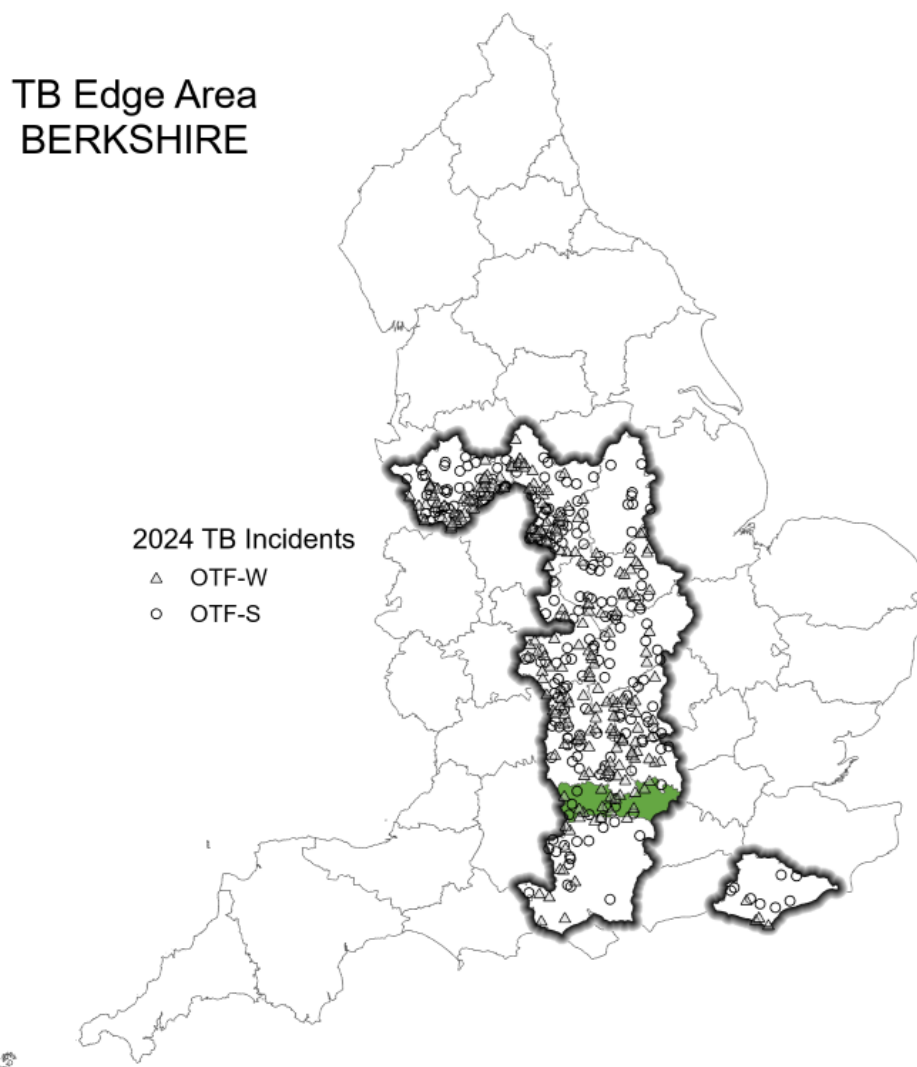




Animal &
Plant Health
Agency

Year End Descriptive Epidemiology Report of Bovine TB in the Edge Area of England 2024: Berkshire



Contents

Introduction	3
Classification of TB incidents	3
Cattle industry	4
Number of new TB incidents	5
Disclosing TB surveillance method	6
Duration of TB incidents	8
Incidence of TB	9
Prevalence of TB	10
Skin test reactors and interferon gamma test positive animals removed	11
Recurrent TB incidents	12
Three-year recurrence	12
Unusual TB incidents	12
TB incidents in other species	13
Geographical distribution of TB incidents	14
Main risk pathways and key drivers for TB infection	16
Forward look	22
Appendix 1: cattle industry demographics	24
Appendix 2: summary of headline cattle TB statistics	25
Appendix 3: suspected sources of M. bovis infection for all the new OTF-W and OTF-S incidents identified in the report period	29

Introduction

The Edge Area was originally established in 2013, along with the Low Risk Area (LRA) and High Risk Area (HRA) of England. In 2014, the 3 bovine tuberculosis (TB) risk areas were incorporated into the UK government's strategy to achieve Officially TB-Free (OTF) status for England by 2038. A key action was to recognise the different levels of TB in different parts of the country and to adjust the approaches to TB surveillance and control in each risk area accordingly. The current aim is to obtain OTF status for the Edge Area as soon as possible.

TB in cattle and other mammals is primarily caused by the bacterium *Mycobacterium bovis* (*M. bovis*), and the disease is subsequently referred to in this report as TB. Although other sources may refer to TB 'breakdowns,' this report will use the term 'incidents' throughout.

This report describes the frequency and geographical distribution of TB in cattle herds Berkshire, an Edge Area county, in 2024. It examines what factors are likely to be driving TB in this area, and the risks the disease in this county may pose to neighbouring areas. It is intended for those involved in the control of TB, both locally and nationally. This includes, but it is not limited to, cattle farmers, private veterinarians, government, policy makers and the scientific community.

Classification of TB incidents

Unless otherwise specified, this report includes all new TB incidents detected during the reporting period (1 January to 31 December 2024). This includes both 'Officially Tuberculosis-Free Status Withdrawn' (OTF-W) and 'Officially Tuberculosis-Free Status Suspended' (OTF-S) incidents.

OTF-W incidents are those involving the detection in the affected herd of at least:

- one reactor (positive animal) to the Single Intradermal Comparative Cervical Tuberculin (SICCT) test, or a positive animal to the supplementary interferon gamma (IFN- γ) blood test, with typical lesions of TB identified at post-mortem (PM) meat inspection, or
- one animal such as WGS a skin test reactor, interferon gamma test-positive animal, or slaughterhouse (SLH) case) with *M. bovis*-positive polymerase chain reaction (PCR) test (or bacteriological culture) results in tissue samples collected from carcasses during the PM inspection

OTF-S incidents are triggered by reactors to the skin test (or interferon gamma test-positive animals), but without subsequent detection of TB lesions or positive PCR test (or culture) results in any of those animals.

Cattle herds can also have their OTF status suspended without necessarily experiencing a TB incident if, for instance, a TB test becomes overdue, or pending laboratory tests of suspected cases of TB reported at routine post-mortem meat inspection during commercial slaughter of cattle.

OTF-S incidents may be reclassified as OTF-W incidents following further testing and post-mortem examination of reactor cattle subsequently removed from the TB incident. This is particularly relevant for incidents which occur towards the end of the reporting period and may cause discrepancies in the number of OTF-W or OTF-S incidents reported in the current and previous reports, Edge Area Year End Epidemiology reports or other official TB statistics.

Furthermore, the number of TB incidents and designation of those incidents as OTF-W or OTF-S may differ in this report compared to other official TB statistics due to differences in the information available at the time datasets are accessed.

In Berkshire there were 2 [Approved Finishing Units](#) (AFUs) active during 2024, and which were active at the end of the reporting period. Of these, one had an ongoing TB incident at the end of the reporting period and no new TB incidents were disclosed in AFUs in 2024. These have been excluded from the numbers presented in this report due to the limited epidemiological impact of these incidents, with the exception of the incidence per 100 herd years at risk (HYR), which does include new TB incidents and time at risk contributed by AFUs.

Details of the data handling methodology used in this report, a glossary of terms, and the TB control measures adopted in the Edge Area, can be found in the [explanatory supplement for the annual reports 2024](#).

Cattle industry

There were 158 cattle herds registered in Berkshire at the end of the year, with beef animals the predominant production type in the county (79%). The majority of herds were small and 54% of them had fewer than 50 cattle, as shown in Appendix 1 and 2. The number of herds and cattle in Berkshire has been steadily declining since 2018.

Berkshire had no livestock markets or abattoirs in 2024. Markets close to Berkshire include Salisbury market in the neighbouring HRA county of Wiltshire, and Thame market in Oxfordshire (Edge Area).

There were 2 AFUs without grazing operating in Berkshire in 2024, as in 2023.

Cattle herds in the western half of Berkshire routinely undergo 6-monthly surveillance testing. However, 14% of cattle herds in the 6-month testing area were regarded as having a lower risk of contracting TB and thus were placed on annual TB testing under the [earned recognition scheme](#) in 2024. This is an important decrease from 22% of cattle herds in the 6-month testing area under the earned recognition scheme in 2023.

The rest of cattle herds in Berkshire routinely undergo annual surveillance testing by default.

Appendix 2 provides a summary of headline cattle TB statistics in Berkshire.

Number of new TB incidents

A total of 19 new TB incidents were disclosed across Berkshire during 2024 (11 OTF-W and 8 OTF-S) (Figure 1). This was a 46% increase compared to the 13 incidents in 2023 (7 OTF-W and 6 OTF-S). This was mainly due to an increase of OTF-W incidents in 2024, back to the same level observed from 2020 to 2022. The number of OTF-S incidents also increased by 33% in 2024 compared to 2023 (from 6 in 2023 to 8 in 2024).

Over half (55%) of OTF-W incidents were disclosed in beef fattening herds (6). There were 4 OTF-W incidents disclosed in beef suckler herds and one in a dairy herd.

During the last 10 years in Berkshire, the number of new TB incidents has steadily declined from a peak in 2017 until 2020. However, since 2020, the number of incidents has remained relatively stable, with a decrease in OTF-W incidents in 2023. Over the last five years, 2024 and 2021 had the joint highest number of TB incidents (19).

