Department for Environment Food & Rural Affairs

Quarterly publication of National Statistics on the incidence and prevalence of tuberculosis (TB) in Cattle in Great Britain – to end **December 2019**

These statistics were released on Wednesday **11 March 2020**.
The next quarterly notice is to be updated on Wednesday **17 June 2020**.
The underlying monthly datasets will next be updated on Wednesday **15 April 2020**.

Key points

- In England overall, the headline herd incidence rate for the 12 months to end 2019 remained at the same level as in 2018. The herd prevalence rate decreased in 2019 compared with 2018 (Table 1 and Figure 2). There is a continuation of the divergent trend in High Risk Area (HRA) and Edge with HRA incidence decreasing and Edge incidence increasing.
- In Scotland, which has had officially TB-free (OTF) status since 2009, and in the Low Risk Area of England (LRA), herd incidence and herd prevalence remain very low and stable.
- In Wales herd incidence and herd prevalence decreased in 2019 relative to 2018.
- Total animals slaughtered due to a TB incident in England in 2019 decreased 6% on the previous year to 31,102. In Wales the number slaughtered was 12,256, an increase of 9% (Table 3).

Table 1: Herd incidence and herd prevalence

	Herd incidence: New herd incidents per 100 herd years at risk		**Herd prevalence:** Disease restricted herds as a percentage of registered herds	
	12 months to end Dec 18	12 months to end Dec 19	12 months to end Dec 18	12 months to end Dec 19
England	9.4	9.4	6.0	5.3
High risk area	18.5	16.9	11.5	10.1
Edge area	9.2	10.3	6.4	5.5
Low risk area	0.8	1.1	0.3	0.3
Scotland	0.7	0.6	0.1	0.2
Wales	7.5	6.9	5.7	5.6
High West	12.7	12.4	10.9	11.0
High East	10.9	9.3	7.3	6.4
Intermediate North	8.5	6.1	5.8	5.9
Intermediate Mid	3.4	4.4	2.1	2.6
Low	1.4	1.0	0.7	0.7

Short term changes in these statistics should be considered in the context of long term trends. The charts in this statistical notice give the latest indication of how trends in bovine TB have changed since 1996.

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The headline measure of **Herd incidence** is the rate of new herd incidents per 100 herd years at risk. The rate is based around the total amount of time that herds tested were unrestricted and at risk of infection since the end of their last TB incident or negative herd test, rather than the total number of tests carried out on those herds. The rate in the Edge Area of England was 10.3 in 2019, which means for every 100 unrestricted herds undergoing bTB surveillance in that period APHA detected on average 10.3 new breakdowns. A document describing the herd years at risk measure is available on the internet.

Herd prevalence - the percentage of all registered herds which were not Officially TB Free (OTF) due to a TB incident at end of December 2019 compared to the end of December 2018 (Table 1) decreased in both the Edge area and HRA leading to an overall drop at England level. Prevalence in the Edge area (5.5%) remains above the England overall figure (5.3%). In Wales overall herd prevalence has decreased slightly.

The number of new TB herd incidents in 2019 compared to 2018:

- decreased by 9% in England overall, driven largely by a reduction in the HRA of 258 new herd incidents.
- decreased in Wales by 11% to 665 (Table 2).

Table 2: New herd incidents and non-OTF herds

	New herd incidents			Herds not officially TB free at the end of the period due to a bovine TB incident (**non-OTF herds**)		
	12 months to end Dec 18	12 months to end Dec 19	Year-on-year change	12 months to end Dec 18	12 months to end Dec 19	Year-on-year change
England	3,612	3,297	-9%	2,966	2,596	-12%
High risk area	2,763	2,505	-9%	2,331	2,043	-12%
Edge area	719	641	-11%	568	487	-14%
Low risk area	130	151	16%	67	66	-1%
Scotland	37	33	-11%	18	23	28%
Wales	745	665	-11%	683	657	-4%
High West	334	311	-7%	355	351	-1%
High East	250	211	-16%	209	180	-14%
Intermediate North	67	45	-33%	55	54	-2%
Intermediate Mid	60	75	25%	44	53	20%
Low	34	23	-32%	20	19	-5%

In Scotland the number of non-OTF herds is very low and approximately 57% of cattle herds are now exempt from routine TB surveillance testing. In Scotland and the LRA, there are proportionately more false positive results to the tuberculin skin test than elsewhere in GB. For example see articles in the Veterinary Record veterinaryrecord.bmj.com/content/vetrec/177/10/258.summary.pdf and veterinaryrecord.bmj.com/content/177/10/258 Consequently it is also important to consider the number of new herd TB incidents where officially TB free (OTF) status is withdrawn (OTFW) following confirmation of TB by post-mortem examination or laboratory culture of tissue samples.

Table 2a: OTFW new herd incidents and OTFW herd incidence

	New herd incidents where OTF status is withdrawn (OTFW)			New herd incidents OTFW per 100 herd years at risk	
	12 months to end Dec 18	12 months to end Dec19	Year-on-year change	12 months to end Dec 18	12 months to end Dec 19
England	2,326	2,001	-14%	6.1	5.7
High risk area	1,880	1,599	-15%	12.7	10.9
Edge area	411	367	-11%	5.2	5.9
Low risk area	35	35	0%	0.2	0.3
Scotland	9	15	67%	0.2	0.3
Wales	424	363	-14%	6.7	6.2
High West	191	165	-14%	11.8	11.3
High East	158	141	-11%	10.1	8.6
Intermediate North	32	15	-53%	7.4	5.1
Intermediate Mid	30	31	3%	2.7	3.4
Low	13	11	-15%	0.9	0.8

In Wales, some TB incidents have OTF status withdrawn for epidemiological reasons only, in the absence of post-mortem confirmation. These are included in the time at risk measure in Table 2a, but for technical reasons, it is currently not possible to include them in the raw count of OTFW incidents.

In the low risk area of England:

- during 2019 there were 35 OTFW incidents. This is the same number as in 2018. The OTFW herd incidence rate per 100 herd-years at risk has increased slightly to 0.3.

In Scotland:

- there were 15 OTFW incidents in 2019 compared with 9 in 2018.
- the OTFW herd incidence rate of breakdowns per 100 herd-years at risk was 0.3 in 2019, a slight increase on the 2018 rate.

In the Low TB area of Wales:

- there were 11 OTFW incidents in 2019, and 13 in 2018.
- the OTFW herd incidence rate of breakdowns per 100 herd-years at risk was 0.8 in 2019, a slight decrease from 0.9 in 2018.

Table 3: Total animals slaughtered*

	12 months to end Dec 18	12 months to end Dec 19	Year-on-year change
England	32,925	31,102	-6%
High risk area	24,601	23,054	-6%
Edge area	7,602	7,299	-4%
Low risk area	722	749	4%
Scotland	498	199	-60%
Wales	11,231	12,256	9%
High West	7,514	8,268	10%
High East	2,206	2,004	-9%
Intermediate North	692	1,173	70%
Intermediate Mid	588	628	7%
Low	231	183	-21%

* Includes test reactors, direct contacts and inconclusive reactors (reported for Wales only since April 2017).

