

Eradication: Final report for Bovine Tuberculosis 2018

For each approved annual or multi-annual programme Member States shall submit to the Commission by the 30 April each year an annual detailed technical and financial report covering the previous year. That report shall include the results achieved and a detailed account of eligible costs incurred (Art 14 of Regulation (EU) No 652/2014).

This form is for information only, no submission possible.

ID: 20190401-F5Z54DPB

Country code: UK

Reporting period

From: 2018

To: 2021

Year of implementation: 2018

1. Technical implementation of the programme

1.1 Description and evaluation of the evolution of the epidemiological situation, the technical implementation of the activities foreseen under the programme and the cost-effectiveness of the programme.

Introduction

1. Official bovine TB (bTB) statistics for Great Britain (i.e. England, Scotland and Wales) are collated from the Animal and Plant Health Agency (APHA) database ('Sam') and published by Defra on a monthly basis. The publication of those statistics takes place between two and three months in arrears to allow for relevant data entry in the field offices, as well as completion of post mortem and laboratory analyses on slaughtered animals. Therefore, the disease statistics presented here for the calendar year 2018 are still provisional and may be subject to minor adjustments in the future. Statistics for Northern Ireland are collated from the Department of Agriculture, Environment and Rural Affairs (DAERA) database and published monthly on the DAERA website. Supporting graphs and maps for England, Wales and Northern Ireland have been provided in a separately in Section 1.3 (attachment 1).

2. Unless otherwise stated, data derived from bTB surveillance and control activities in Scotland have not been included in this report because Scotland remains an OTF region of the UK and it was not included in the UK co-financed bTB eradication programme for 2018. Every year the Scottish Government submits to the Commission a separate summary of annual bTB statistics for Scotland, in accordance with Article 8 of Directive 64/432/EEC.

3. The March 2019 release of the National Statistics for TB in cattle in Great Britain, covering the 12-month period ending 31st December 2018, has been used for the compilation of this summary. A full set of the latest bTB statistics for GB is available from the various links in the following webpage:

<https://www.gov.uk/government/collections/bovine-tb>

and the official year-end statistics for GB in 2018 are available here:

<https://www.gov.uk/government/statistics/incidence-of-tuberculosis-tb-in-cattle-in-great-britain>

4. In order to provide up to date information to cattle farmers and private veterinarians on the geographic distribution of bTB breakdowns, Defra launched a new publicly available web-based interactive mapping tool at the end of June 2015 (www.ibTB.co.uk). This displays the location of cattle holdings in England and Wales affected by TB breakdowns (i.e. positive herds), both current ones and those resolved in the previous five years.

5. The information available on ibTB is supplemented with the publication by APHA of detailed field epidemiological reports of bTB in the Low Risk and Edge Areas of England, every six and 12 months respectively:

<https://www.gov.uk/government/collections/bovine-tb-surveillance-in-great-britain>

Current epidemiological situation in England

6. Since 2013, for bTB epidemiological, surveillance and eradication purposes, England has been divided into a Low Risk Area (LRA) and a High Risk Area (HRA). These two zones are separated by a 'buffer' zone known as the Edge Area. The LRA comprises the majority of counties in the North and East of England (54% of England's land mass) and approximately 20,600 cattle herds at the beginning of the year, with a default TB testing interval of four years. There is no evidence of a widespread reservoir of endemic *Mycobacterium bovis* (*M. bovis*) infection in wildlife (badgers) in the LRA. The majority of TB breakdowns (positive herds) in that area occur sporadically as a result of introductions of infected cattle from higher incidence regions of England and Wales and are normally quickly resolved without secondary spread within the LRA. The HRA, by contrast, is the annual testing area of England comprising the South West and the West Midlands (27% of the land mass and 20,612 herds in total at the beginning of 2018), in which *M. bovis* infection is endemic in cattle herds and in badger populations (the main wildlife reservoir of the disease). Of all new TB breakdowns (new positive herds) detected in England in 2018, 76% involved cattle herds in the HRA. The Edge Area is a region of low to moderate herd incidence situated between the LRA and HRA, which is at risk of spread of endemic bTB from the HRA. It covers 19% of England's land mass and contained 9,141 cattle herds at the beginning of 2018, which are routinely tested for TB every six or every 12 months depending on their location. The map (Figure 5) in Appendix 1 (Section 1.3 - Epidemiological maps for infection and other relevant data on the disease/activities) shows the zoning of England into bTB risk and control areas.

7. In England overall, the headline herd incidence rate and herd prevalence of bTB decreased during 2018 compared with 2017. National statistics show that, compared with 2017, the herd incidence rate in England in 2018 decreased from 11.0 to 9.4 new herd breakdowns per 100 herd-years at risk. The herd prevalence also declined in England, although not as markedly, from 6.3% to 6.1% (Appendix 1, Table 2). These improvements reflect a 6% annual drop in the number of new positive herds and herds not OTF at the end of the year due to a TB incident across England compared with 2017. The greater percentage drops in positive herd numbers, herd incidence and prevalence were recorded in the HRA of England. There were minor fluctuations in the LRA, where the epidemiological indicators continued to reflect a very low and sporadic frequency of infection. At least half of the OTFW breakdowns (i.e. positive herds with visible lesion reactors and/or culture-positive animals) in the LRA were clearly attributable to inward movements (translocation) of infected cattle from the higher incidence areas of GB. By contrast, in the Edge Area the herd incidence inched up marginally, whereas the numbers of new positive herds and herd prevalence at the end of 2018 continued on an upward trend.