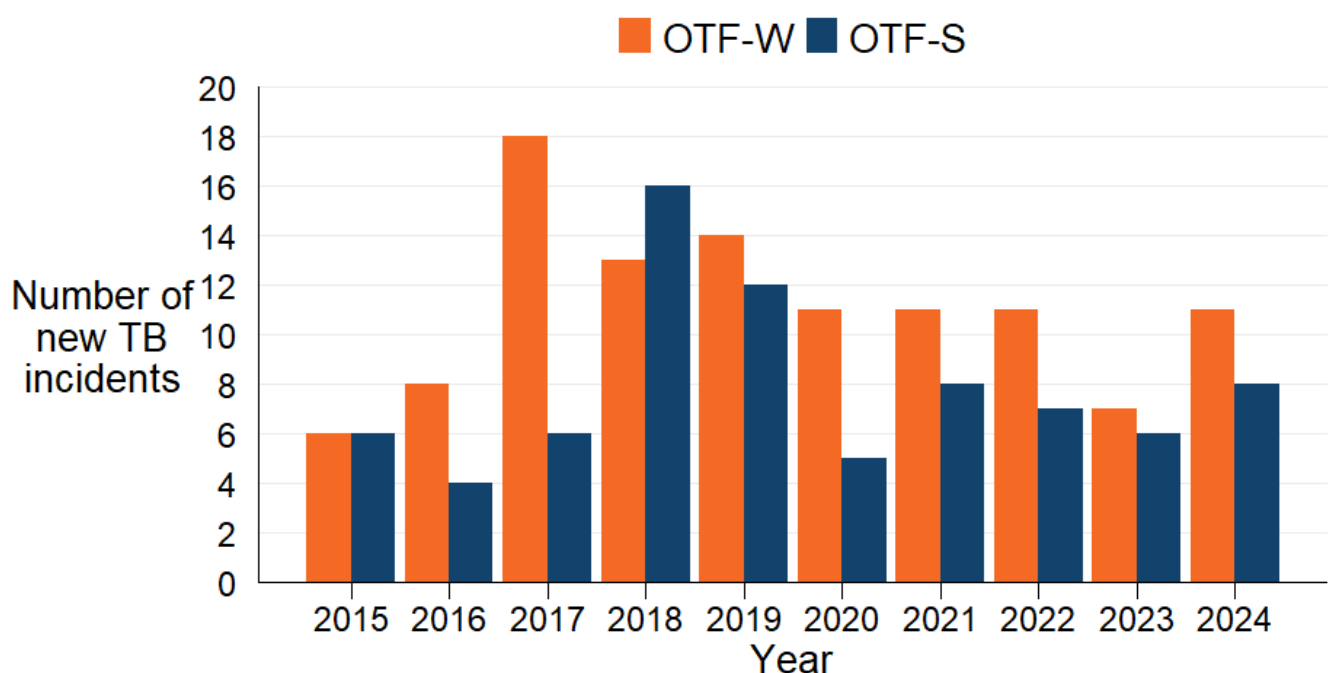


Figure 1: Annual number of new TB incidents in Berkshire, from 2015 to 2024.

Disclosing TB surveillance method

As in previous years, whole-herd routine tuberculin skin testing, performed every 6 months or 12 months, continued to detect the most TB incidents in Berkshire in 2024 (9). This was followed by radial testing (3 incidents), 6-monthly post-incident target surveillance testing (6M, 3 incidents) and slaughterhouse surveillance (2 incidents) (Figure 2). New herd check testing and pre-movement testing each disclosed one incident.

This compares to 2023, when there were no new TB incidents detected by radial testing, pre-movement testing, or new herd check tests. Radial testing is only undertaken in the annual TB testing area of the county.

The importance of all the different TB test types in detecting new TB incidents is highlighted by the variety of different test types which have detected new TB incidents, especially in 2024.

There has been an increase in radial testing detected incidents in 2024 (3) versus 2023 (0), which could point to recent disease spread into the 12-monthly testing part of the county.

Equally, there has been an increase in incidents detected by 6M post incident testing in 2024 (3) compared to 2023 (1), which points to reintroduction of disease or to an increase in recrudescence of residual infection.

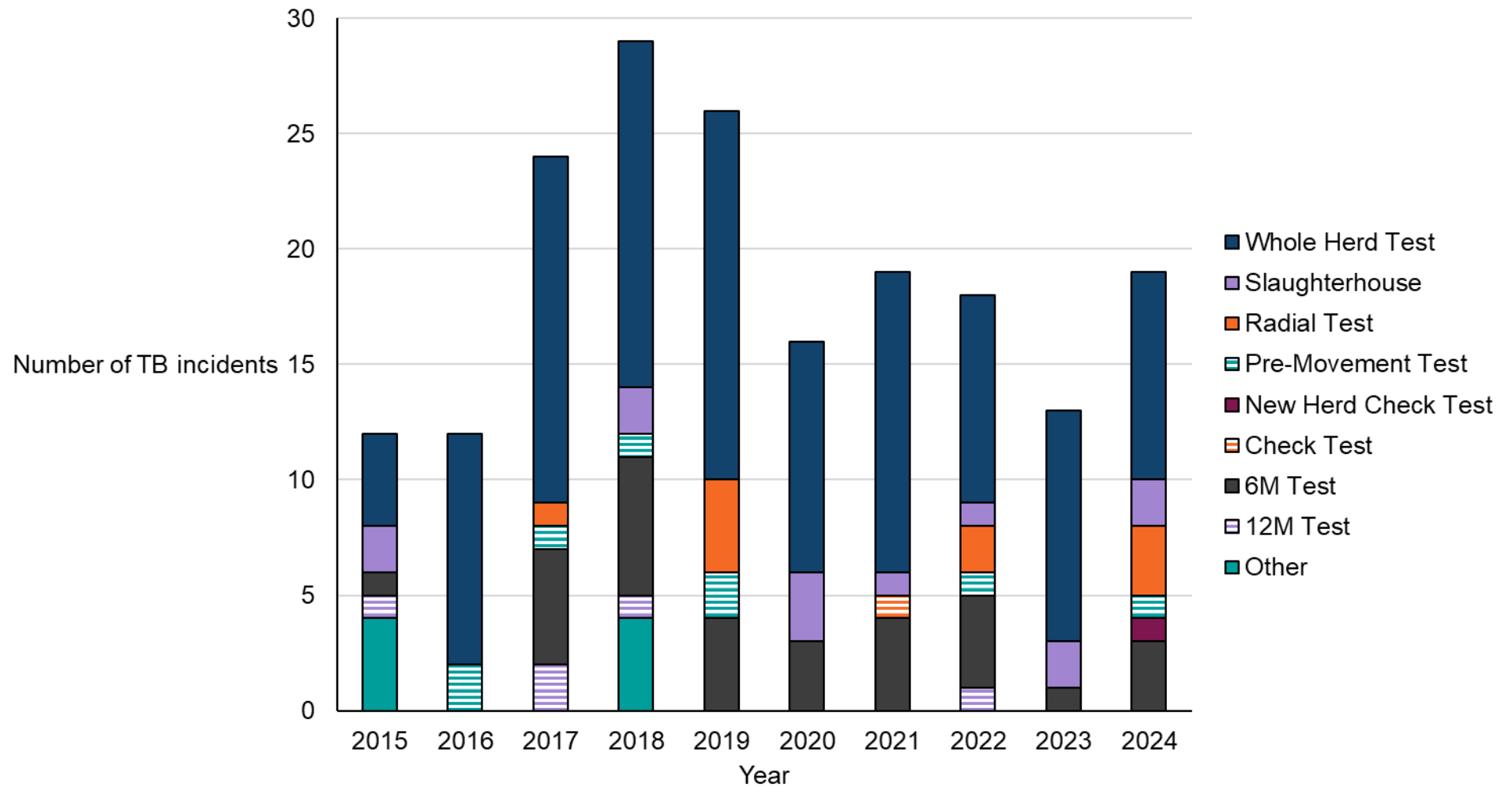


Figure 2: Number of new TB incidents (OTF-W and OTF-S) in Berkshire in 2024, according to the surveillance methods that detected them. Incidents disclosed by 'Other' tests includes, but is not limited to, private testing, inconclusive reactor retests, and export tests.

Duration of TB incidents

A total of 14 TB incidents were resolved in Berkshire during 2024. Of these, 5 started in 2024, 8 in 2023 and one in 2022. No persistent incidents (where the affected herds were under movement restrictions for more than 550 days) were resolved in 2024.

Half of the incidents which resolved in 2024 were OTF-W incidents (Figure 3). One incident was resolved quickly within 100 days, one within 101 to 150 days, 4 within 151 to 240 days and a further one within 241 to 550 days. The median duration of OTF-W incidents that ended in 2024 was 167 days (interquartile range (IQR) 131 to 176), which is shorter than in 2023 (median 180, IQR 162 to 267).

Of the OTF-S incidents that closed in 2024, one was closed within 101 to 150 days and 6 within 151 to 240 days. The median duration of OTF-S incidents was 172 days (IQR 152 to 221), very similar when compared to 2023 (median 171, IQR 146 to 226).

The median duration of all incidents that ended in 2024 in Berkshire was 168 (IQR 153 to 204). This is shorter than the duration of incidents that closed in 2023, with a median of 179 days (IQR 161 to 267) and also shorter than the median duration of TB incidents that closed in 2024 for the whole Edge Area, which was 186 days (IQR 159 to 260).

There were 17 TB incidents that were still open at the end of 2024, including 2 persistent OTF-W incidents.