There is a year on year 6% decrease in the number of cattle slaughtered due to a TB incident in England overall. This is driven by a decrease of 1,547 in the High Risk Area while the Edge area sees a decrease of 303.

In Wales overall there was an increase of 9% in the number of animals slaughtered in 2019 compared to 2018. This is driven by an increase of 754 in the High West region and an increase of 481 in the Intermediate North region. An analysis of the increase in animals slaughtered between October 2018 and June 2019 in Wales is available.

Notes on the data:

These statistics are obtained from the Animal and Plant Health Agency (APHA) work management IT support system (SAM), used for the administration of TB testing in GB. They are a snapshot of the position on the date on which the data was extracted. These statistics may be subject to small revisions until all test results are available. In particular, figures for the previous two calendar years and the current year will be subject to further revision as test and incident records are completed. Detailed guidance on how these measures are calculated is available.

Data for Northern Ireland is not presented alongside the GB figures and is not produced on a comparable basis.

Headline data from 1996 onwards is available to download for GB countries, Wales TB areas and England risk areas.

This statistical notice and a wide range of other statistics are available on the internet

"England Bovine Tuberculosis (TB) Quarterly Overview" and "Great Britain Bovine Tuberculosis (TB) Quarterly Overview" are available to download as visual representations of four key measures.

An interactive dashboard has been introduced to provide online interrogation of the statistics.

List of figures

List of tables

Herd incidence

Figure 1: New herd incidents per 100 herd years at risk of infection during the year - GB, per quarter

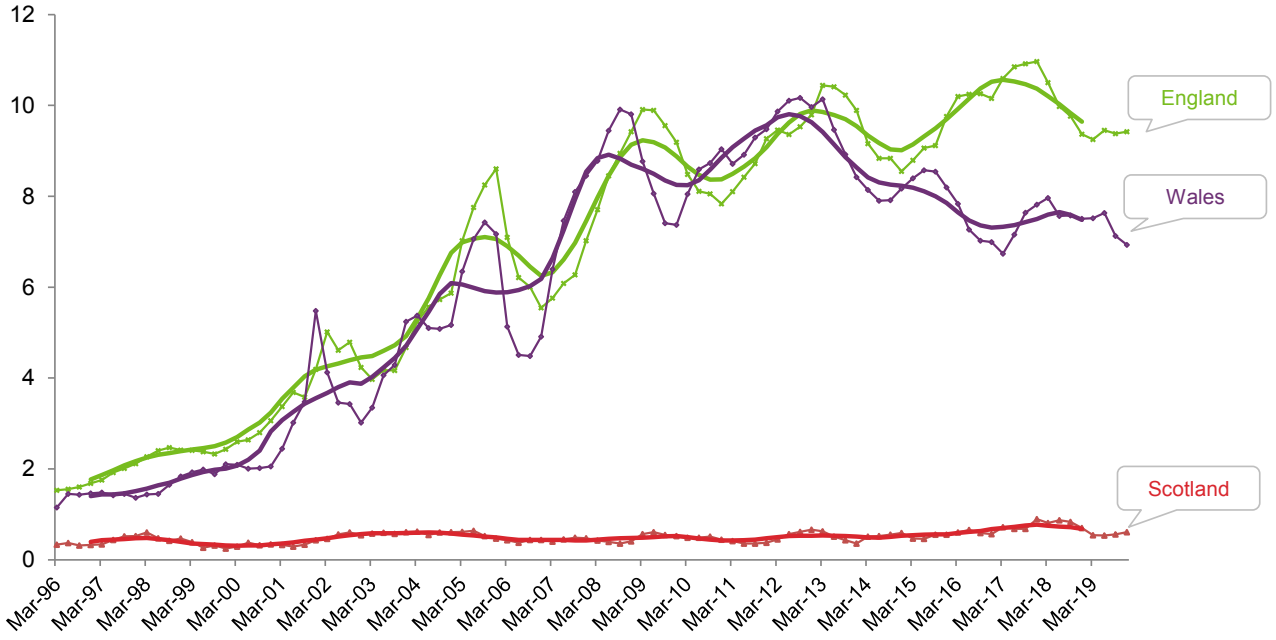
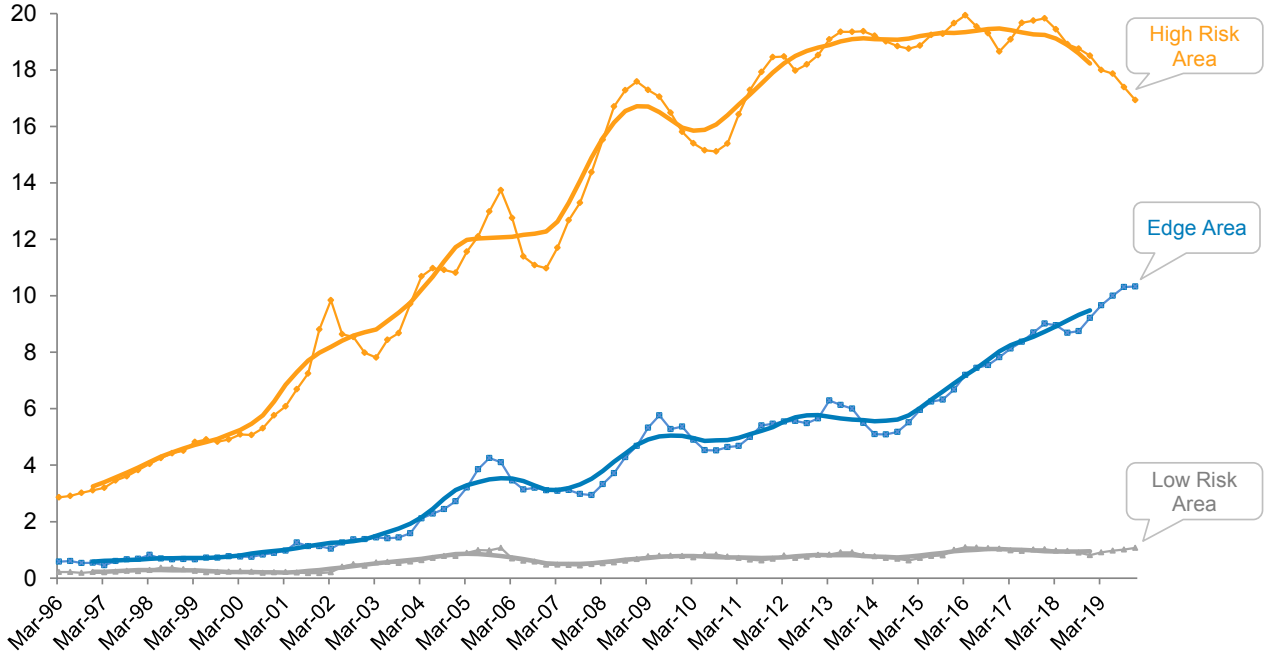


Figure 2: New herd incidents per 100 herd years at risk of infection during the year – England, per quarter



Bold lines represent 24 month centred rolling averages.