8. The longer-term trends indicate that, in England overall, both the herd incidence rate and the herd prevalence have levelled off since 2012, reversing the historical increasing trend that began in the late 1980s and early 1990s (Appendix 1, Figures 3 and 4). This was mainly driven by an improving disease situation in the HRA, where the majority of TB breakdowns (positive herds) lie, and the overall gains were partly offset by a still worsening picture in the Edge Area.

9. The epidemiological situation in England at the end of 2018 could be summarised as follows:

- The number of cattle herds registered in England fell from 50,445 at the end of 2017 to 49,230 at the end of Dec 2018, continuing the long-term trend towards fewer (but generally larger) herds.
- The number of tests on OTF herds in 2018 was 50,848 (61,698 in all herds), compared to 48,108 (59,706 in all herds) in 2017.
- The total number of new positive herds (bTB herd breakdowns) detected in 2018 was 3,608 (of which 2,289 resulted in OTF herd status being withdrawn), compared to the 3,826 new breakdowns (2,617 with

OTFW status) in January to April 2017. This represented a drop of 6% in the total number of new positive herds (13% drop in OTFW cases) detected in England in 2018 relative to the previous year. Between the same two years the number of new positive herds dropped by 283 (-9%) in the HRA, but in the Edge Area there were 61 (9%) more breakdowns. The number of new positive cases detected in the LRA increased by 4 (3%) in 2018 compared to 2017, from very low levels whereas the number and incidence rate of OTFW breakdowns nearly halved in 2018.

- At the end of 2018 there were 2,979 herds in England with OTF status suspended or withdrawn (i.e. under movement restrictions) due to an ongoing bTB breakdown, compared with 3,153 at the end of April 2017. This means that herd point prevalence declined marginally from 6.3 to 6.1% at the end of 2018 compared to the end of 2017. Herd point prevalence was highest in the HRA at 11.6% (down from 12.7% at the end of 2017) and lowest in the LRA at 0.3% at the end of 2018 (unchanged from the end of 2017).

- The total number of TB tests performed in animals (cattle) in 2018 was 7,806,109 million, which represents a 3.4% increase compared to the equivalent figure for 2017 of 7,550,254 million tests.

- During 2018, APHA removed 32,923 cattle for bTB control purposes from positive (breakdown) herds in England, compared to 33,238 in 2017. The vast majority of such animals (32,206 and 32,416, respectively) were reactors to the tuberculin skin test and/or interferon gamma blood test positive animals (the remainder were inconclusive and negative-testing animals removed as direct contacts from positive herds with OTF status withdrawn). Animal-level incidence declined from 4.3 test reactors identified for every 1,000 tests carried out on animals in 2017 to 4.1 reactors per 1,000 tests in 2018. This small reduction reversed the increasing trend in reactor numbers and animal-level incidence that had taken place in the previous three years.

- Finally, the number of suspect cases of bTB initially identified during routine post-mortem meat inspection of cattle at commercial slaughter (slaughterhouse cases) in 2018 was 1,102 (of which 582 were bacteriologically confirmed as *Mycobacterium bovis* infections), compared to 980 (535) in 2017. The marked reduction in the number of slaughterhouse cases that began in the second half of 2015 appeared to level off in 2018. Between 2010 and 2015 the annual number of bacteriologically confirmed slaughterhouse cases had fluctuated between 900 and 1100. The steady decline in the number of tuberculous cattle detected during routine slaughter seems consistent with an enhanced sensitivity of the on-farm TB testing regime. This has been achieved through mandatory deployment of the supplementary IFN-gamma test in all OTFW breakdowns in the LRA and Edge Area, wider use of the IFN-gamma test in the HRA, adoption since April 2016 of a more rigorous TB herd testing regime to restore OTF status in all herds sustaining a TB breakdown in the HRA, and a more rigorous training, accreditation and audit scheme for TB testers (official veterinarians) introduced in 2013.

10. Overall the TB descriptive statistics for 2018 for England point to a stabilisation of the herd incidence rate and herd prevalence of bTB over the last seven years. The tighter TB testing regimes and control measures for cattle herds introduced since 2010 initially resulted in the detection of more positive herds and animals. This increasing trend peaked between 2011 and 2015 and continued in 2018 in the Edge Area, which registered its highest annual incidence, prevalence and number of new positive herds ever recorded. However, in 2018 we saw the lowest number of new positive (and OTFW) herds (breakdowns) since 2009 in England and since 2006 in the HRA. It is hoped that the reductions that took place in 2018 will continue in future years with the gradual rollout of licensed badger control across the HRA and in parts of the Edge Area of England.

11. In 2018, the following programme enhancements were implemented in England:

- Rollout of licensed badger culling operations to nine new areas of endemic high bTB incidence in the HRA and one in the Edge Area, bringing to 40% the total land surface of the HRA under badger TB control operations. Badger culling was also licensed for the first time in the LRA, to supplement additional TB controls in cattle in a defined section of East Cumbria where endemic *M. bovis* infection was identified in badgers in 2017.

- The Edge Area boundaries were re-defined, so that the counties of Cheshire, Derbyshire, East Sussex, Oxfordshire and Warwickshire (formerly straddling the High Risk and Edge Areas) were fully incorporated into the Edge Area from 1st January 2018.

