results.

That is why availability of information on the relative bTB risk of OTF herds and acting upon it are vital for responsible cattle movements.

Action we are already taking

The government has been focussing on four key areas to limit the bTB risk of movements between OTF herds:

a. More sensitive surveillance to detect bTB early

Six-monthly surveillance testing of cattle herds in the HRA.

b. Wider deployment of post-movement testing

Consulting on extending compulsory post-movement testing to the annual testing parts of the Edge Area.

c. Improved provision of bTB risk information to prospective purchasers

i) Enhancements to ibTB.
ii) Development of LIS.
(iii) Seeking views on mandatory vendor provision of information

d. Encouraging the establishment of more safe outlets for cattle from more risky herds

i) Working with industry to support establishment of more housed AFUs and LFUs.

[14] BTB tests on animals moved from herds subsequently found to be infected with bTB

APHA herd bTB risk scores

APHA creates herd-specific bTB risk scores for all OTF herds. The higher the risk score the greater the probably of a herd having a bTB breakdown in the next 12 months. Herd risk scores range from the lowest bTB risk of 1 to the highest bTB risk of 5.

The score is estimated from two factors: the time since the last bTB breakdown on the holding and whether or not animals have been introduced into the herd from highest risk herds in the past five years.

The table below explains how the risk scores are calculated.

	Number of years since last bTB breakdown			
	Over 10 years	6-10 years	3-5 years	0-2 years
Not introduced animals from a Risk Score 5 herd in the last three years	Risk Score 1	Risk Score 2	Risk Score 3	Risk Score 4
Introduced animals from a Risk Score 5 herd in the last three years	Risk Score 2	Risk Score 3	Risk Score 4	Risk Score 5

Livestock Information Service

Livestock Information Ltd is a subsidiary of The Agriculture and Horticulture Development Board (AHDB). Livestock Information Ltd is working collaboratively with industry and Government to develop a world-leading multi-species livestock information service. Defra is funding the statutory elements of the Livestock Information Service, while AHDB will manage the creation of new value-adding products which will drive wider benefits for the meat and livestock sector.

Socio-economic research

The Godfray review highlighted the importance of socio-economic research in this area, for example to gain a better understanding of the regulatory and economic drivers of trading, how farmers make economic choices regarding cattle purchasing, and how decisions that promote disease control can be incentivised.

The government has commissioned two pieces of social research which are in progress:

- The first (ZF0532[15]) aims to improve understanding of the cattle purchase decision-making process and the likely effectiveness of a range of potential policies to reduce bTB risk.

[15] ZF0532 - Decision-making research into farmers' cattle purchasing behaviour, investigating the current role of TB risk assessment in purchase decisions and appraising future ways to increase the importance of such risk assessment

- The second (ZF0533[16]) is looking at how the presentation of bTB risk information at the point of sale may affect farmers' purchasing practices.

The government is also undertaking analysis to estimate the riskiness of cattle movements and the regulatory, economic and behavioural drivers for them. The objective is to develop the evidence base for making decisions on future policy interventions.

The government will consider the outputs of these studies when developing any firm policy proposals for future consultation.

Examples of approaches elsewhere in the world

Mandatory sharing of information relating to animal-level bTB risk

In Ireland, electronic information is available at livestock markets via the Animal Identification and Movement database. It is a legal requirement that the date of the most recent tuberculin test is displayed on an electronic screen when an animal is presented for sale at market.

Reference: Animal Health and Welfare (Livestock Marts) Regulations 2018 (S.I. No. 128 of 2018)

In August 2020, the Irish Department of Agriculture, Food and the Marine announced[17] that it would shortly be providing personalised Herd Test History Statements and Reports to cattle farmers to help them to reduce the risk of bTB in their herds

Reference:
www.gov.ie/pdf/?file=https://assets.gov.ie/94071/373396f9-d287-46de-a3c0-0daec967a473.pdf#page=1

www.gov.ie/pdf/?file=https://assets.gov.ie/94073/1b150193-1794-4e28-ab60-7304dddd79f3.pdf#page=1