Figure 2a: New herd incidents per 100 herd years at risk of infection during the year – Wales, per quarter

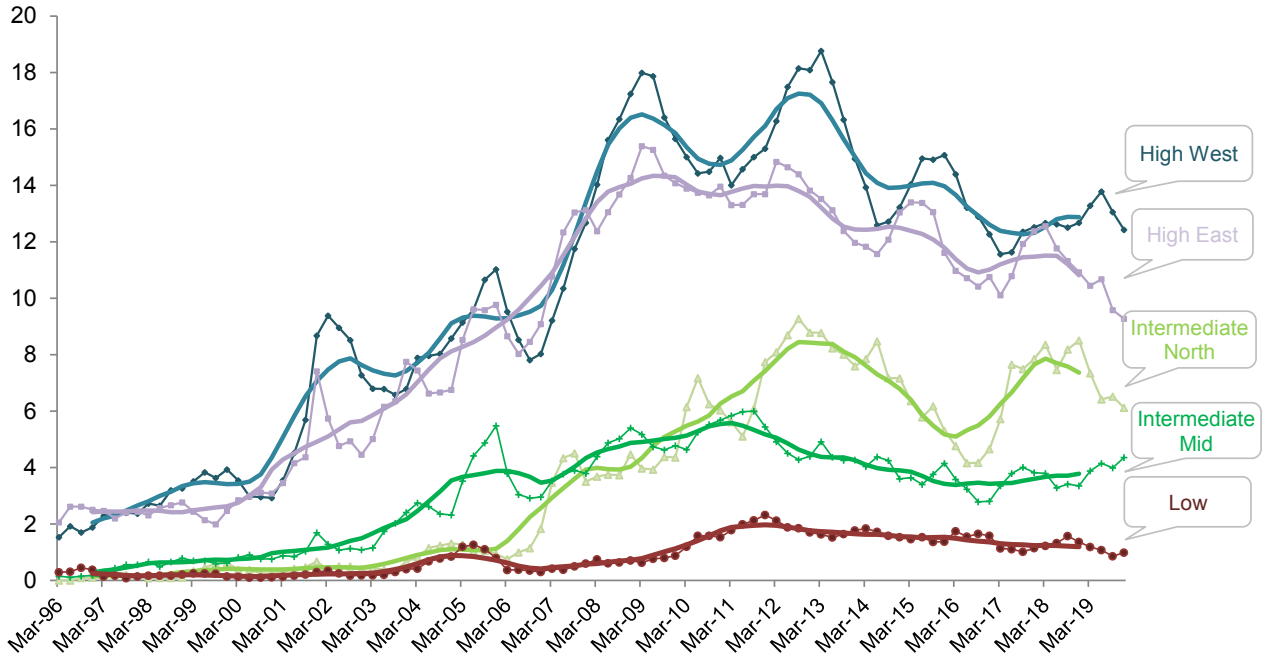
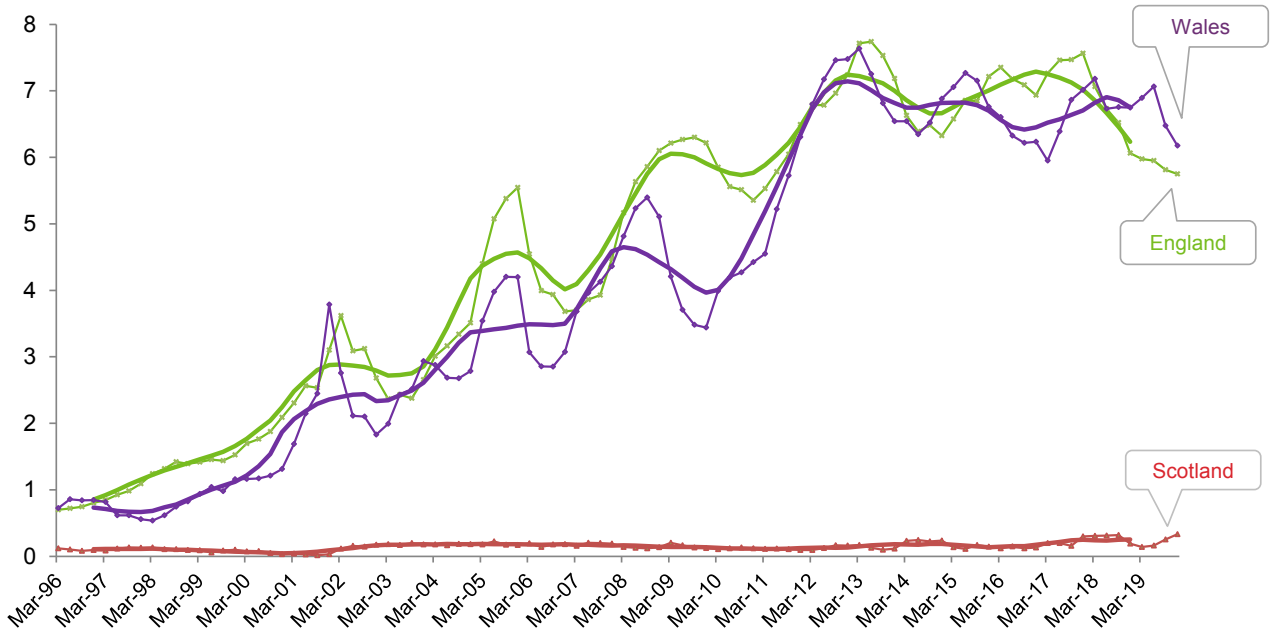


Figure 3: New herd incidents with officially TB-free status withdrawn (OTFW) per 100 herd years at risk of infection during the year – GB, per quarter



Bold lines represent 24 month centred rolling averages.

NOTE: from 2011, the figures presented above for OTF-W incidents per 100 herd years at risk in Wales are not directly comparable to England or Scotland. This is due to the inclusion of some incidents in Wales that have their OTF status withdrawn for epidemiological reasons only, in the absence of post-mortem confirmation. The figures presented here are not comparable with those for Wales in the spreadsheet downloads.