<http://www.tbhub.co.uk/tb-policy/england/expansion-of-the-edge-area-in-england-and-new-cattle-testing-arrangements/>

- We increased the sensitivity of routine surveillance testing of herds in the Edge Area by: (a) replacing annual herd testing with six-monthly herd testing in the higher incidence sections of the Edge Area (western counties or part-counties adjoining the HRA), and (b) supplementing annual surveillance testing with radial testing of herds located within 3km of a new OTFW breakdown in the rest of the Edge Area. These changes came into effect from 1st January 2018 (see map in Figure 1 at Appendix 1).

<http://www.tbhub.co.uk/tb-policy/england/expansion-of-the-edge-area-in-england-and-new-cattle-testing-arrangements/>

<https://www.gov.uk/guidance/bovine-tb-testing-intervals-2018>

- New round of applications for badger vaccination projects in the Edge Area supported by government under its Badger Edge Vaccination Scheme.

- Cuts in compensation payments for some animals compulsorily slaughtered for bTB control:
 - o 50% reduction in compensation for cattle that cannot be processed for human consumption at a slaughterhouse because of a dirty hide; and
 - o 50% reduction for cattle moved (under licence) into a positive herd that are later removed as test reactors or direct contacts before that herd regains OTF status.
 - A change to facilitate private slaughter of cattle removed for TB control purposes. Defra now pays full compensation for test reactors that are privately slaughtered by the keeper, if the carcass is totally condemned by the official veterinarian in the slaughterhouse due to TB.
 - Entry into force of The Tuberculosis (Non-bovine animals) Slaughter and Compensation (England) Order 2017 on 2nd Jan 2018. This new legal instrument set out revised amounts of compensation payable to owners of affected deer and camelids and introducing for the first time specific rates of statutory compensation for other non-bovine farmed species (pigs, sheep and goats) that can be subject to compulsory slaughter for TB control purposes.
- <http://www.legislation.gov.uk/uksi/2017/1254/contents/made>

Current epidemiological situation in Wales

12. The number of new bovine TB herd breakdowns in Wales peaked during 2008 and 2009. Subsequently, there were substantial decreases in 2010, 2013 and 2016, with periods of relative stability in between each of these decreases. The number of new TB incidents in 2016 was the lowest annual figure recorded since 2004. There was a decrease of 5.7% in the number of new TB incidents in 2018. The trajectory over this period is, however, far from stable, with short-term fluctuations, up and down. It is also important to note that apparent short-term increases in incidence may be at least partly attributable to intensified surveillance. Indeed, there is a long-term upward trend in TB testing.

13. The number of new breakdowns varies greatly from month to month; this variation is due to a variety of reasons including the seasonal aspect of TB testing, since more testing takes place during the winter than during the summer, the impact of unusual weather and the number of test reading days in a month. Consequently, care should be taken not to read too much into changes in the figures over short periods of time. The latest figures for Wales show that in 2018:

- There were 744 new bTB breakdowns detected (of which 407 resulted in withdrawal of OTF status due to confirmation of disease), compared with 789 in 2017 (433 OTFW due to confirmation). There are circumstances where OTFW status is applied to herds in Wales due to epidemiological reasons, without confirmation via post mortem examination or bacteriological culture. Such OTFW breakdowns are not included in these statistics.
- 15,910 tests were carried out on OTF herds, compared with 15,564 in the previous year. A further 2,396 tests were carried out on non-OTF herds, compared with 2,289 in 2017.
- 975 cattle herds were under movement restrictions at the end of December 2018 due to a bTB incident or overdue test, representing 8.2% of all herds in Wales. At the end of December 2017 914 herds were under restrictions (7.6% of all herds).
- 11,234 animals were slaughtered due to bTB control, compared with 10,036 in 2017. The increase in animals slaughtered in recent years is largely attributable to increased use of high-sensitivity testing. For example, gamma-testing, removal of Inconclusive Reactors (IRs) and severe interpretation of the skin test have all been used with the intention of clearing up infection and reducing the risk of the disease spreading and breakdown recurring.
- There were 150 suspect cases of bTB initially identified during routine post-mortem meat inspection in abattoirs ('slaughterhouse cases') (of which 78 were subsequently confirmed via bacteriological culture). This compares with 109 slaughterhouse cases (56 confirmed) in 2017.
- Herd incidence (the number of new bTB incidents per 100 herd years at risk) was 7.5, compared with 7.8 in 2017.

Current epidemiological situation in Northern Ireland

14. Official bovine TB (bTB) statistics for N Ireland are published monthly and are available online at <https://www.daera-ni.gov.uk/articles/tuberculosis-statistics-northern-ireland>. The Tuberculosis Disease Statistics in Northern Ireland - December 2018 document covers 2018, with the exception of disease confirmation figures which are lagged by 4 months.

15. In Northern Ireland approximately 22,700 herds were tuberculin skin tested in 2018 (1.74 million cattle). Herd incidence was relatively level from 2007 to 2010 followed by a sustained rise during 2011-2012, peaking at 7.46% in October 2012. Herd incidence then steadily declined to a low of 5.95% in September 2014, followed by another rise, which was particularly steep throughout 2017, peaking at 9.73% in November 2017 before falling to a low of 9.22% in December 2018.