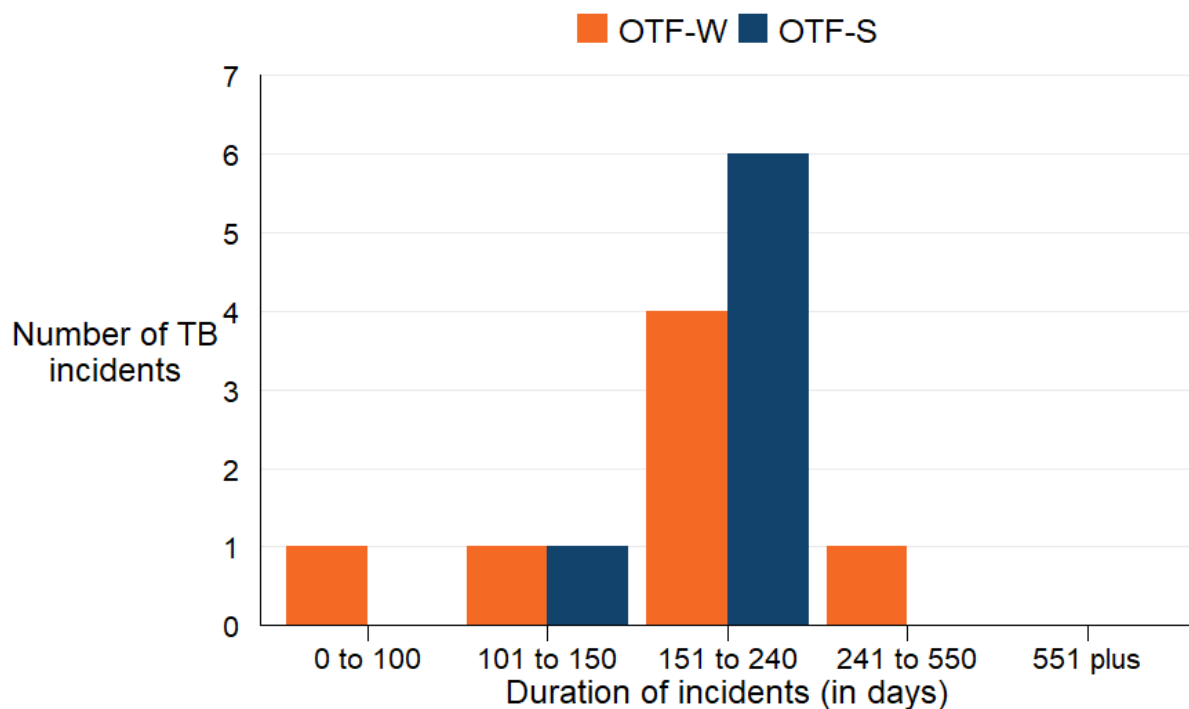


Figure 3: Duration of TB incidents (OTF-W and OTF-S) that closed in Berkshire in 2024.

Incidence of TB

The incidence in Berkshire in 2024 increased to 12.6 from 9.0 incidents per 100 HYR in 2023. This ends a 2-year decreasing trend, reverting to the incidence rate seen in 2021, which was the highest incidence recorded in the county since 2019.

In 2024, Berkshire had the second highest incidence rate out of the 11 counties in the Edge Area (12.6). This was higher than the incidence rate for the whole of the Edge Area in 2024 (7.3), as shown in Figure 4. Importantly, this is also higher than 6 individual High Risk Area (HRA) counties, and just slightly lower than the overall HRA incidence (13.6).

In the Edge area overall the incidence rate increased from 6.6 incidents per 100 HYR in 2015 to a peak of 10.0 in 2020, before gradually declining to 7.3 in 2024, which was a small increase compared to 2023 (7.2).

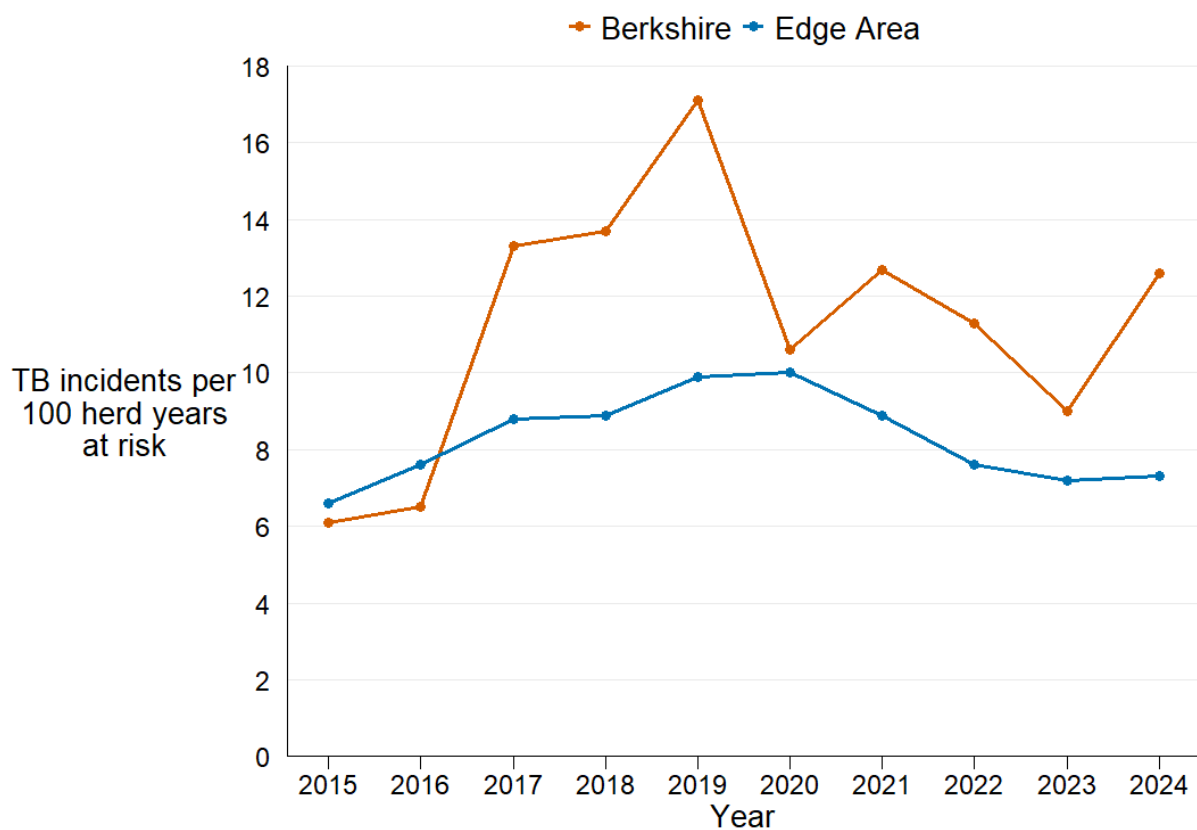


Figure 4: Annual incidence rate (per 100 herd years at risk) for all new incidents (OTF-W and OTF-S) in Berkshire and the Edge Area, from 2015 to 2024.

Prevalence of TB

Berkshire had the second highest end of year prevalence out of the 11 counties in the Edge Area (8.8%). This was over double the overall prevalence for the whole of the Edge Area in 2024 (4.0%) (Figure 5).

The end of year prevalence in Berkshire had steadily decreased from a peak of 12.7% in 2018 to 6.2% in 2023. However, the 2024 end of year prevalence increased by 42% from 6.2% in 2023 to 8.8% in 2024.

In the Edge area overall, the prevalence increased steadily between 3.2% in 2015 to 5.9% in 2018. This was followed by a gradual decrease to 3.6% in 2022. In 2023, the prevalence rose to 3.7%, increasing again to 4.0% in 2024.

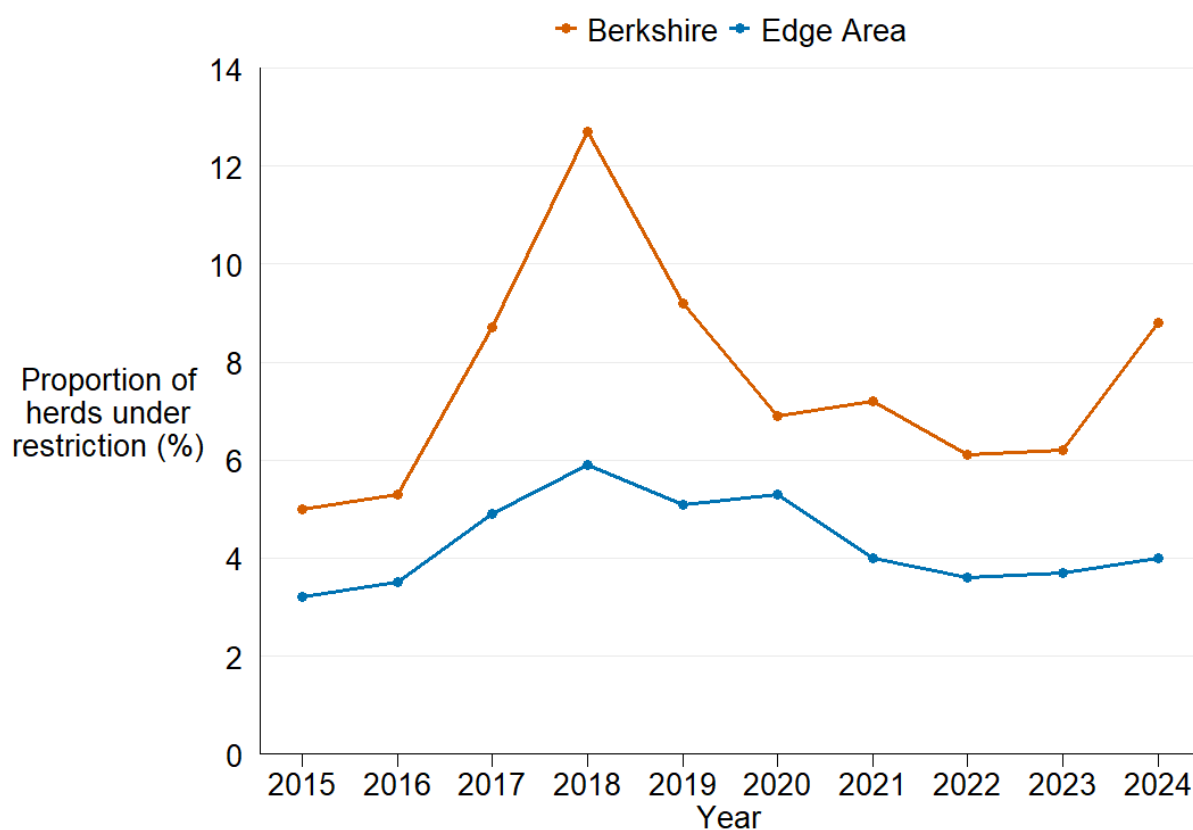


Figure 5: Annual end of year prevalence in Berkshire and the Edge Area overall, from 2015 to 2024. This is the proportion of live herds under TB movement restrictions on the 31 December 2024.