Figure 4: New herd incidents with officially TB-free status withdrawn (OTFW) per 100 herd years at risk of infection during the year – England, per quarter

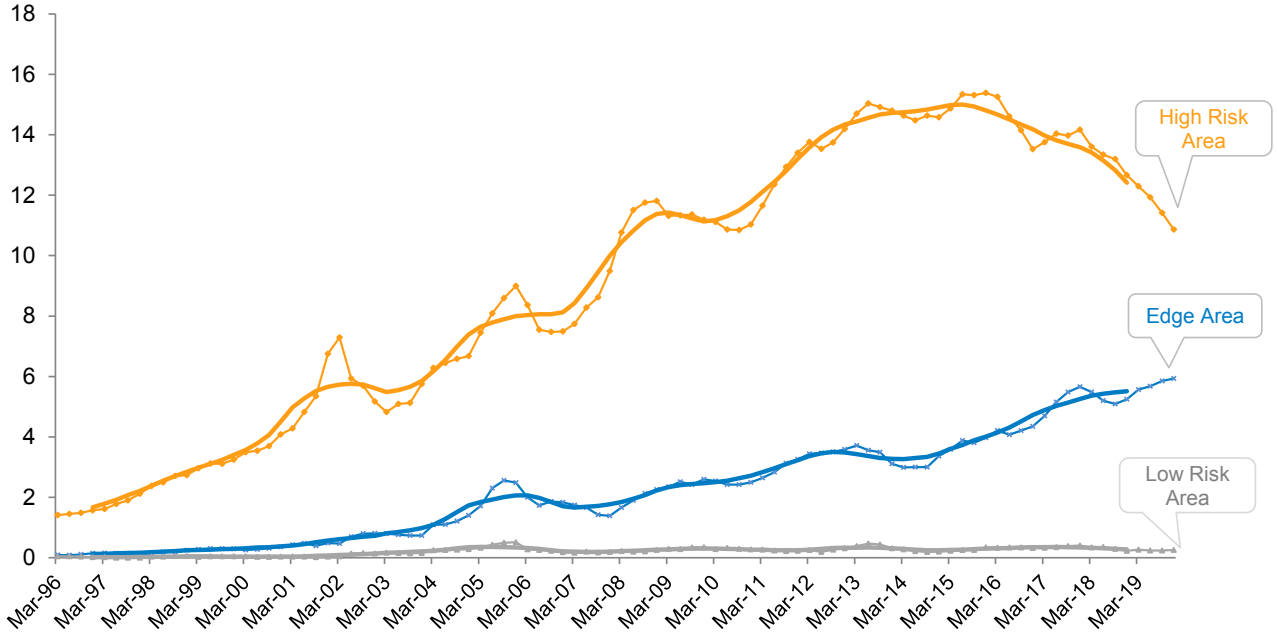
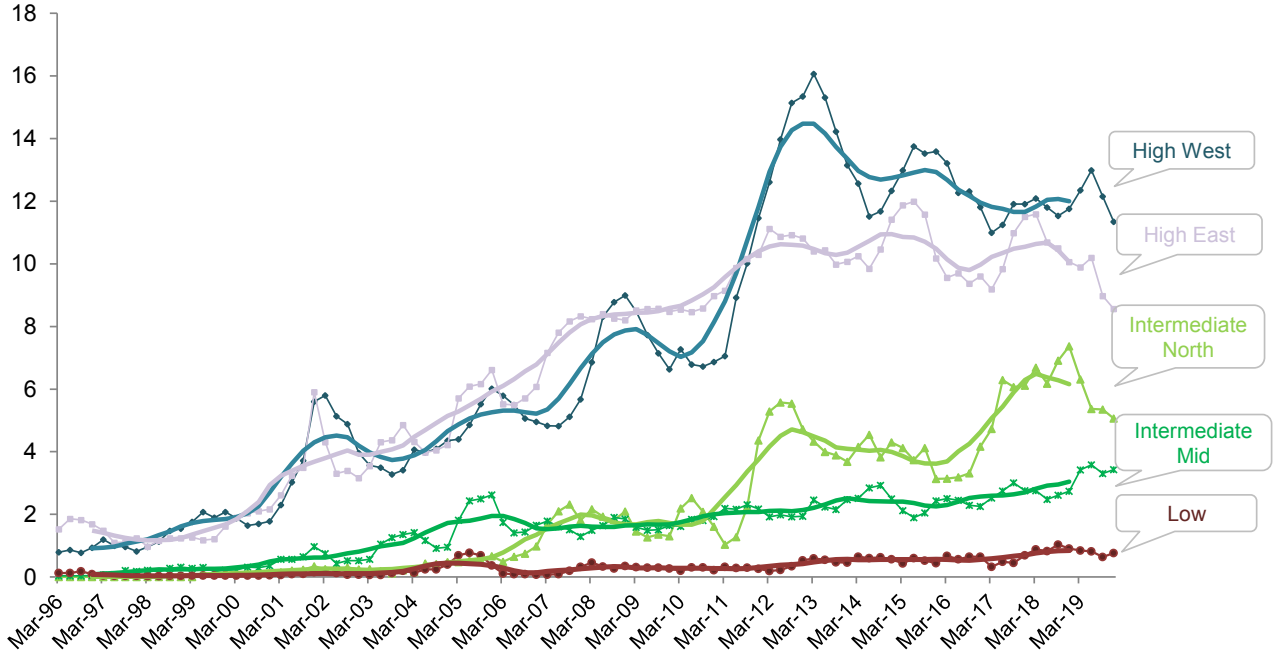


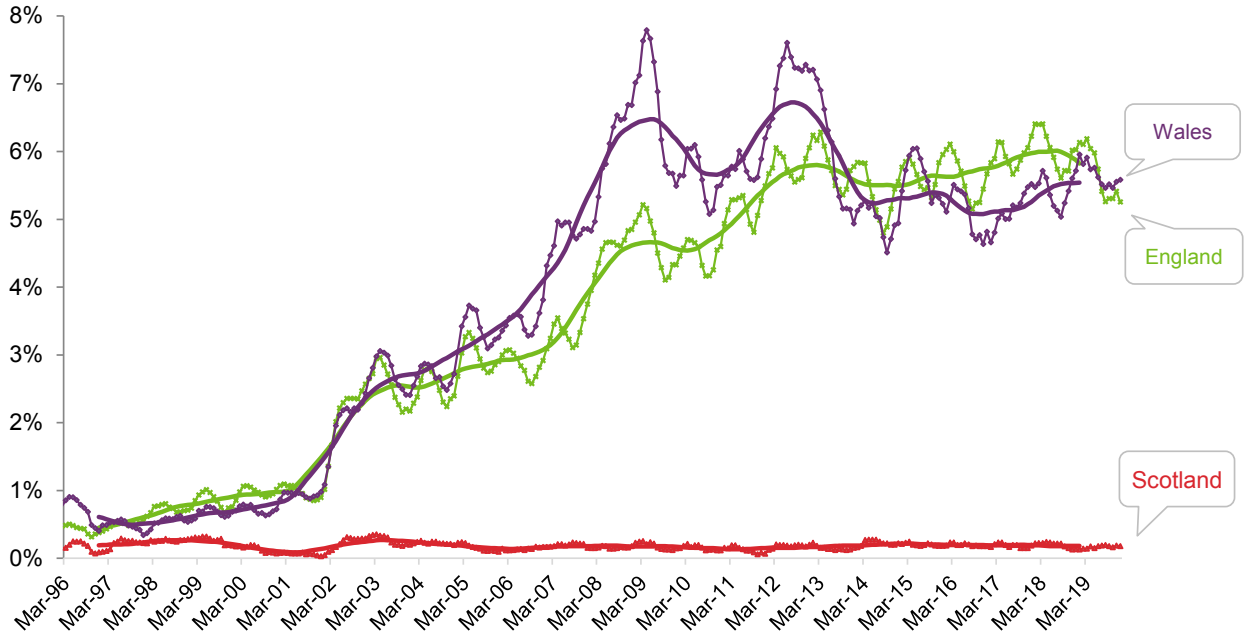
Figure 4a: New herd incidents with officially TB-free status withdrawn (OTFW) per 100 herd years at risk of infection during the year – Wales, per quarter



Bold lines represent 24 month centred rolling averages.