16. Changes in annual animal incidence show a similar trend, steadily increasing during 2011-12 to a high of 0.674% in November 2012, followed by a decrease to a low of 0.502% in March 2014 and then a rise throughout 2015-6. Throughout 2017 animal incidence increased more steeply in line with the sharp rise seen in herd incidence, reaching a peak of 0.920% in November 2017, before falling to a low of 0.879% in December 2018.

17. In terms of programme application, annual herd testing and animal testing in 2018 remained at close to

100% and abattoir surveillance of cattle slaughtered for human consumption remained at 100%. Compared to 2017, the number of tuberculin skin tests increased by 4.3% to 3.28 million however the number of skin test reactors decreased by 3.9% to 15,329 (15,949 in 2017). There were 2,088 herd breakdowns, a 5.4% decrease compared to 2017 (2,208).

18. 1,826 animals were found with TB-like lesions at routine slaughter (0.41% of animals slaughtered). 1,095 of these (59.97%) were confirmed as TB by histology and/or bacteriology. This compares with 1,703 animals found with TB-like lesions at routine slaughter in 2017 (0.40% of animals slaughtered) of which 1,074 (63.07%) were confirmed. 370 new TB breakdowns were triggered by an animal found with TB-like lesions at routine slaughter which was subsequently confirmed by histology and/or bacteriology, compared to 409 new TB breakdowns in 2017. Figures exclude animals imported for direct slaughter.

19. 23,454 animals were Interferon-gamma tested, a 5% increase compared to 2017 (22,256). 625 non skin test positive animals were removed as a result of a positive Interferon-gamma test result, a 7.7% decrease compared to 2017 (677). This lower number of animals removed as Interferon-gamma positive is likely to be mainly due to more strict interpretation of parallel skin tests.

20. Significant programme changes were introduced in March 2018 to detect infected animals at an earlier stage: the threshold for Officially Tuberculosis Free Withdrawn (OTW) status was reduced from more than 5 non-visibly lesioned reactors to more than 1 non-visibly lesioned reactor, meaning more breakdown herds are now subject to enhanced disease controls including forward and backward tracing, assessment of risk to local herds and use of severe interpretation; the definition of positive at 'severe interpretation' was altered to now include all animals which are inconclusive at standard interpretation, and it is now a mandatory requirement to remove any animal which is a 'severe interpretation' reactor at all OTW tests; Veterinary Officers are now required to review previous skin test results in all new OTW herds and compulsorily remove any animal which was inconclusive at standard interpretation at a breakdown test (where TB had been confirmed at slaughter and /or laboratory, or more than 1 reactor during breakdown) within the past 3 years; and OTW herds now require an additional 6 monthly test following de-restriction.

21. The new measures listed above were anticipated to increase reactor numbers in the short-term, however reactor numbers were 3.9% lower in 2018. DAERA believe this demonstrates that progress has been made to overcome the spike in reactor numbers and disease incidence which were seen in 2017.

22. The new TB Testing Services Contract, which commenced in 2016 has reduced cost per animal tested by Approved Veterinary Surgeons by 11.2% compared to the previous arrangement. The largest cost remains compensation. DAERA is currently considering replies to the public consultation on the Department's response to the TB Strategic Partnership Group's Strategy, which includes options to reduce compensation costs.

1.2 Details on the level of achievement of the targets set in the approved programme and technical difficulties.

1. The combined targets for England, Wales and NI in 2018 set out in Section 7.1.2.1 of the final approved bTB programme for the UK were a prevalence of 10.98% and incidence of 7.34% which equated to: 7517 positive herds and 5026 new positive herds. A 'positive herd' was a herd of cattle, bison or buffalo under movement restrictions due to a TB breakdown (i.e. the identification of one or more tuberculin skin test reactors, or laboratory-confirmed slaughterhouse cases), which results in the suspension or withdrawal of OTF herd status.

2. The actual (observed) figures for the UK for 2018 were 10,359 positive herds and 6,440 new positive herds, resulting in a period herd prevalence of 15.46% and a herd incidence of 109.61%.

3. This programme covers three countries of the UK with different epidemiological situations and slightly different approaches to bTB eradication (regarding in particular the management of the reservoir of infection in badgers). Therefore, it is necessary to set out the evolution of the programme and its technical difficulties separately for each country.

England

4. The targets implied by the 2018 UK eradication plan were 4,786 positive herds in England during 2017 resulting in period prevalence of 14.23% positive herds, along with 3,039 new cases (9% herd incidence). The actual number of herds affected was 6,215 (30% above target) and there were 3,608 new incidents (19% above target). Prevalence was 18.6% and incidence was 10.7%. The table 3 at appendix 1 displays the equivalent figures for each of the three bTB risk areas of England.

5. The number of non-OTF herds in the revised HRA was 4908 with 2760 new incidents compared to 5086 affected in 2017 and 3043 new incidents (a decrease in 178 in herds affected and 283 in new herd incidents). This resulted in a period herd prevalence of 27.2% which is 0.5 percentage points lower than 2017 where it was 27.7%. In 2018 herd incidence was 15.3% which is 1.2 percentage points lower than 2017 at 16.5%.

6. The number of non-OTF herds in the expanded Edge Area was 1,120 with 719 new incidents compared to 978 affected in 2017 and 658 new incidents. An increase in 142 in herds affected (14.5%) and 61 (9.3%) in new herd incidents. This resulted in a period herd prevalence of 14.2% which is 2.1 percentage points higher than 2017 where it was 12.1%. In 2018 herd incidence was 9.1% which is 0.9 percentage points higher than 2017 at 8.2%.