Skin test reactors and interferon gamma test positive animals removed

Since 2021, all new OTF-W TB incidents in the 6-monthly testing part of the county no longer undergo mandatory interferon gamma testing (IFN- γ), unless they are classified as a recurrent incident for example the incident occurred within 18 months of a herd regaining OTF status following an OTF-W incident.

A total of 213 cattle were removed from TB incidents in Berkshire during 2024. Of these, 151 were skin test reactors and 62 were positive by the supplementary IFN- γ blood test (Figure 6).

Compared to 2023 (81 skin test reactors and 19 IFN- γ positive animals), this was a 113% increase in the total number of animals removed. This would be explained (in part) due to the higher number of incidents detected in 2024 (46% increase on 2023).

Also, in 2024 there was a 66% increase in the number of IFN- γ tests performed compared to 2023, which might partially explain the increase in the number of IFN- γ reactors.

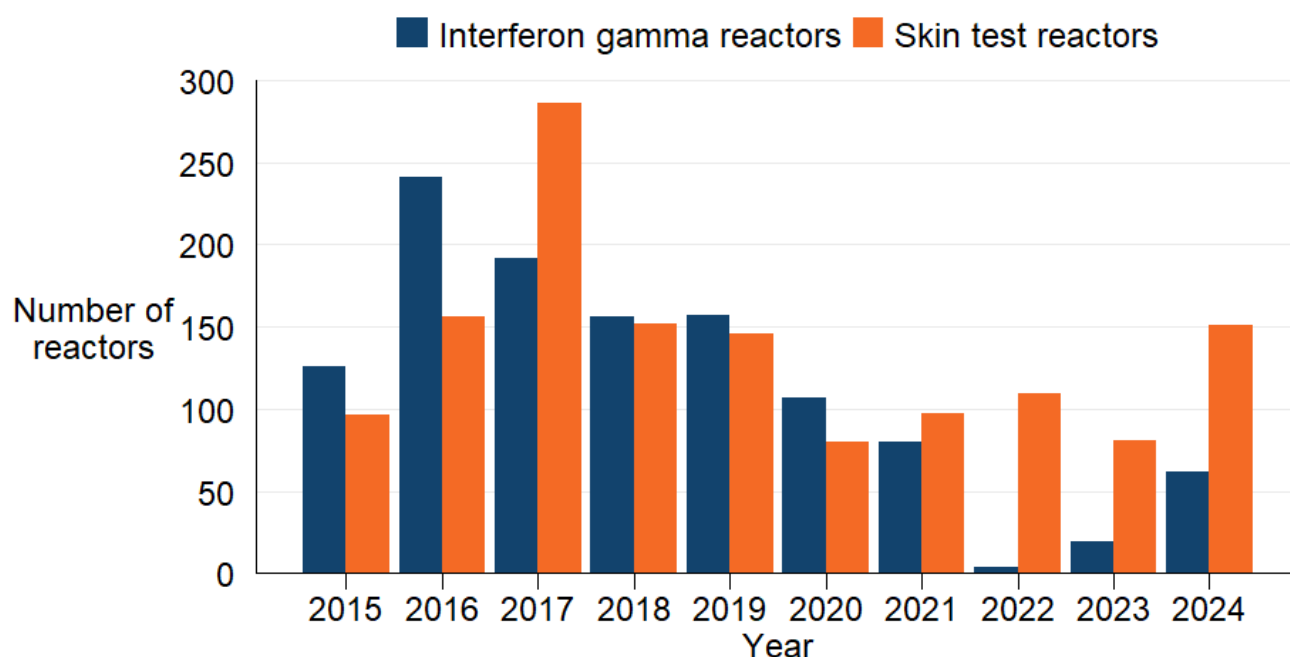


Figure 6: Number of skin test reactors and IFN- γ test positive cattle removed by APHA for TB control reasons in Berkshire, from 2015 to 2024.

Recurrent TB incidents

Three-year recurrence

Recurrence of an incident in the same herd has historically, and continues to be, a problem in Berkshire, particularly in the west of the county.

In Berkshire, 8 of the 11 (73%) herds with a new OTF-W incident and 3 of the 8 (38%) herds with a new OTF-S TB incident had experienced another TB incident in the previous 3 years (Figure 7). This is the joint highest overall percentage of recurrent herd incidents reported in the Edge Area counties (58%), which was also higher than the whole of the Edge Area (47%).

Residual infection remaining in the herd from a previous incident, and/or reinfection from other local sources, including potentially infected wildlife, appear to be the most likely infection pathway for most of the OTF-W recurrent incidents.

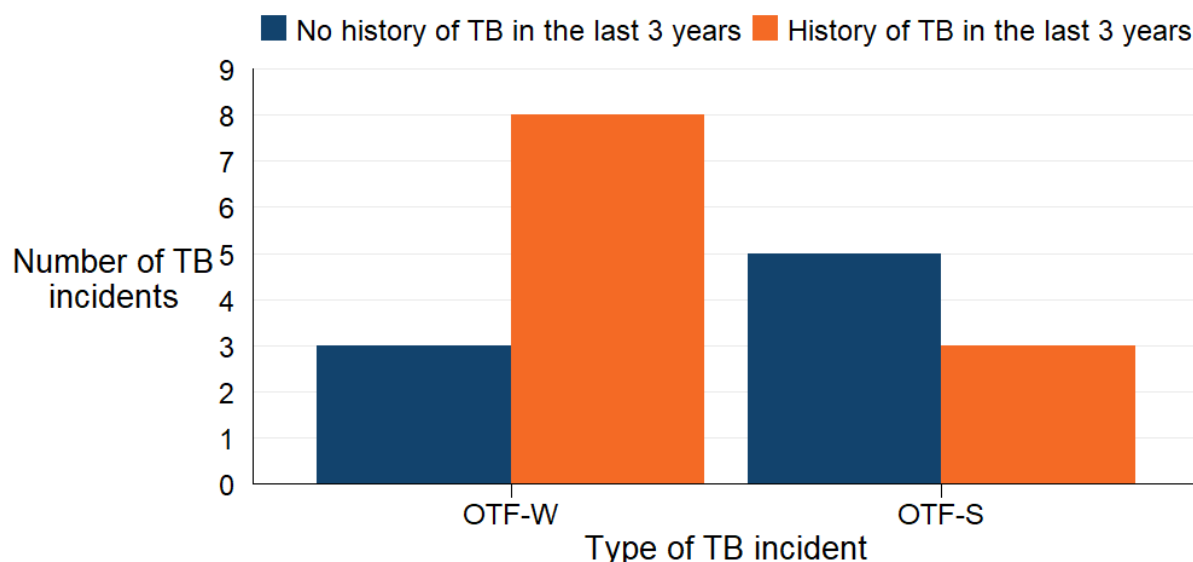


Figure 7: Number of herds with a TB incident (by OTF-W and OTF-S) in Berkshire in 2024, with and without a history of any TB incident in the previous 3 years of the disclosing test.

Unusual TB incidents

In 2024, there were 2 persistent incidents which have been under continuous movement restrictions for 12 and 13 years. In previous years, both persistently infected herds had a survey for wildlife activity on farm and received additional advice on reducing potential cattle-wildlife interactions.

Using Whole Genome Sequencing (WGS), one of these incidents has been linked to TB deer isolates from 2022 and 2023, pointing to the close relationship between

wildlife and cattle in this herd, likely contributing to its persistence. These cattle were outside grazing all year round and thus in contact with potential wildlife transmission events of *M. bovis*.

Both herds were re-visited in 2024 to discuss enhanced persistent case management and biosecurity measures.

One of these herds re-located during 2023, dramatically decreased in size and switched from being a dairy unit to a beef suckler herd with the aim to achieve OTF status.

TB incidents in other species

There is no statutory routine TB surveillance of non-bovine species, apart from Post-Mortem Examination (PME) of animals slaughtered for human consumption, or carcasses submitted to veterinary laboratories for diagnostic investigation. Targeted TB testing takes place in non-bovine herds under TB movement restrictions due to PCR and/or bacteriological culture positive incidents of *M. bovis* infection, and in specific herds of camelids, goats and captive deer at an elevated risk of infection. Enhanced voluntary wildlife surveillance takes place in LRA hotspots, but not within the Edge Area. Although no active surveillance of wild deer is in place, reporting of suspected TB lesions in wild deer and wildlife carcasses is statutory and suspect carcasses are inspected and tested by APHA.