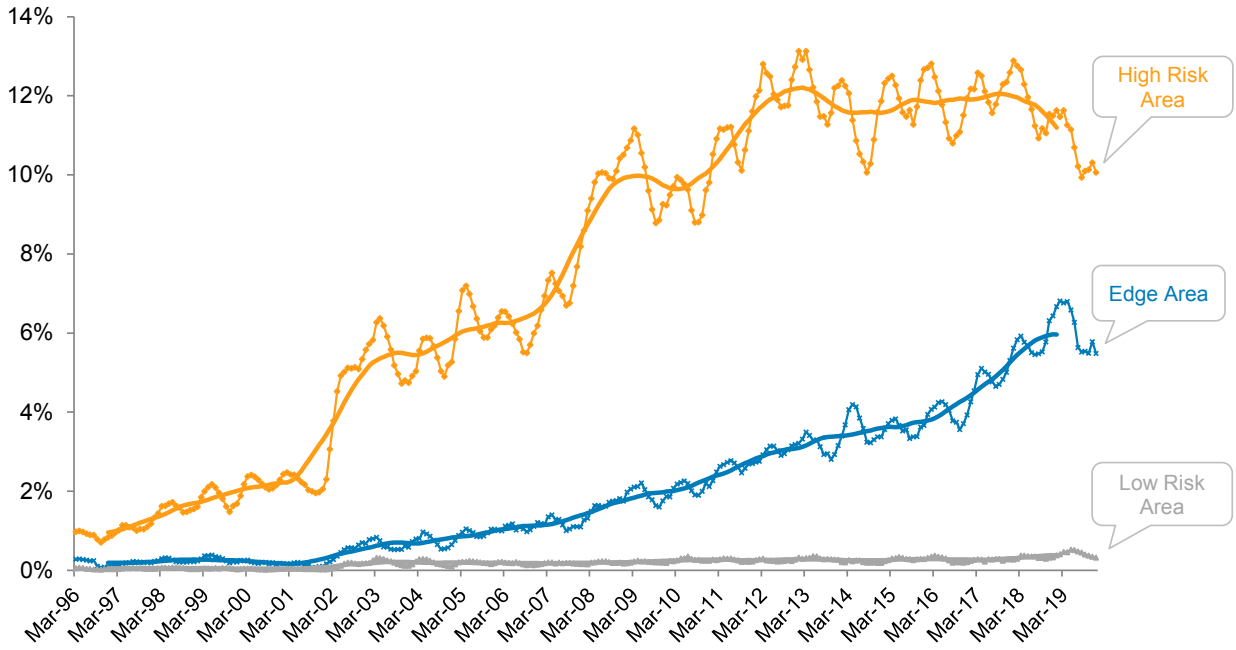
Herd prevalence

Figure 5: Number of herds under disease restrictions at the end of the period as a percentage of registered and active herds – GB



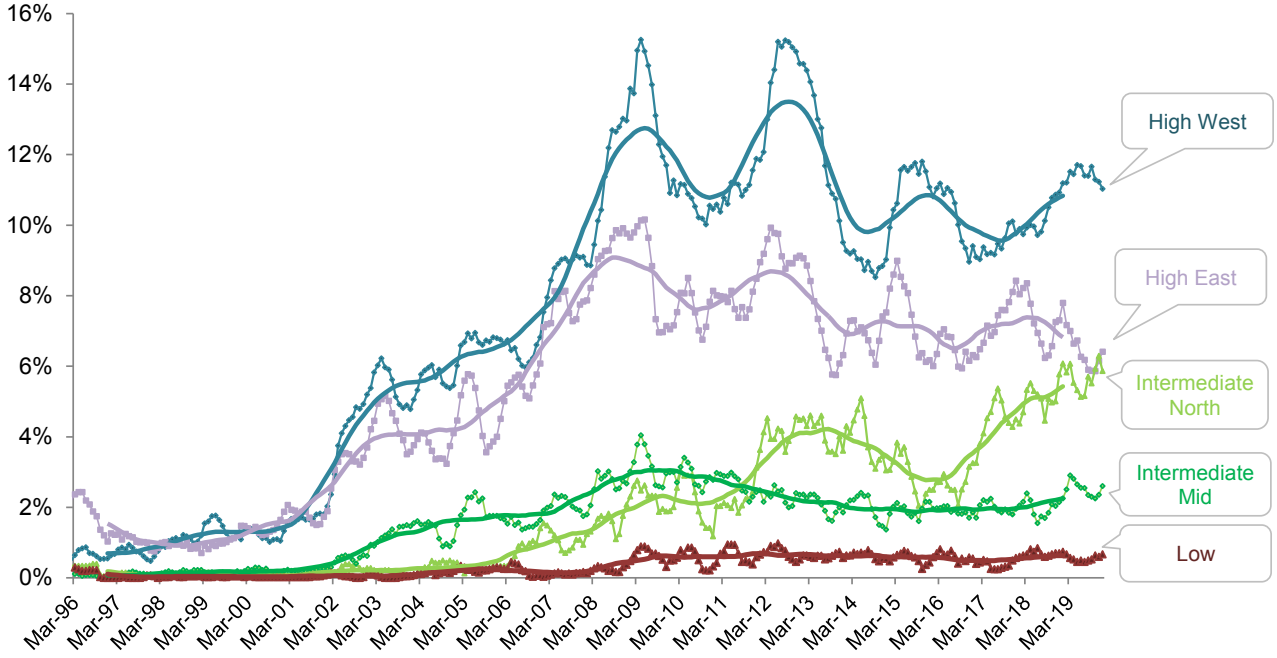
Bold lines represent 23 month centred rolling averages.

Figure 6: Number of herds under disease restrictions at the end of the period as a percentage of registered and active herds – England



NB England risk areas are as per the revised boundaries that came into force January 2018. Bold lines represent 23 month centred rolling averages.

Figure 6a: Number of herds under disease restrictions at the end of the period as a percentage of registered and active herds – Wales



Bold lines represent 23 month centred rolling averages.

Commentary on incidence and prevalence of TB in Cattle in Great Britain

List of Annexes

Factors affecting statistics on incidence and prevalence of TB in cattle

Short term changes in these statistics should be considered in the context of long term trends. Variation in the monthly and quarterly statistics can occur for a number of reasons, including:

- **Disease**: an increase in the trend can be the result of a higher proportion of herds experiencing a breakdown because of an increase in the underlying incidence of bTB.

- **Surveillance policy** (including the frequency of testing): Cattle herds in high risk areas are tested six monthly or annually and cattle herds in low risk areas are usually tested every four years. In Scotland approximately 57% of cattle herds are now exempt from routine TB surveillance testing. See Surveillance policy in GB If cattle herds in a low prevalence region are tested more frequently than every four years, the increase in the number of bTB tests will not necessarily be followed by a similar increase in the detection of infected cattle and so this may result in a decline in the incidence rate.