7. The number and proportion of herds affected by bTB and the numbers of cattle slaughtered for bTB

control purposes in England are still very high by the standards of most EU Member States and by comparison with the situation in the UK in the 1970s and early 1980s, when the disease only persisted in small pockets in the Southwest of England. However, as set out in section 1.1 the epidemiological situation is not uniform across the country.

8. National bTB statistics available online (<https://www.gov.uk/government/statistics/incidence-of-tuberculosis-tb-in-cattle-in-great-britain>) show that the herd incidence of bTB in England and the herd prevalence decreased in 2018 compared with 2017. This is the case for England as a whole and for the High Risk Area (HRA) in particular.

9. Bovine TB herd incidence and prevalence remained at very low and stable levels in the Low Risk Area (LRA) in 2018. Herd prevalence and the incidence of herds with OTFW breakdowns in the LRA are comparable to those of Scotland. In 2018, even though the total number of tests on animals increased by 10% on 2017, there were only 4 more new breakdowns (3%) in the LRA (129 cf. 125 in 2017) and 7 more herds (12%) had their OTF status suspended or withdrawn at the end of the year due to a TB breakdown (66 cf. 59 herds). The number of new herd breakdowns with OTF status withdrawn due to test reactors with visible lesions or culture-positive animals dropped from 50 in 2017 to 34 in 2018. Of those new OTFW breakdowns detected in the LRA last year, 14 have provisionally been attributed to inward movements of infected cattle from the higher incidence areas of England and Wales ('imported' or 'non-indigenous' cases). The very low and stable frequency of indigenous bTB breakdowns observed in the LRA for the last 20 years supports the case for retaining the background four-yearly herd testing frequency for most herds in that part of England

10. The revised Edge Area has experienced a steady rise in bTB incidence and prevalence and this continued in 2018 with 61 more new breakdowns detected compared with the previous year (719 cf. 658 respectively) and 84 more herds had their OTF status suspended or withdrawn at the end of the year compared with 2017 (569 cf. 485). The majority of such breakdowns occurred in the parts of the Edge Area closest to the HRA (see the map in Figure 5 of section 1.3). This increase is not unexpected given the rollout in recent years of more sensitive surveillance and breakdown testing regimes as part of the Edge Area strategy – starting in January 2013 with blanket annual herd testing, followed since January 2014 by a more robust skin testing regime in all breakdown herds and supplementary interferon-gamma blood testing in all herds with OTF status withdrawn. In January 2015, we replaced annual surveillance (and radial) herd testing with six-monthly surveillance testing of all herds in the Edge Area of Cheshire. Nevertheless, we believe that the more intensive herd testing regime applied since 2013 in this area will have a positive impact and contribute to reduce the number of total and OTFW new breakdowns in the medium term. As detailed in section 1.1, bTB surveillance and controls were further strengthened on 1st January 2018 by (a) fully incorporating into the Edge Area five counties that hitherto straddled the HRA and Edge Area and (b) replacing annual testing with six-monthly herd testing in some counties of the Edge Area (and supplementing annual testing with radial surveillance in the rest of the area).

11. The Strategy for achieving OTF status for England published in April 2014 envisages a gradual, integrated and flexible approach to bTB eradication, which includes some disease control measures applicable throughout England and more specific controls tailored to each of the epidemiological risk areas of the country. In the TB Strategy we also highlight the importance of mitigating the risks from all TB transmission routes (i.e. from both cattle and badgers) within the HRA and Edge Area. An independent review of the Strategy took place in 2018, the Government is considering the Review recommendations carefully and a formal response will be published in due course. (<https://www.gov.uk/government/publications/a-strategy-for-achieving-bovine-tuberculosis-free-status-for-england-2018-review>)

12. The TB Strategy envisages the rollout of farmer-led badger culling into new areas of the HRA and in parts of the Edge Area with endemic *M. bovis* infection in badgers. In 2018 there was continued expansion of licensed badger culling, with 10 new areas in Cornwall, Devon, Gloucestershire, Somerset, & Staffordshire completing their first season of licensed culling while badger culling continued in the 21 existing areas.

All thirty-one areas carried out effective culls as assessed by Natural England's Chief Scientific Officer and the CVO. These areas currently cover 39% of the high risk area and new cull areas are expected to be licensed in 2019 and future years as the policy is taken up across most of the HRA and parts of the Edge Area. The initial cull areas are starting to see the benefits of reduced disease in cattle over their four-year cull period, with the number of new cattle breakdowns with OTF herd status withdrawn dropping by around 50%. In Area 1, the incidence rate has dropped from 24% to 12% in the twelve months following its fourth year of culling. Similar results were observed in Area 2, which dropped from 10.4% to 5.6%. A full analysis of the data, similar to that of Brunton et al. in 2017 is underway and will be published in due course.

13. In 2018 the badger control policy was amended to enable culling in the LRA in the unlikely event that TB-infected badgers are linked with cattle herd breakdowns in that part of England. Currently the only such area is in East Cumbria, where the aim of culling is to prevent disease spread within the wildlife and aid eradication of disease from the local area. Applying lessons learnt from the HRA an appropriate level of targeted effort and sett coverage across the cull area was applied and the CVO concluded that a successful first year cull was achieved. Results from the surveillance of culled badgers in East Cumbria, where 20% of badgers in the inner Minimum Infected Area were culture positive for *M. bovis*, will inform decisions on control interventions for this area for 2019. Even so, to achieve OTF status for the whole of England by

2038 we will continue to look for opportunities to further enhance TB cattle controls in the HRA and Edge Area to maintain, complement and reinforce the benefits we expect to see from our badger control policy.