APHA, in collaboration with the University of Nottingham, conducted a survey in 2021 to 2023 to estimate the prevalence and geographic distribution of *M. bovis* infection in badgers found dead in Buckinghamshire, Oxfordshire, Berkshire, Hampshire and East Sussex, collectively known as the 'Southern Edge Area'. Volunteers were recruited in each county to help with the safe and timely retrieval of badger carcasses. They were delivered to the University of Nottingham, where they underwent post-mortem examination and testing for the presence of *M. bovis* infection by culture. *M. bovis* isolates from culture-positive badgers underwent WGS and clade identification (genetic strain) at APHA Weybridge. The project aimed to collect 100 carcasses of badgers found dead per county, most likely those killed in road traffic accidents (RTAs). Once 100 carcasses of a sufficient quality were examined per county, further collections ceased in that county. Once county targets were achieved, all stakeholders were informed. The survey ended in April 2023 and a paper describing its methodology and results has been written up and submitted for publication in a [scientific journal](#). The results of this survey will help develop a picture of the disease situation in the Southern Edge Area of England.

In 2024, there was one incident of TB reported in a cat in Berkshire, south of Reading. The WGS of the isolate was clade B6-62 and closely linked by WGS to cattle and previously collected wild deer isolates within the county (and further afield). However, the cat isolate appears to be geographically separate from this cluster of genetically related cattle and wild deer incidents, and no epidemiological links were identified. No other cat isolates were closely genetically linked.

Geographical distribution of TB incidents

As indicated in Figure 8, and similar to previous years, the majority of the new TB incidents in 2024 were within the western half of the county (Figure 8). In this area most herds undergo routine whole herd surveillance testing for TB every 6 months, and the cattle density is higher than in the eastern half of the county.

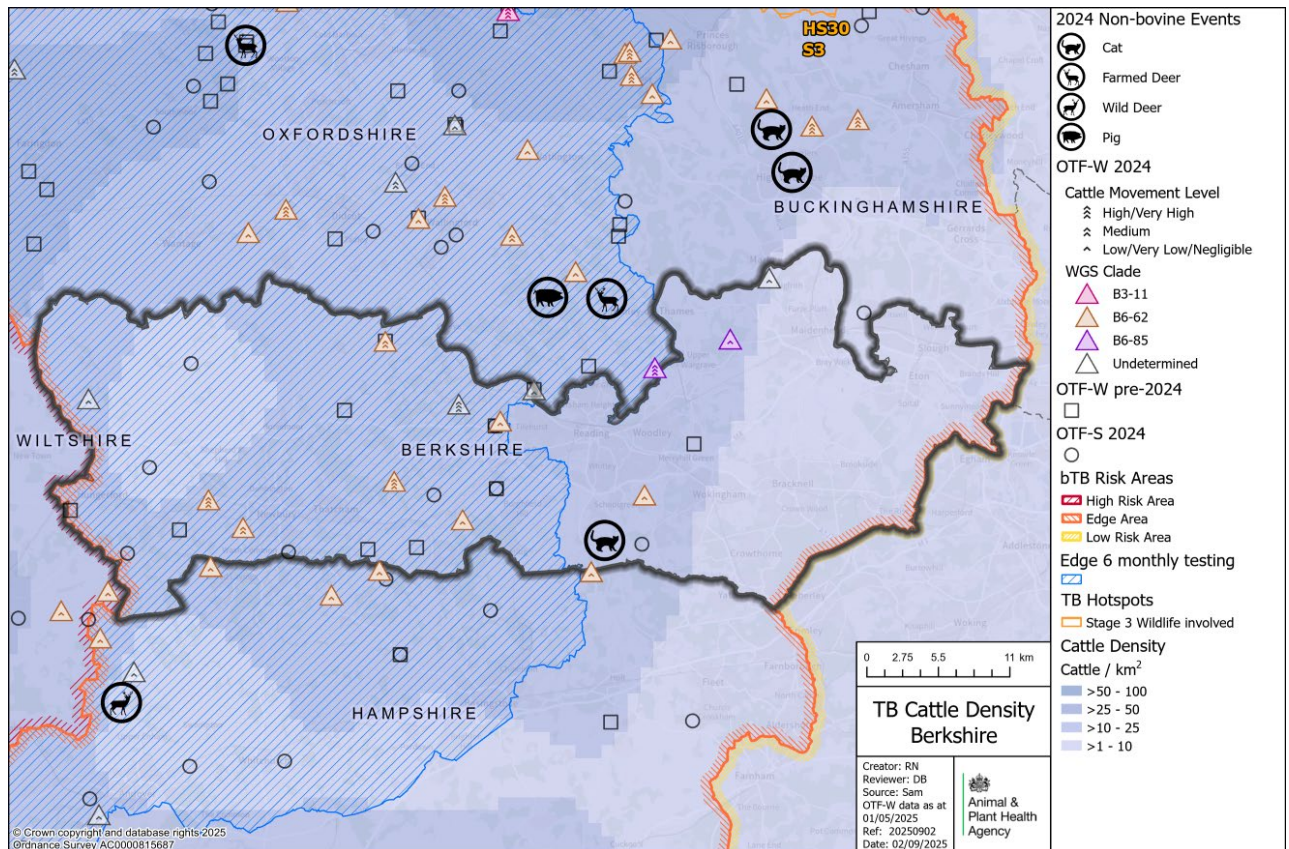


Figure 8: Location of cattle holdings in Berkshire with new TB incidents (OTF-W and OTF-S) and OTF-W incidents still ongoing at the beginning of 2024, overlaid on a cattle density map.

Figure 8 description: A map of Berkshire and adjoining areas showing the cattle density, the geographical location of cattle holdings with new TB incidents (OTF-W and OTF-S) in 2024, and cattle incident holdings with OTF-W incidents still ongoing at the beginning of 2024, shown as squares. Dark blue areas represent higher cattle density and light blue represent lower cattle density. The 2024 OTF-W incidents are shown as triangles, coloured by WGS clade, and contain chevrons to show the cattle movement algorithm (CMA) score allocated to the incident (low/medium/high-risk of cattle movements). Pink represents clade B3-11, brown represents clade B6-62 and purple represents clade B6-85. Transparent triangles represent incidents where the WGS clade was undetermined.

In 2024, 8 of the 11 OTF-W incidents were distributed throughout the 6-monthly testing area of Berkshire. As in previous years, the strain of *M. bovis* identified in

most (7) OTF-W incidents in Berkshire was WGS clade B6-62 (brown triangles, Figure 8).

Three of these incidents occurred towards the centre of the county in areas where other OTF-W incidents have previously been detected. One of these 3 incidents was highly likely to be linked to cattle movements (although the holding purchased cattle both from local and distant sources and phylogenetic data is not available to confirm the closest related isolates). The other 2 incidents had a low likelihood of being linked to cattle movements. Further WGS analysis was undertaken on both these incidents, which showed that the incident closer to the Oxfordshire border was part of the B6-62 Henley cluster (with closely related incidents in northern Berkshire and southern Oxfordshire). Two other nearby cattle holdings with incidents in the previous 4 years had very closely genetically related isolates, pointing to likely local disease spread.

The other central area B6-62 incident located further south, closer to the Hampshire border had identical *M. bovis* isolates to one isolated from nearby cattle in 2019. Two other nearby cattle holdings with incidents (one in Berkshire and one over the border with Hampshire) displayed very closely genetically related isolates, pointing to likely local disease spread.

Additionally, there was a different strain of *M. bovis* circulating concurrently on the same holding (with likely different source), as a further isolate, also B6-62, was genetically distant to the other 2 isolates and identical to isolates from 2 cattle premises in Warwickshire.

The fourth incident with clade B6-62 was located further north-west on the border with Oxfordshire, where a previous incident with the same clade occurred in 2022. This incident could have been linked to purchases of undetected infected cattle although other potential local sources cannot be ruled out.

The fifth and sixth clade B6-62 incidents were located in the southwest of the county, to the west of Thatcham, towards the border with northern Hampshire. Cattle movements were highly likely to be involved in one incident and likely to be involved in the other. Incidents, both OTF-W and OTF-S, continue to occur in this area, with clade B6-62 detected every year since WGS data was first available in 2019. Since 2019, cases in this area are being detected further to the west.

Finally, the causative WGS clade was undetermined for 3 OTF-W incidents. It is important to highlight that, without WGS information, the uncertainty on the likely sources increases.

In 2024, 7 of the 8 OTF-S incidents were distributed throughout the 6-monthly testing area of Berkshire. Within the 12-monthly testing area located to the east of Berkshire there were 4 incidents in 2024 (3 OTF-W and 1 OTF-S). One OTF-W incident was clade B6-62, with the main premises located to the south-east of Reading. However, some cattle from this herd grazed to the north of Reading. The assessment of the source pathway indicated a low likelihood of cattle movements onto the holding being involved in this incident. Further WGS analysis found identical *M. bovis* isolates from 2 different recent incidents in Oxfordshire, which also form part of the

B6-62 Henley cluster. It is possible that cattle grazing away from the main premises could have brought infection back to the main herd.

The other 2 OTF-W incidents in the annual testing area of Berkshire were in the north of the county. One incident on the border with Buckinghamshire did not have a WGS clade determined (this was an incident with TB visible lesions but subsequent negative culture). The other incident to the west of Maidenhead was WGS clade B6-85, with 3 very closely genetically related isolates identified in the affected holding. This clade has been detected in cattle only once before (in 2022) in Berkshire. An identical *M. bovis* isolate was identified from a sample collected from a badger carcass from within a few kilometres of this holding. The carcass was collected as part of a study, the results of which are published in a [scientific journal](#). Further WGS analysis showed that this incident was closely related to multiple incidents in neighbouring Oxfordshire which forms part of the B6-85 Henley cluster, the closest geographically approximately being 6 kilometres away. Cattle have also been purchased onto this holding but deemed to be a low likelihood of source for this incident.