- **Seasonality**: more animals are tested when they are housed, during winter months, compared with when they are grazing outdoors in summer months. This is simply because it is easier to gather and test the cattle when they are already contained within a building. The trend lines in Figures 1 to 6 account for this by presenting the 2 year moving average.

- Number of **testing days** in a given month: tests tend to be carried out at the beginning of the working week and the results collected and entered into the data system towards the end of the week. Months containing five Fridays may therefore have more positive test results than months containing four.

Trends in TB

There has been an overall long-term upward trend in the incidence of TB in cattle herds in England and Wales since these statistical series began in 1996 although there is evidence that the rate of new incidents is levelling off in most areas of the country.

There was a fairly steady increase in the herd incidence rate until early 2001 when there was an outbreak of foot and mouth disease (FMD) from February to October. During this period TB testing was suspended. In the meantime, new bTB breakdowns continued to be detected on farms through routine post-mortem meat inspection of cattle carcases in slaughterhouses. Following the 2001 FMD outbreak there was a gradual resumption in TB testing. This led to an unusually high incidence rate for 2001 and 2002, when effectively two years' worth of breakdowns were identified in one year when the normal testing regime resumed.

There appears to be a three-year cycle in the bTB herd incidence rate from 2001 onwards. This can be observed in figures 1 to 6, above, with peaks in 2005, 2008 and (to a lesser extent) 2013, and troughs in 2006 and 2009. This pattern has stabilised somewhat in recent years. There is no clear explanation for this pattern, because bTB is a chronic disease with a complex epidemiology and reservoirs of infection in cattle and, in some areas of GB, wildlife. There has been no stable time series because of surveillance and testing changes. For example, there have been different herd testing frequencies in each parish over time, ranging from annual to four-yearly and changing every year until those frequencies were unified in Wales in 2010 (annual) and in England in 2013 (annual and four-yearly). There has since been the introduction of 6-monthly testing.

There are several possible explanations:

1. The smoothed trend represents true seasonal changes in the transmission risk and prevalence of infection in wildlife and cattle populations. However, there is no strong evidence to support this.

2. After FMD, higher risk herds were tested every 3 to 4 years and could have contributed to a cyclically higher incidence rate. However, breakdowns in the 4-yearly (and formerly 3-yearly) testing areas represent a small and decreasing proportion of the breakdowns in any given year.

3. When testing resumed in 2002 following the 2001 FMD outbreak, high-risk herds may have been identified and put under restrictions if a reactor was identified, then control tested for a period (when they cannot generate a new incident). Once the bTB incident has been resolved and OTF herd status is restored, the herd becomes susceptible to a new incident as it undergoes post-breakdown surveillance tests at 6 and 18 months after regaining OTF status.

4. The incidence rate reflects changes to testing policy unrelated to the FMD outbreak, in particular increases in testing in 2005 and 2008.

In terms of prevalence (the percentage of herds with an open TB incident), figure 5 shows an increase in England and Wales at the beginning of 2002. This may have been the result of the suspension of TB testing during the FMD outbreak in February-October 2001 (including the 60-day tests of TB-infected herds to regain OTF status) along with the detection of new breakdowns through routine slaughterhouse surveillance. Although TB herd testing gradually resumed from the end of 2001, a proportion of higher-risk herds

were put under TB restrictions pending completion of their overdue tests. Prevalence continued to increase steadily from 2002. In Wales there were peaks in 2009 and 2012, following which there has been a decline and stabilisation of the trend. After a peak in England in early 2013 the trend appears to have stabilised. However, for both England and Wales it is too early to conclude that this is part of a new longer term trend.

Surveillance policy in GB

bTB surveillance and control policy – including how frequently animals are tested for bTB – varies between England, Wales and Scotland and has changed over time.

Timeline:

1990s: most herds in GB tested every four years and background testing intervals determined on a parish basis. Herds in parishes with a high incidence of bTB breakdowns (in the South West of England and in parts of Wales) are tested on an annual or biennial basis, with a smaller number of three-yearly testing herds.

2004 to 2010: the proportion of parishes and herds in England and Wales with annual testing increases gradually as the disease spread, with a corresponding decrease in the proportion of parishes with four-yearly testing.

2005 to 2006: mandatory pre-movement skin testing of cattle in annually tested herds was introduced. First in Scotland in September 2005 followed by England in March 2006 and Wales in May 2006.

October 2009: the European Commission designates Scotland as an officially bTB free region of the UK.

January 2010: In England, a core annual testing area is established, spanning entire counties in the South West and West Midlands (the 'high risk area') and surrounded by a 'buffer' of two-yearly testing parishes. Most of the rest of England remains on background four-year testing. The Welsh Government puts all cattle herds in Wales on annual bTB testing (with herds in the small Intensive Action Area of West Wales put on 6-monthly bTB testing).

2011 and 2012: further expansion of the annual testing area in England to the east and north.

January 2013: herd testing intervals are determined on a county basis and England is split into annual testing and four-yearly testing counties. Annual testing of herds is extended to all the counties at the edge of the high risk area. Three- and two-yearly testing is abolished.

January 2015: all cattle herds in the edge area of Cheshire are put on six-monthly testing.

April 2016: mandatory post-movement skin testing of cattle was introduced in the Low risk area of England

October 2017: regionalised approach to TB eradication applied in Wales with the introduction of Low, Intermediate and High TB Areas.

January 2018: annual testing of cattle herds replaced with six-monthly herd testing in the higher incidence regions of the expanded Edge Area and annual herd testing supplemented with targeted ('radial') testing of herds located within a 3km radius of new OTFW incidents detected in the rest of the Edge Area.

Current differences in surveillance policy in GB

The regional and county-level statistics published as part of this statistical notice (available at www.gov.uk/government/statistical-data-sets/tuberculosis-tb-in-cattle-in-great-britain) show that there are considerable differences in the distribution and frequency of bovine TB across GB.

Comparability of Wales data. Since 2011, the trends for the herd incidence rate showing incidents with officially TB-free status withdrawn (OTFW) per 100 herd years at risk of infection during the year (i.e. table 2a and figure 3) are not directly comparable for Wales and the other countries of GB. In Wales the number of incidents includes those where there is no confirmation of TB via post mortem examination or bacteriological culture, but where the herd's OTF status is withdrawn for epidemiological reasons. The overall herd incidence rate (figure 1 and table 1) should be used to compare countries.

Scotland, which has had officially TB-free (OTF) status since 2009, has relatively few herd breakdowns. The herd incidence is very low and stable and is largely driven by sporadic introductions of infected cattle into Scotland. Scotland has in place a risk-based routine herd testing policy. This targets testing at higher risk herds. Around 57 per cent of herds are considered low risk herds and are exempt from routine testing. These are herds which have 50 or fewer animals, minimal import of animals from high risk areas and send a high proportion of animals to slaughter. Herds that are not exempt are tested every four years.