Wales

14. The measures set out in the 2018 UK TB Eradication Plan for implementation in Wales were aimed at getting ahead of the disease, stopping it spreading, clearing up infection quickly and keeping herds and wider areas (such as north Wales) free of disease. Success in these objectives will result in sustained reductions in the incidence and prevalence of the disease, leading towards eradication. These indicators are unpredictable and may be influenced by a variety of factors. The unpredictable nature of the disease makes it difficult to reliably forecast even relatively short-term changes in TB indicators.

15. The Welsh Government recognises that TB eradication is a long term objective. In 2017 the TB eradication programme in Wales was regionalised, with 5 new TB areas established to reflect current and historical disease levels. A national eradication target was announced along with interim milestones for each of the TB areas. If they are achieved Wales will be Officially TB Free (OTF) by 2041.

16. The targets implied by the 2018 UK eradication plan were 1,084 positive herds in Wales during 2018, with 660 new cases, resulting in a period prevalence of 9.9% and an incidence rate of 6.0%. The actual number of herds affected was 1,338 (23% above target) and there were 744 new incidents (13% above target). Prevalence was 12.5% and incidence was 6.9%.

17. Looking at the figures over a longer term, between 2012 and 2018 Wales saw an 18.5% decrease in bovine TB herd prevalence and a 28.2% decrease in herd incidence.

18. These reductions are due to a net fall of 33% in the number of new TB incidents. Since the trend is not linear over the period, it is important to consider short-term changes in the context of long-term trends. Indeed, the trend observed in Wales since 2008 is punctuated by periods of instability and even short-term increases. Despite this, there is a clear long-term downward trajectory.

19. In 2017, Wales was regionalised in respect of TB eradication and in terms of the statistics. 5 TB Areas based on incidence were created: High TB Area East, High TB Area West, Intermediate TB Area North, Intermediate TB Area Mid and Low TB Area.

20. The number of herds affected in the High TB Area East was 471 with 250 new incidents compared to 459 affected in 2017 and 299 new incidents. This resulted in a period prevalence of 18.1% which is 0.5 percentage points higher than 2017 where it was 17.6%. In 2018 incidence was 9.6% which is 1.9 percentage points lower than 2017 at 11.5%.

21. The number of herds affected in the High TB Area West was 619 with 333 new incidents compared to 598 affected in 2017 and 331 new incidents. This resulted in a period prevalence of 20.8% which is 1.3 percentage points higher than 2017 where it was 19.5%. In 2018 incidence was 11.2% which is 0.4 percentage points higher than 2017 at 10.8%.

22. The number of herds affected in the Intermediate TB Area Mid was 96 with 60 new incidents compared to 103 affected in 2017 and 68 new incidents. This resulted in a period prevalence of 5.2% which is 0.3 percentage points lower than 2017 where it was 5.5%. In 2018 incidence was 3.2% which is 0.4 percentage points lower than 2017 at 3.6%.

23. The number of herds affected in the Intermediate TB Area North Area was 102 with 67 new incidents compared to 91 affected in 2017 and 63 new incidents. This resulted in a period prevalence of 12.0% which is 1.4 percentage points higher than 2017 where it was 10.6%. In 2018 incidence was 7.9% which is 0.5 percentage points higher than 2017 at 7.3%.

24. The number of herds affected in the Low TB Area was 50 with 34 new incidents compared to 43 affected in 2017 and 28 new incidents. This resulted in a period prevalence of 2.0% which is 0.3 percentage points higher than 2017 where it was 1.7%. In 2018 incidence was 1.4% which is 0.3 percentage points higher than 2017 at 1.1%.

25. Regional differences in bovine TB are presented on the Bovine TB Dashboard <https://gov.wales/bovine-tb-dashboard>

26. Although the data indicate that surveillance and control measures are combining over the long term to bear down on bovine TB in Wales, it is not possible to isolate the impact of individual policy interventions on the prevalence or incidence of the disease. It is likely that the observed trends are the result of a combination of policy measures implemented over time. A range of enhanced measures were introduced as part of the refreshed TB Eradication Programme in 2017 but it may not be possible to detect the impact of those new policies for some time after implementation.

27. However, we do know that for some time there has been a substantial increase in the number of animals slaughtered for TB control. This is primarily due to policy changes to increase test sensitivity, which will help clear up infection and reduce the risk of disease spreading and breakdowns recurring. For example, increases in gamma-testing, use of severe interpretation of skin test results and removal of Inconclusive Reactors in chronic breakdown herds. We believe that investing in identifying disease early will reap rewards in the medium term, preventing spread both within and between herds.

28. The key measures introduced in 2017 (and continued in 2018) were:

- Bespoke action plans implemented for persistent breakdown herds, aimed at clearing up infection
- Implementation of the regional approach to TB eradication, enabling a tailored approach to disease eradication based on the disease drivers in each area.
- Implementation of enhanced contiguous testing around OTFW breakdowns in the Intermediate TB Area

North in response to a spike in new TB incidents.