One OTF-S incident occurred in the annual testing area, to the south of the county near the border with Hampshire, not far from where the cat incident was also disclosed.

Main risk pathways and key drivers for TB infection

Not all Disease Report Form (DRF) veterinary investigations to identify the source of infection were carried out in 2024, with 6 out of 19 (32%) new TB incidents in Berkshire receiving a preliminary or final investigation. The findings from these investigations are reported in Appendix 3.

New data driven methods to quantify the likelihood of risk pathways for TB infected herds have been developed by APHA, which include the:

- cattle movement algorithm
- WGS local transmission of infection indicator

The methodology used can be found in the [explanatory supplement for the annual reports 2024](#).

There is always a degree of uncertainty about the estimated true routes of TB infection into a herd. The absence of a local transmission event, or cattle movements associated with a high likelihood of infection does not completely negate these pathways. Nonetheless, the evidence provided by the cattle movement and WGS data, when combined, can provide valuable insights into the possible risk pathways. Figure 9 provides the percentage of herds where each risk pathway combination was identified. The spatial distribution of these categories is presented in Figure 10. Each category is described in greater detail in the following text.

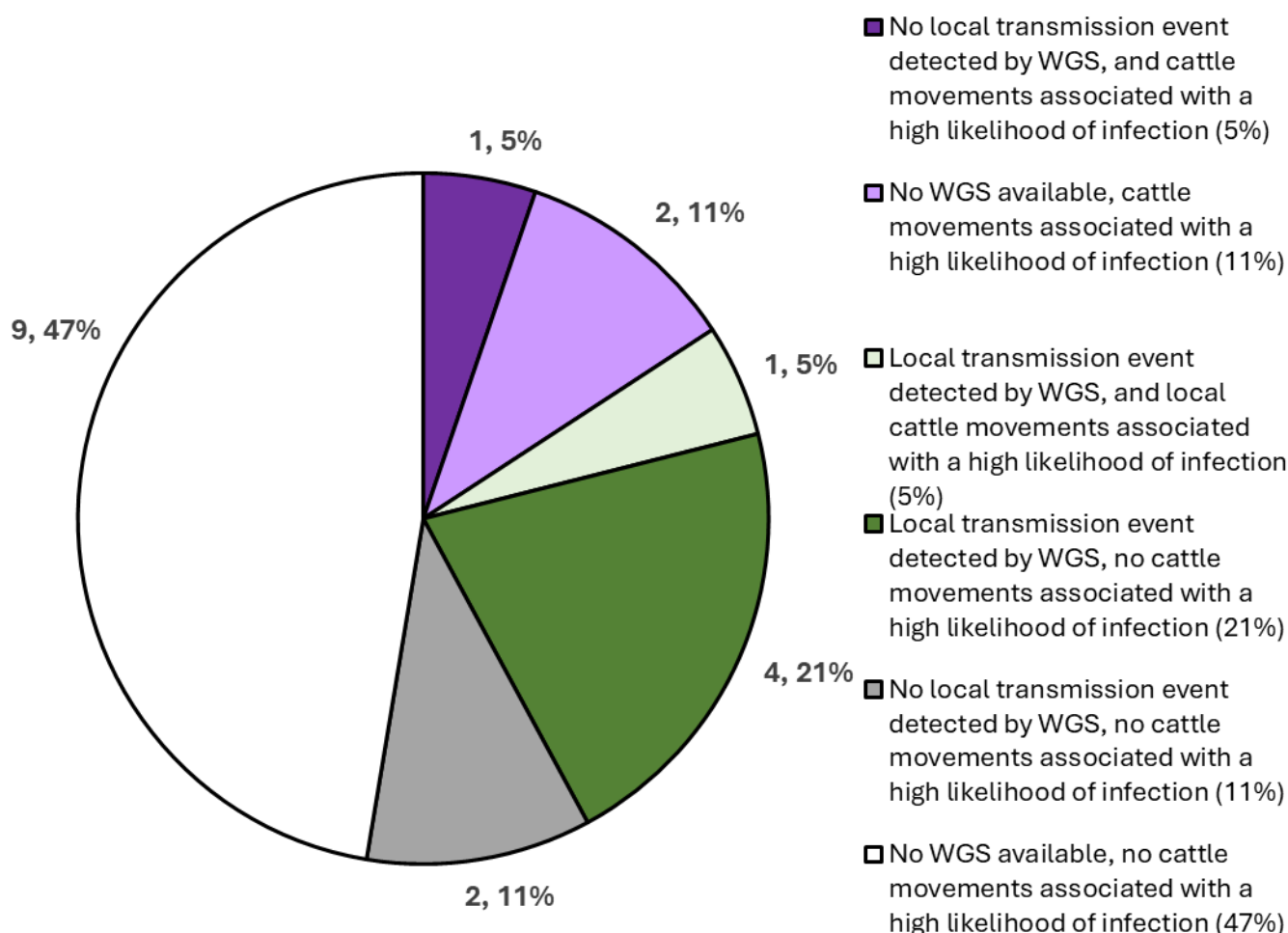


Figure 9: Pie chart showing the risk pathway combinations identified by the WGS local transmission of infection indicator and cattle movement algorithm for all 19 new TB incidents starting in Berkshire in 2024. Numbers presented in each segment display the number of new TB incidents in 2024 in each segment and the percentage of the total new TB incidents in Berkshire in 2024.

WGS data was available for 8 (42%) of all new TB incidents in Berkshire (73% of OTF-W incidents). The WGS local transmission of infection indicator identified evidence of local transmission for 5 (26%) new TB incidents in 2024 (Figure 9).

A local transmission event is defined as evidence from WGS data which identified another *M. bovis* isolate within 3 single nucleotide polymorphisms (SNPs) away from another incident, which occurred within a 9km radius, and within the previous 4 years or following 6 months after incident confirmation.

There were 4 OTF-W incidents (21% of all new incidents in 2024, dark green symbols in Figures 9 and 10) for which a broad spectrum of local pathways cannot be ruled out, including:

- residual infection in the herd
- contiguous contact with infected cattle
- direct or indirect contact with potentially infected wildlife

This is because for these incidents:

- WGS data was available
- a local transmission event was identified
- without strong evidence of high risk cattle movements

One OTF-W incident (5% of all new incidents in 2024, light green symbol in Figures 9 and 10) for which the source of infection may be attributed to the movement of undetected infected cattle from holdings within the local area (less than 25km), but other local infection pathways (as described above) cannot be ruled out.

This is because for this incident:

- WGS data was available
- a local transmission event was identified
- with strong evidence of local high risk cattle movements (within 25km)

There was one new OTF-W incident (5% of all new incidents in 2024, dark purple symbols in Figures 9 and 10) for which the movement of undetected infected cattle from outside the local area is the most likely source of infection, however local cattle movements cannot be ruled out.

This is because for this incident:

- WGS data available
- a local transmission event was not identified
- there was evidence of local or non-local high risk cattle movements

There were 2 TB incidents (11% of all new incidents in 2024, light purple symbols in Figures 9 and 10) for which the source of infection is likely to be related to the movement of undetected, infected cattle from within or outside the local area.

This is because for these incidents:

- no WGS data available
- local and non-local high risk cattle movements were identified

WGS data was not available for 11 (58%) of all new TB incidents in Berkshire, accounting for 3 OTF-W and 8 OTF-S incidents. This absence of genetic data limits our ability to identify if these incidents are likely to be linked to local transmission of disease. Nevertheless, in these instances, the cattle movement algorithm can still provide an indication on the presence/absence of cattle movements that could have played a part in disease transmission.

There were 2 OTF-W incidents (11% of all new incidents in 2024, grey symbols in Figures 9 and 10) for which the source of infection remains unclear.

This is because for these incidents:

- WGS data was available
- a local transmission event was not identified
- there was no evidence of local or non-local high risk cattle movements

There were 9 TB incidents (47% of all new incidents in 2024, white symbols in Figures 9 and 10) for which the source of infection remains unclear, but for which local pathways cannot be ruled out.