Risk-based scoring of herds with voluntary decisions on trading

New Zealand has operated a voluntary scheme whereby cattle herds are classified according to their bTB status. For example, a herd with a status C6 has been clear of bovine TB for six years. A herd's status can change to suspended due to receiving stock from an infected herd. bTB status is employed extensively by New Zealand farmers, though its use and interpretation are influenced by local conditions and the degree to which farmers feel empowered to affect their risks of infection.
Reference: Enticott, G. (2016) Market instruments, biosecurity and place-based understandings of animal disease. Journal of Rural Studies Volume 45, June 2016, Pages 312-319

[16] ZF0533 - Behavioural insights research into how the presentation of bovine bTB risk information at the point of purchase can affect farmers' purchasing practices

[17] Department of Agriculture, Food and the Marine (2020) Department to provide farmers with Bovine TB Herd History Risk Statement and Report
www.gov.ie/en/press-release/65d3e-department-to-provide-farmers-with-bovine-tb-herd-history-risk-statement-and-report/

Risk-based scoring of herds underpinning regulation of movements

Australia operated a statutory scheme from 1970 to 1997. The Australian scheme coupled herd BTB risk classification with banning the movement of cattle from high risk farms/zones to low risk farms/zones.

References:

Cousins, D.V., 2001. *Mycobacterium bovis* infection and control in domestic livestock. Rev. Sci. Tech. (Int. Off. Epizootics) 20, 71–85.

More, S.J., Radunz, B., Glanville, R.J., 2015. Lessons learned during the successful eradication of bovine tuberculosis from Australia. Vet. Rec. 177, 224e232.

Annex B: Framework for TB-specific herd health plans for persistent TB breakdowns

The proposed herd health plan would help cattle keepers and their vets identify specific risk factors for persistence of TB infection in the herd and try to reduce them as far as possible. The ultimate aims are to:

- Eliminate TB infection from the herd so that it can regain its officially TB free (OTF) status;
- Reduce the potential for the herd to spread TB to other cattle herds and to local wildlife; and
- Reduce the likelihood of the herd suffering a repeat breakdown.

We propose that the bTB-specific herd health plan should include:

1. **Background information about the keeper's farm business and cattle herd**

2. **Biosecurity risk assessment and management plan (based on the Five Point Plan).** The keeper considers the most likely TB risks to their herd and with their vet, develops control strategies to manage these risks. Biosecurity measures should be farm-specific, practical and proportionate to the disease risk.

3. **Isolation and management of TB reactor and inconclusive reactor (IR) cattle.** The keeper describes their current policy for isolation and management of reactors and IRs and considers with their vet (with reference to the supplied best practice guidance) whether additional measures need to be put in place to reduce the risk of transmission of TB from reactors and IRs to other animals in the herd.

4. **Specific risk factors for persistence of TB infection in the herd and how these can be addressed**. The keeper and their vet review a list of potential risk factors for persistence of TB infection to assess whether they apply to the herd. They consider what can be done to address the risks that apply and develop recommended actions and a plan for implementation.

5. **Contingency planning**. The keeper and their vet consider how they can reduce the impact of movement restrictions and other consequences of the TB breakdown, as well as how to reduce the likelihood of a repeat breakdown once OTF status is restored.

Glossary

APHA	Animal and Plant Health Agency
BCG	Bacillus Calmette–Guérin
bTB	Bovine Tuberculosis
CHeCS	Cattle Health Certification Standards
Defra	Department for Environment, Food and Rural Affairs
DIVA	**D**ifferentiate **I**nfected from **V**accinated **A**nimals
EU	European Union
GB	Great Britain
HRA	High Risk Area (England)
IFN-y	Interferon gamma test
IR	Inconclusive reactor
LIS	Livestock Information Service
LRA	Low Risk Area (England)
M.bovis	Mycobacterium bovis
OIE	World Organisation for Animal Health
OTF	Officially TB-Free
OTF-W	Officially TB-Free Withdrawn
RDPE	Rural Development Programme for England
SICCT	Single intradermal comparative cervical tuberculin test
SIT	Short interval test
TB	Tuberculosis
TBAS	TB Advisory Service
UK	United Kingdom
VMD	Veterinary Medicines Directorate