In **Wales**, TB incidence and prevalence varies across regions. From 1 October 2017, a regionalised approach to TB eradication applies in Wales with the introduction of Low, Intermediate and High TB Areas. This means that measures can be tailored to address the varying risks and disease. The TB areas in Wales are established on the basis of epidemiological evidence and risks in each area. A map of the areas is available at: https://gov.wales/bovine-tb-incidence-map. This regionalisation brought some changes to Pre- and Post- movement testing rules. From 1 October 2017 pre-movement testing is not required for movements within the Low TB Area and from the Low TB Area to other parts of Wales. Cattle moved into the Low TB Area from other areas (not including the English LRA) require a post-movement test.

All herds in Wales are tested for the disease at least annually. The strategically-located Intensive Action Area (north Pembrokeshire and small parts of Ceredigion and Carmarthenshire) has one of the highest incidence rates of bovine TB in Wales. Here there are extra measures in place to control the disease, such as stricter cattle controls, 6-monthly testing and improved biosecurity.

In **England**, there are wide geographical variations in the incidence and prevalence of bTB. This is reflected in the division of the country into three different epidemiological areas, with different disease control strategies and herd testing regimes applied in each of them:

- In the Low Risk Area of the North, East and South East of England, the incidence of bTB is very low and stable and most cattle herds are routinely tested every four

years. Similar to Scotland, the majority of breakdowns in the Low Risk Area can be linked to movements of undetected infected cattle from other areas of GB.

- In the Edge Area, the herd incidence is higher than in the Low Risk Area, although this varies from county to county. After a relatively stable period, prevalence has been increasing in more recent years Figure 6. On 1 January 2018 the five part Edge, part HRA counties: Cheshire, Derbyshire, East Sussex, Oxfordshire and Warwickshire, moved to all Edge. Testing intervals are set out at: https://www.gov.uk/guidance/bovine-tb-testing-intervals-2019.

- In the High Risk Area of the West Midlands and South West of England, the incidence and prevalence of infected cattle have increased steadily to relatively high levels. This is partly a result of a reservoir of endemic M. bovis infection in the local wildlife. There is evidence of a slowing down in both the incidence and prevalence rates since around 2012. Figure 2 and Figure 6.

Methodology

For a description of the data sources and methodology used in the calculation of the TB statistics, together with notes on data revisions policy etc., please refer to the 'Background and Methodology' document at www.gov.uk/government/statistics/data-and-methodology.

Trends in herd tests

From October 2015 to November 2016 there were steady decreases in the number of TB tests completed on herds. The decrease is mainly as a result of changes in APHA testing procedures made in November 2015, and more specifically to testing of cattle that have moved out of TB-infected herds before detection of the disease ("TB forward tracings"). Changes to these "tracing" tests include:

- Bespoke tracing tests of individual animals are no longer performed in England if a whole-herd (or similar) test is already due in the herd of destination within 60 days of the tracing test date, and in Wales if the tracing test is due within the existing herd test window.

- Combining multiple tracing tests for a herd where the traced cattle originate from more than one holding and where test deadlines are within a one month period. Such tests were previously counted separately.

TB tracing tests are included in the "Herd tests" and the "Total cattle tests" measures and these changes are thought to account for much of the decrease in the herd test measures.

Why monitor statistics about bTB?

Legal requirements: Defra policy is to achieve OTF status for England by 2038, and Welsh Government policy is to achieve OTF status between 2036 and 2041. Scotland achieved OTF status in September 2009. bTB statistics are used in England and Wales to measure progress towards this target, and to support the annual case for Scotland to retain its OTF status, as the qualification is based on herd incidence.

Monitoring policy effectiveness: Statistics on the incidence of bTB in cattle herds and the number of cattle slaughtered as a result of bTB are used by policymakers to monitor the spread and concentration of the disease and to inform decisions around the potential approaches to controlling it.

Feedback on this release

We encourage our users to engage with us so we can improve our National and Official Statistics and identify gaps in the statistics that we produce. Should you have any comments on this statistical release and how to improve it to meet your needs please contact us. Contact details for the statisticians who produced these statistics are given at the front of this document. We wish to make our publications widely accessible. Please contact us at if you have any specific accessibility requirements.

National Statistics Status

National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.
The continued designation of these statistics as National Statistics was confirmed in December 2017 following a compliance check by the Office for Statistics Regulation.
The statistics last underwent a full assessment against the Code of Practice in 2012 – Assessment Report 240.
Since the latest review by the Office for Statistics Regulation, we have continued to comply with the Code of Practice for Statistics, and have made the following improvements:

- added more value by providing more detailed breakdowns of TB areas in Wales
- included a glossary of key terms and added a mapping of English counties to TB regions
- added more value by introducing quarterly overview documents for England and Great Britain
- from Q4 2019 included an interactive dashboard of measures

Annex 1 - Background Information on Bovine Tuberculosis

What is bovine tuberculosis?

Bovine tuberculosis (bTB) is a chronic infectious disease of cattle. The risk bTB poses to human health is low, largely due to milk pasteurisation. The disease is detected either on farms (through mandatory skin tests of cattle herds for bTB at regular intervals) and at slaughterhouses (through post-mortem meat inspection of cattle carcases).

What are the impacts of bTB?

Bovine TB presents serious challenges to the food and farming industries and has economic and social impacts. The economic costs of a bTB breakdown are shared by farmers and government[1]. Costs are incurred for a number of reasons:

- Cattle which are found (or are highly likely) to have bTB are slaughtered. This loses the farmer the value of the animal and its output. Government pays farmers compensation for slaughtered animals which is based on the market value of cattle.
- There are costs associated with testing animals for bTB. Farmers incur costs from gathering animals together, such as paying workers for their time, and government pays the vets' fees for carrying out tests on the herd (and in the event of a breakdown on herds in neighbouring farms).
- When an animal in a herd tests positive for the disease, the whole herd is put under movement restrictions until all the remaining animals are tested repeatedly with negative results. This presents costs to farmers, for example because they are unable to move their cattle to market or buy in replacements for animals that are slaughtered.

Other impacts of high bTB levels can include:

- Restrictions on international trade in cattle and cattle products.
- Significant stress amongst famers, their families and local communities[2]
- The infection spilling over to domestic and wild animals [3].

Further information on bovine TB

More information on bovine TB in Great Britain is available for:

- England.
- Wales.
- Scotland.

The TB hub contains practical advice for farmers on dealing with bovine TB on their farm, covering everything from biosecurity measures to understanding trading rules.