This is because for these incidents:

- no WGS data available
- no local or non-local high-risk cattle movements were identified

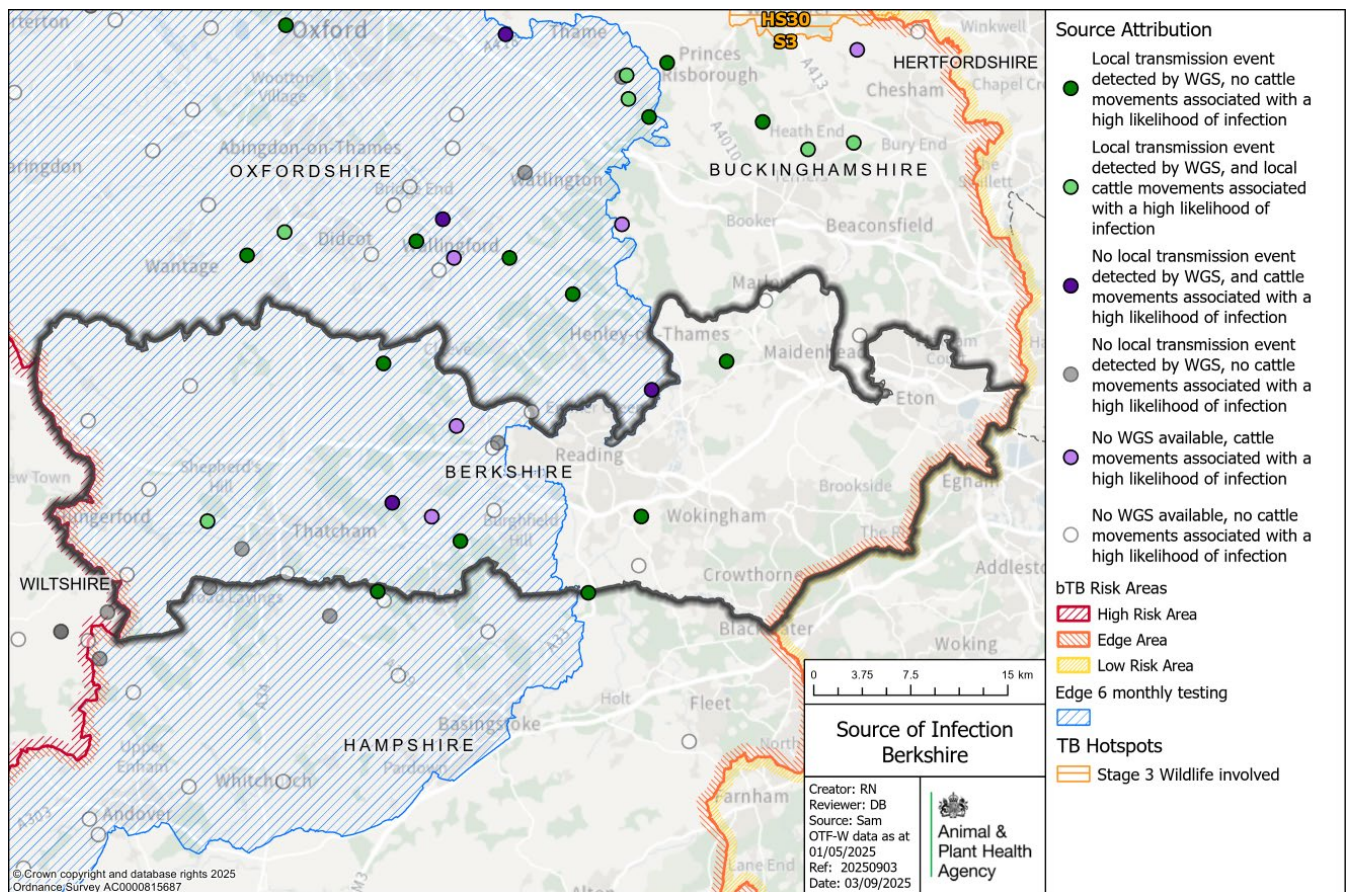


Figure 10: Map of the available evidence for risk pathways of TB infection into the herd, for all TB incidents (OTF-W and OTF-S) in Berkshire that started in 2024.

Figure 10 description: Map of the Berkshire and adjoining areas showing the locations of the 19 new TB incidents, coloured by the risk pathway identified for the incident. Dark green are herds with a local transmission event was identified from WGS and no cattle movements with a high likelihood of infection were identified in the herd, light green represents incidents where local transmission event was identified from WGS and local cattle movements with a high likelihood of infection were identified in the herd. Dark purple represents incidents where no local transmission event was identified from WGS and there were cattle movements identified with a high likelihood of infection in the herd. Light purple represents incidents with no WGS available and where there were cattle movements identified with a high likelihood of infection in the herd. Grey shows incidents where no local transmission event was identified from WGS and there were no cattle movements with a high likelihood of infection were identified in the herd either. White shows incidents with no WGS available and where there were no cattle movements with a high likelihood of infection were identified in the herd.

Most OTF-W incidents in Berkshire in 2024 were caused by infection with WGS clade B6-62 of *M. bovis* (Figure 11). This clade (equivalent to genotype 10:a and 10:u) was first disclosed in Berkshire in around 2010 and has been present and spreading across the county since then. Genotype 10:a had been present prior to 2010 in the area of Wiltshire bordering Berkshire, suggesting the original incursion was from the west, possibly via north-west Hampshire. It is currently well established in the centre of this county as shown by WGS. The B6-62 Henley (Oxfordshire) cluster continues to move southwards and eastwards, with further linked cases in Berkshire in 2024.

As in 2022 and 2023, WGS clade B6-85 continued to spread southwards from Oxfordshire's Henley Cluster. In 2024, there was one B6-85 incident that occurred in Berkshire, south of the boundary with Oxfordshire. The absence of cattle movements associated with a high likelihood of TB infection into this holding supports the likelihood of local wildlife being a probable source of infection. A badger carcase previously collected very close to this premises with an identical isolate to the cattle incident adds evidence that local wildlife is also infected and that could be playing a part in spreading infection in this area.

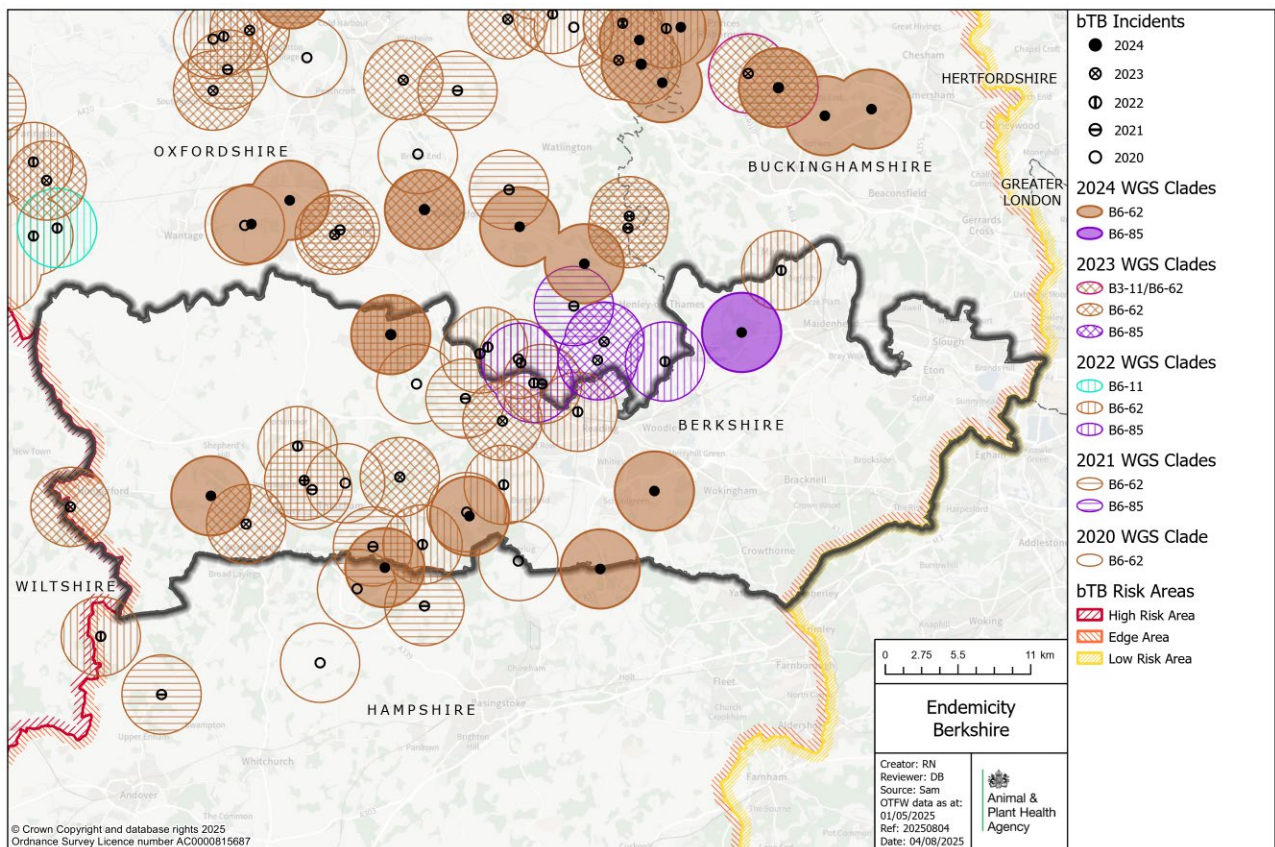


Figure 11: WGS clades of *M. bovis* detected in Berkshire between 2020 and 2024, where the WGS identified in the infected herd was within 3 SNPs of another TB incident that was within 9km and occurred in the previous 4 years or 6-months after the incident of interest, with a 3km buffer zone around each incident.

Figure 11 description: Map of Berkshire and adjoining areas showing the location of TB incidents with a WGS clade where a local transmission event was identified. Clades are shown as circles on the map with each clade represented by a different colour. The year from which the clade was identified is shown a solid colour (2024) or different types of hash (2020 to 2023).

Forward look

Until more recently 6-month surveillance testing of cattle herds in the west of Berkshire has likely helped to contain the spread of TB through earlier detection of disease. This should lead to shorter incidents with fewer reactors by reducing the available period for cattle-to-cattle spread within herds. This has been effectively seen in Berkshire since 2021 where the median duration of incidents has shortened year-on-year.

However, the number of new TB incidents in the county increased in 2024 compared to 2023. Following a decrease seen since the peak of incidence in 2019, the number of incidents has remained in a relatively stable range since 2020, with 2024 and 2021 being the 2 years (out of the last 5) with a higher number of incidents.

Therefore, TB appears to be spreading across the country despite the current TB control measures in place. Clusters of cases continue to be detected across the county, with likely local infections sources (including potential recrudescence). Incidents closely genetically related to both the B6-62 and B6-85 Henley clusters (primarily in Oxfordshire) continue to be detected in Berkshire. Other incidents in the south and west of the county appear to be also linked to local infection sources.