- Post-movement testing for cattle moved into the Low TB area to help prevent incursion of disease
- Euthanasia of badgers which test positive for M. bovis in certain persistent TB breakdowns where badgers are contributing to disease persistence.

- Introduction of a cap on compensation for animals slaughtered for TB eradication

*Prevalence = number of herds positive at any time during the year divided by number of herds actually tested during the year

**Incidence = number of new herd incidents divided by number of herds tested during the year

Northern Ireland

29. Annual herd incidence was 9.22% in December 2018, a decrease from 9.61% in December 2017 and above the expected herd incidence of 5.56% previously predicted for Northern Ireland in the EU approved UK TB Eradication Programme. Herd prevalence of 12.39% in December 2018 was similar to December 2017 and above the expected herd prevalence of 6.90%. Animal prevalence was 0.879% in December 2018, an increase from 0.911% in December 2017.

30. Programme application has been maintained, with decreased herd level disclosure at live animal surveillance in 2018. Due to a four month lag time to allow completion of laboratory testing, final figures for disease confirmation during 2018 are not finalised at the time of writing. Latest figures show there was a similar number of confirmed herds in the 12 months to the end of September 2018 (2,381 herds), compared to the previous 12 months (2,398 herds). The number of animals with confirmed bTB decreased by 6.4% to 7,396 in the 12 months to the end of September 2018 from 7,904 in the previous 12 months.

31. In summary, modest decreases in herd and animal incidence, and a small decrease in the number of reactor herds and reactor animals were seen in 2018, despite an increase in animal tests. The number of animals with confirmed disease rose slightly as did the number of TB like lesions at routine slaughter.

32. DAERA believe that the programme changes introduced since 2016 are resulting in infected animals being detected at an earlier stage and this is starting to show a positive return in disease levels: considerable effort has been made to improve TB testing standards since the introduction of the new TB Testing Services Contract in 2016; sensitivity of testing has been increased through the new measures introduced in March 2018; and improvements in post mortem surveillance (an action point from the 2016 FVO Audit Report) have also resulted in better detection of infection at slaughter.

33. In the 2018 TB Eradication Plan submitted by the UK, DAERA's aim is the progressive reduction in levels of bTB with the ultimate long term aim of eradication. To give strategic direction on how to reduce both the level and cost of bTB by the greatest degree in the shortest time DAERA consulted on its response to the TB Strategic Partnership Group (TBSPG) Strategy to Eradicate TB in Northern Ireland.

34. The TBSPG Strategy was published in December 2016 and contained 38 recommendations under 7 thematic headings taking a holistic approach to disease eradication. The recommendations were presented as an integrated package of interdependent measures and DAERA indicated its intention to accept the Strategic recommendations in its consultation, which closed in February 2018 with 200 responses received. A full summary of the consultation responses is available at <https://www.daera-ni.gov.uk/publications/summary-responses-consultation-eradicate-bovine-tb-northern-ireland> .

35. Furthermore, in advance of the consultation, and cognisant of the ongoing absence of a Minister, aside from the additional programme measures agreed in 2017 and introduced in March 2018, the Department moved forward with the establishment of the TB Eradication Partnership in May 2018. An independent group established to advise the Department and a future Minister on the strategic direction of the eradication programme.

36. DAERA's Business Plan for 2018/19 includes the target to publish the Minister's response to TBSPG's Strategy and in the DAERA Veterinary Service Animal Health Group 2018/19 Business Plan the priority and objective for bTB control is to implement relevant TBSPG recommendations within timescales agreed by the Minister and contribute to the implementation of other TBSPG recommendations as required.

37. Implementation of the Departments proposals within its consultation has been constrained due to the continued absence of a Northern Ireland Executive however, the Department is continuing to finalise advice, following consultation and engagement with TBEP to present to a new Minister once in post, for decisions on a way forward.

38. As detailed in Section 1.1, enhanced disease controls which could be implemented in the absence of a Minister have been introduced in response to the steep increase in herd and animal incidence seen in 2017. Other measures advanced during 2018 include; the completion of Reactor Quality Assurance pilot, which is currently being analysed to inform future policy; an annual Biosecurity questionnaire for all herds by Approved Veterinary Surgeons under the TB Testing Services Contract; and wildlife sett surveys in 2 high TB incidence areas to help inform future Ministerial advice. In addition, a research project was commissioned to investigate optimisation of the test format for the interferon gamma assay. The project in particular, is to look at the impact of an extended time period for blood submission to the laboratory, and the impact of the skin test on subsequent IFN γ tests.

1.3 Epidemiological maps for infection and other relevant data on the disease/activities (information on serotypes involved,...) (Please attach files of data using the PDF attachment feature) Use the textbox below to provide clarifications for the maps you attach, if needed.

1.4 Additional epidemiological information (on epidemiological inquiries, abortions, lesions found in abattoir, human cases, etc...)

n/a

2. TECHNICAL IMPLEMENTATION ON RUMINANT DISEASES PROGRAMMES

VERY IMPORTANT: Please fill out the following tables with figures corresponding to measures performed during the implementing period (1/1 to 31/12).