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[1] Economic analysis based on research report SE3112 for Defra, 2004

[2] See for example research report SE3120 for Defra, 2008

[3] For example Broughan, J. M., Downs, S. H., Crawshaw, T. R., Upton, P. A., Brewer, J. & Clifton-Hadley, R. S. (2013) *Mycobacterium bovis* infections in domesticated non-bovine mammalian species. Part 1: review of epidemiology and laboratory submissions in Great Britain 2004-2010. *Veterinary Journal* **198**, 346-35. See also webarchive.nationalarchives.gov.uk/20140405112558/http:/www.defra.gov.uk/ahvla-en/publication/pub-survreport-tb/

Annex 2 - Glossary of key terms

A more detailed description of measures is included in the Background and Methodology document

Term	Description
Bovine tuberculosis (bTB)	bTB is caused by the bacterium Mycobacterium bovis (M. bovis). Cattle are the natural host of the bacterium. Many other species, including wildlife such as badgers and less commonly deer, are also susceptible to M. bovis and can develop TB and transmit the infection to other species.
Breakdown	A breakdown is the term used to describe the occurrence in a herd of at least one animal with a positive reaction to the skin test, or the identification of M. bovis in an animal with TB lesions detected at routine slaughter. The affected herd is then placed under restrictions and loses its Officially TB Free (OTF) status.
Direct Contact (DC)	An animal in an OTFW incident that, although not a test reactor, was considered to have been exposed to Mycobacterium bovis and compulsorily slaughtered.
Inconclusive reactor (IR)	An animal showing a positive reaction to bovine tuberculin that was not strong enough for it to be deemed a reactor. Such animals are usually isolated and subjected to a second skin test after 60 days, unless removed earlier as DCs or IFN-γ test reactors or voluntarily slaughtered by their owner.
Incidence and prevalence	
Incidence	The incidence of a disease is the disease occurrence in new cases in a defined population over a designated time period.
Headline herd incidence	New herd incidents per 100 herd years at risk of infection during the year. Herds which were previously OTF but either had cattle that reacted to a tuberculin test or had a tuberculous animal disclosed by routine meat inspection at slaughter, during the 12 months ending the date shown, divided by the amount of time herds tested during that period were unrestricted and at risk of infection. Figures for Wales include incidents where OTF status has been withdrawn for epidemiological reasons only.
Herd-years at risk	The sum of the time (days, months or years) herds in the population are unrestricted and are therefore at risk of a new incident, among the group of herds that have had a herd-level test during the period of interest.
Time at risk	Time spent not under restriction and at risk of having bTB during the observation period.
Prevalence	The prevalence of a disease is the disease presence in a defined population (at animals or herd level) in a designated time.

Herd prevalence	Herds which were not officially TB-free (i.e. herds under movement restrictions with OTF status suspended or withdrawn) due to a TB incident, at the end of the period as percentage of the number of herds registered on the APHA's Sam (computer) system.

England risk areas

See also www.gov.uk/guidance/bovine-tb-testing-intervals-2019 for 2019 intervals and a map of GB TB areas.

High Risk Area (HRA)	In the West Midlands and the South West of England, the incidence and prevalence of infected cattle have increased steadily to relatively high levels. This is partly a result of a reservoir of endemic M. bovis infection in the local wildlife. Herds are tested for bTB annually.
Edge Area	In the Edge Area herd incidence is higher than in the Low Risk Area, although this varies from county to county. Herds are tested for bTB annually or every six months. The Edge boundary was updated in January 2018 to include the parts of the counties of Derbyshire, Warwickshire, Oxfordshire, East Sussex and Cheshire that had been designated HRA. It also spans Nottinghamshire, Leicestershire, Northamptonshire, Buckinghamshire and Hampshire.
Low Risk Area	North, East and South East of England, the incidence of bTB is very low and stable and most cattle herds are routinely tested every four years. Similar to Scotland, the majority of breakdowns in the Low Risk Area can be linked to movements of undetected infected cattle from other areas of GB.

Officially bovine tuberculosis free (OTF) statuses

Officially bovine tuberculosis free herd status suspended (OTFS)

Incidents where OTF status was suspended because of reactors in the herds, but post-mortem evidence of TB is not detected. The status remains suspended until further herd tests confirm no infection remains on the farm. Figures for Wales include incidents where OTF status has been withdrawn for epidemiological reasons only.

Officially bovine tuberculosis free herd status withdrawn (OTFW)

Incidents where OTF status was withdrawn from the herd due to the detection of lesions typical of TB during post-mortem examination of one or more test reactors or inconclusive reactors, or where samples from one or more reactor, inconclusive reactor or a slaughterhouse case produce positive culture results for Mycobacterium bovis. Figures for Wales do not include incidents where OTF status has been withdrawn for epidemiological reasons only. These are currently included within the OTFS figures.

Officially TB Free (OTF) status of a country or region

"OTF Status" takes its meaning from European law: for a region or Member State of the EU to be considered to be OTF the annual

incidence of herds with confirmed M. bovis infection must not have exceeded 0.1% and at least 99.9% of the herds within it must have been free from bTB at the end of the year for at least six consecutive years.

Testing

Single intradermal comparative cervical test (SICCT)

The tuberculin skin test: if tuberculin (a purified sterile cocktail of proteins derived from M. bovis cultures) is injected into the skin of an animal infected with M. bovis, this will cause a localised allergic reaction characterised by temporary swelling of the skin, which is measured 72hrs after the injection. The principle is very similar to the skin tests for TB in humans.

Gamma interferon test (IFN-γ or gIFN)

Laboratory-based blood test approved as an ancillary diagnostic tool that measures the release of γ-IFN in whole blood cultures stimulated with tuberculin.

Statistical Terms

24 or 23 -month moving average centred

The moving average line has been included in the charts to help identify trends with seasonality smoothed. The centred 24-month moving average has been calculated as the average of the values for the quarter and the previous 3 quarters and subsequent 4 quarters, giving each quarter equal weight. The centred 23-month moving average has been calculated as the average of the values for the month and the previous 11 months and subsequent 11 months, giving each month equal weight.

Annex 3 - England county mapping within regions

A non-standard regional structure is used for the English county data. Currently it is published in five documents by TB statistics region as per table 4.

Table 4 England County Structure

County	TB Risk Area	TB Stats Region
Leicester	Edge	Midlands
Northamptonshire	Edge	Midlands
Nottinghamshire	Edge	Midlands
Derbyshire	All Edge from 2018	Midlands
Warwickshire	All Edge from 2018	Midlands
Hereford & Worcester	High	Midlands
Shropshire	High	Midlands
Staffordshire	High	Midlands
West Midlands	High	Midlands
Lincolnshire	Low	Midlands
Cheshire	All Edge from 2018	North
Cleveland	Low	North
Cumbria	Low	North
Durham	Low	North
East Yorkshire	Low	North
Greater Manchester	Low	North
Lancashire	Low	North
Merseyside	Low	North
North Yorkshire	Low	North
Northumberland	Low	North
South Yorkshire	Low	North
Tyne & Wear	Low	North
West Yorkshire	Low	North
Berkshire	Edge	South East
Buckinghamshire	Edge	South East
Hampshire	Edge	South East
East Sussex	All Edge from 2018	South East
Oxfordshire	All Edge from 2018	South East
Bedfordshire	Low	South East
Cambridgeshire	Low	South East
Essex	Low	South East
Greater London	Low	South East
Greater London - East	Low	South East
Hertford	Low	South East
Isle of Wight	Low	South East
Kent	Low	South East
Norfolk	Low	South East
Suffolk	Low	South East
Surrey	Low	South East
West Sussex	Low	South East
Avon	High	South West

Cornwall	High	South West
Devonshire	High	South West
Dorset	High	South West
Gloucestershire	High	South West
Somerset	High	South West
Wiltshire	High	South West
Isles of Scilly	Low	South West