Also, a particular concern is that the annual testing east part of the Berkshire saw the highest number of new TB incidents since 2019, with some of those incidents appearing to be likely linked to local transmission events.

Additionally, with the joint highest level of recurrence in all the Edge Area counties, recurrence continues to be an important issue in Berkshire. Decreased levels of IFN- γ tests being performed since 2020, especially in the west of the county (where since 2021 only recurrent and persistent OTF-W incidents in the 6-monthly routine testing area have mandatory IFN- γ testing) could have contributed to the increase of residual infection being left within a herd.

Recurrence is also likely linked to locally infected wildlife. In the west of the county, there is evidence of infected wildlife which could have acted as a potential reservoir of infection for cattle. *M. bovis* WGS clade B6-62 has been isolated over several years in clusters of cattle incidents and infected wildlife which are closely genetically related.

The east of Berkshire has previously been considered to not have endemic TB. There is evidence of potential wildlife (badgers and wild deer) involvement in the spread and establishment of bovine TB endemicity both within the west (under 6-monthly routine herd testing) but also in the east (under 12-monthly routine herd testing) of Berkshire. Both WGS clades B6-62 and B6-85 were disclosed in the east of the county with local transmission events the most likely source for both cases. Both clades are well established in southern Oxfordshire, with clade B6-62 already well established within Berkshire.

Taking into account all of the above, consideration to enhancing cattle surveillance should be given. Extending the 6-monthly cattle surveillance testing to cover the

whole of the county, alongside increased IFN- γ implementation could help to halt the spread across the county and tackle the level of recurrence repeatedly seen within the county. Earlier detection and quick eradication would help to stop TB spreading from endemic areas to neighbouring lower incidence areas.

Further improvements in on-farm biosecurity to reduce transmission between wildlife and cattle are also essential to break the cycle of infection.

It would be also critical to continue with wildlife disease control measures including badger vaccination and local control of the wild deer population, where appropriate.

Cattle movements remain an important source of TB in this county. Careful, informed purchasing by cattle keepers should be encouraged, including the use of the online cattle mapping tool [ibTB](#).

Considering the recent trend, the likelihood of achieving OTF status in this county by the target of 2038 will be challenging and will require concerted efforts. The current incidence rate in Berkshire (12.6 incidents per 100 HYR) is much closer to the average incidence of the HRA (13.6) than the Edge Area (7.3). Enhancements to current TB control measures should be considered to assist progression towards TB eradication in the county, including, as already mentioned, extending the 6-monthly whole herd routine surveillance testing to cover all the county, alongside increased IFN- γ implementation.

Appendix 1: cattle industry demographics

Table 1: Number of cattle herds by size category in Berkshire as of 31 December 2024 (RADAR data on number of holdings in the report year)

Size of herds	Number of herds
Undetermined	3
1 to 50	86
51 to 100	33
101 to 200	17
201 to 350	12
351 to 500	1
Greater than 501	6
Total number of herds	158
Mean herd size	103
Median herd size	40

Table 2: Number (and percentage of total) of animals by breed purpose in Berkshire as of 31 December 2024

Breed purpose	Number (and percentage of total) cattle
Beef	12,866 (79%)
Dairy	3,040 (18%)
Dual purpose	304 (1%)
Unknown	6 (0.037%)
Total	16,216

Appendix 2: summary of headline cattle TB statistics

Table 3: Herd-level summary statistics for TB in cattle in Berkshire between 2022 and 2024 (SAM data)

Herd-level statistics	2022	2023	2024
(a) Total number of cattle herds live on Sam at the end of the reporting period	214	197	195
(b) Total number of whole herd skin tests carried out at any time in the period	283	255	275
(c) Total number of OTF cattle herds having TB whole herd tests during the period for any reason	169	156	158
(d) Total number of OTF cattle herds at the end of the report period (herds not under any type of TB movement restrictions)	193	179	167
(e) Total number of cattle herds that were not under restrictions due to an ongoing TB incident at the end of the report period	200	184	177
(f.1) Total number of new OTF-S TB incidents detected in cattle herds during the report period	7	6	8
(f.2) Total number of new OTF-W TB incidents detected in cattle herds during the report period	11	7	11
(f.3) Total number of new TB incidents (OTF-W and OTF-S) detected in cattle herds during the report period.	18	13	19
(g.1) Of the new OTF-W herd incidents, how many can be considered the result of movement, purchase or contact from or with an existing incident based on current evidence?	1	1	3

Herd-level statistics	2022	2023	2024
(g.2) Of the new OTF-W herd incidents, how many were triggered by skin test Reactors or twice-inconclusive reactors (2xIRs) at routine herd tests?	6	4	4
(g.3) Of the new OTF-W herd incidents, how many were triggered by skin test Reactors or 2xIRs at other TB test types (such as forward and back-tracings, contiguous or check tests)?	4	1	5
(g.4) Of the new OTF-W herd incidents, how many were first detected through routine SLH TB surveillance?	1	2	2
(h.1) Number of new OTF-W incidents revealed by enhanced TB surveillance (radial testing) conducted around those OTF-W herds	1	0	2
(h.2) Number of new OTF-S incidents revealed by enhanced TB surveillance (radial testing) conducted around those OTF-W herds	1	0	1
(i) Number of OTF-W herds still open at the end of the period (including any ongoing OTF-W incidents that began in a previous reporting period)	12	9	13
(j) New confirmed (positive M. bovis culture) incidents in non-bovine species detected during the report period (indicate host species involved)	2 wild muntjac deer	1 wild muntjac deer	1 cat
(k.1) Number of grazing approved finishing units active at end of the period	0	0	0

Herd-level statistics	2022	2023	2024
(k.2) Number of non-grazing approved finishing units active at end of the period	2	2	2
(k.3) Number of grazing exempt finishing units active at end of the period	0	0	0
(k.4) Number of non-grazing exempt finishing units active at end of the period	0	0	0

Table 4: Animal-level summary statistics for TB in cattle in Berkshire between 2022 and 2024

Animal-level statistics (cattle)	2022	2023	2024
(a) Total number of cattle tested with tuberculin skin tests or additional IFN- γ blood tests in the period (animal tests)	34,844	34,067	31,903
(b.1) Reactors detected by tuberculin skin tests during the year	109	81	151
(b.2) Reactors detected by additional IFN- γ blood tests (skin-test negative or IR animals) during the year	4	19	62
(c) Reactors detected during year per incidents disclosed during year	6.3	7.7	11.2
(d) Reactors per 1,000 animal tests	3.2	2.9	6.7
(e.1) Additional animals slaughtered during the year for TB control reasons (dangerous contacts, including any first time IRs)	21	10	38
(e.2) Additional animals slaughtered during the year for TB control reasons (private slaughters)	0	0	6
(f) Slaughterhouse (SLH) cases (tuberculous carcasses) reported by the Food Standards Agency (FSA) during routine meat inspection	10	14	11

Animal-level statistics (cattle)	2022	2023	2024
(g) SLH cases confirmed by M. bovis PCR testing or bacteriological culture	10	12	8

Note (c) Reactors detected during year per incidents disclosed during year, reactors may be from incidents disclosed in earlier years, as any found through testing during the report year count in the table above.

Note (g) SLH cases confirmed by culture of M. bovis, not all cases reported are submitted for culture analysis. All cases reported are from any period prior to or during restrictions.

Appendix 3: suspected sources of *M. bovis* infection for all the new OTF-W and OTF-S incidents identified in the report period

In 2024, 6 out of 19 (32%) new TB incidents in Berkshire received a preliminary or final APHA veterinary investigation to identify the source of infection. Not all Disease Report Form (DRF) investigations were carried out in 2024.

Each TB incident could have up to 3 potential risk pathways identified. Each risk pathway is given a score that reflects the likelihood of that pathway bringing TB into the herd. The score is recorded as either:

- definite (score 8)
- most likely (score 6)
- likely (score 4)
- possible (score 1)

The sources for each incident are weighted by the certainty ascribed. Any combination of definite, most likely, likely, or possible can contribute towards the overall picture for possible routes of introduction into a herd. If the overall score for a herd is less than 6, then the score is made up to 6 using the 'Other or unknown source' option. Buffering up to 6 in this way helps to reflect the uncertainty in assessments where only 'likely' or 'possible' sources are identified.

Table 5 combines the data from multiple herds and provides the proportion of pathways in which each source was identified, weighted by the certainty that each source caused the introduction of TB. The output does not show the proportion of herds where each pathway was identified (this is skewed by the certainty calculation). WGS of *M. bovis* isolates can be a powerful tool in identifying a likely source of infection, however WGS clades are not determined for OTF-S herds. As a result of varying levels of uncertainty, only broad generalisations should be made from these data. A more detailed description of this methodology is provided in the [explanatory supplement for the annual reports 2024](#).

Table 5: Suspected sources of M. bovis infection for the 6 incidents with a preliminary or a final veterinary assessment in Berkshire, in 2024

Source of infection	Possible (1)	Likely (4)	Most likely (6)	Definite (8)	Weighted contribution
Badgers	5	5	0	0	26.7%
Cattle movements	10	0	0	0	12.1%
Contiguous	0	0	0	0	0.0%
Residual cattle infection	2	6	2	0	40.2%
Domestic animals	0	0	0	0	0.0%
Non-specific reactor	0	0	0	0	0.0%
Fomites	0	0	0	0	0.0%
Other wildlife	7	0	0	0	8.2%
Other or unknown source	0	0	0	0	12.8%

Please note that each TB incident could have up to 3 potential pathways so totals may not equate to the number of actual incidents that have occurred.



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