Table A - DATA ON HERDS

Region	Animal species	Total number of herds	Total number of herds under the programme	Number of herds to be checked under the programme this year	Number of herds checked	Number of positive herds	Number of new positive herds	Number of herds depopulated
		% of positive herds depopulated	% of herds coverage		% of positive herds Period herd prevalence		% of positive herds Herd incidence	
England	Cattle and Buffalo	49,230	49,230	33,622	33,622	6,215	3,608	12
		0.19 %	100 %		18.48 %		10.73 %	
Wales	Cattle and Buffalo	11,952	11,952	10,739	10,739	1,338	744	3
		0.22 %	100 %		12.46 %		6.93 %	
Northern Ireland	Cattle	23,550	23,550	23,550	22,656	2,806	2,088	30
		1.07 %	96.2 %		12.39 %		9.22 %	
Total		84,732	84,732	67,911	67,017	10,359	6,440	45
		0.43 %	98.68 %		15.46 %		9.61 %	

Table B - DATA ON ANIMALS

Region	Animal species	Total number of animals	Number of animals under the programme	Number of animals to be tested under the programme this year	Number of animals tested	Number of animals tested individually	Number of positive animals	Number of animals with positive result slaughtered or culled	Number of animals slaughtered
		% coverage at animals level				% positive animals Animal Prevalence			
England	Cattle and Buffalo	5,372,241	5,372,241	4,305,261	4,305,261	4,305,261	32,206	32,206	32,923
		100 %				0.75 %			
Wales	Cattle and Buffalo	1,221,563	1,221,563	1,221,563	1,221,563	1,221,563	8,329	8,329	11,234
		100 %				0.68 %			
Northern Ireland	Cattle and Buffalo	1,744,432	1,744,432	1,744,432	1,744,432	1,744,432	16,468	16,468	16,959
		100 %				0.94 %			
Total		8,338,236	8,338,236	7,271,256	7,271,256	7,271,256	57,003	57,003	61,116
		100 %				0.78 %			

Table C - DATA ON VACCINATION PROGRAMMES

Region	Animal species	Total number of herds	Total number of animals	Number of herds in vaccination programme this year	Number of herds vaccinated	Number of animals vaccinated	Number of doses of vaccine administered	Number of adults vaccinated	Number of young animals vaccinated	Number of animals with primary vaccination (initial+ booster)
Wales	Badger	0	0	0	0	271	271	0	0	0
Total		0	0	0	0	271	271	0	0	0

Table D - DATA ON STATUS OF HERDS AT THE END OF THE PERIOD

Region	Animal species	Total	Unknown	Not free or not officially	Free of	Free from	Officially
--------	----------------	-------	---------	----------------------------	---------	-----------	------------

			number of herds and animals under the programme		free from disease		officially free-disease status suspended/withdrawn	disease	free from disease
					Last check positive	Last check negative			
herds	England	Cattle and Buffalo	49,230	0	1,997	0	1,999	0	45,234
animals	"	"	5,327,241	0	604,717	0	353,700	0	4,413,824
herds	Wales	Cattle and Buffalo	11,952	0	621	0	404	0	10,927
animals	"	"	1,221,563	0	166,732	0	52,303	0	1,002,528
herds	Northern Ireland	Cattle	23,550	0	1,188	848	1,169	0	20,345
animals	"	"	1,744,432	0	147,292	162,709	92,718	0	1,196,340
Total - herds			84,732	0	3,806	848	3,572	0	76,506
Total - animals			8,293,236	0	918,741	162,709	498,721	0	6,612,692

Table E - SUSPENSION/WITHDRAWAL OF THE FREE OR OFFICIALLY FREE STATUS

Region	Animal species	Status	Reason	Number of herds
Wales	Cattle and Buffalo	suspended	the disease is suspected	683
Wales	Cattle and Buffalo	suspended	other overdue test or individual animal restriction	292
Northern Ireland	Cattle	suspended	the disease is suspected	202
Northern Ireland	Cattle	suspended	other overdue test or individual animal restriction	967
Northern Ireland	Cattle	withdrawn	the disease is suspected	1,638
Northern Ireland	Cattle	withdrawn	other overdue test or individual animal restriction	398
England	Cattle and Buffalo	suspended	the disease is suspected	2,979
England	Cattle and Buffalo	suspended	other overdue test or individual animal restriction	1,377
Total				8,536

Table F - STRATIFIED DATA ON SURVEILLANCE AND LABORATORY TESTS

Region	Animal species	Test type	Number of samples	Number of tests	Number of positive tests
Wales	Cattle and Buffalo	Tuberculin test	1,842,222	1,842,222	6,873
Wales	Cattle and Buffalo	Gamma-interferon test	42,500	42,500	2,066
Wales	Cattle	Bacteriological test	4,128	4,128	1,062
Wales	Cattle	PCR test	1,073	1,073	1,071
Northern Ireland	Cattle	Tuberculin test	3,244,837	3,244,837	15,329
Northern Ireland	Cattle	Gamma-interferon test	23,470	23,470	1,139
Northern Ireland	Cattle	Bacteriological test	3,863	3,863	1,103
England	Cattle and Buffalo	Tuberculin test	6,962,403	6,962,403	22,148
England	Cattle and Buffalo	Gamma-interferon test	197,463	197,463	9,614
England	Cattle and Buffalo	Bacteriological test	8,479	8,479	5,744
England	Cattle and Buffalo	PCR test	5,131	5,131	5,128
Total			12,335,569	12,335,569	71,277
			Methods of laboratory analysis	Total number of tests	
			Total - Bacteriological test	16,470	
			Total - Gamma-interferon test	263,433	
			Total - PCR test	6,204	
			Total - Tuberculin test	12,049,462	

COMMENT / ADDITIONAL CLARIFICATION

