Animal &
Plant Health
Agency

# Year End Descriptive Epidemiology Report: Bovine TB in the Edge Area of England 2022

## County: Leicestershire

## Contents

# Introduction

The Edge Area was originally established in 2013. In 2014, the bovine tuberculosis (TB) surveillance strategy for this area was incorporated into the UK Government's Strategy to achieve Officially Bovine Tuberculosis-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 vary the approach to control accordingly. The current aim is to obtain OTF status for the Edge Area as soon as possible.

This report describes the frequency and geographical distribution of TB in cattle herds in Leicestershire, an Edge Area county, in 2022. 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.

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 is intended for individuals involved in the control of TB, both locally and nationally. This includes, but it is not limited to, farmers, veterinarians, policy makers and the scientific community.

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 2022.

# Types of TB incident

Unless otherwise specified, this report includes all new TB incidents detected during the reporting period (1 January to 31 December 2022). This includes both 'Officially Tuberculosis-Free Status Withdrawn' (OTF-W) and 'Officially Tuberculosis-Free Status Suspended' (OTF-S) incidents.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 at least one skin test reactor positive to the Single Intradermal Comparative Cervical Tuberculin or SICCT test, in addition to either typical lesions of TB identified at post-mortem (PM) meat inspection, or at least one animal with an *M. bovis*-positive culture result from tissue samples collected from carcases during the PM inspection (or both).

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

TB incidents in Approved Finishing Units (AFUs) without grazing are not included in the prevalence and incidence calculations in this report due to the limited epidemiological impact of these incidents.

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.

## Cattle industry

Beef is the predominant cattle enterprise in Leicestershire (64% of cattle). However, there is a significant number of large dairy herds, most of which are in the north-east of the county. As in previous years, the majority of herds (485, 61%) had fewer than 100 cattle, with a median size of 67 cattle. This is indicated in Appendix 1. There is one livestock auction market for cattle in Leicestershire: Melton Mowbray Market. This market was approved by APHA in 2018 to hold dedicated sales for TB-restricted cattle.

There were 13 AFUs in Leicestershire in 2022, as listed in Appendix 2. This was a reduction by one from 2021.

## New TB incidents

The number of new TB incidents in Leicestershire decreased in 2022 compared to 2021, from 54 to 51, as shown in Figure 1. There was a decrease in new OTF-S incidents from 40 in 2021 to 29. The number of OTF-W incidents increased by 57% from 14 in 2021 to 22. While this is a large increase, the number of OTF-W incidents was still lower in 2022 than 2020 (33) and the same as in 2018 and 2019. This is the second consecutive year that the total number of new TB incidents in Leicestershire decreased.

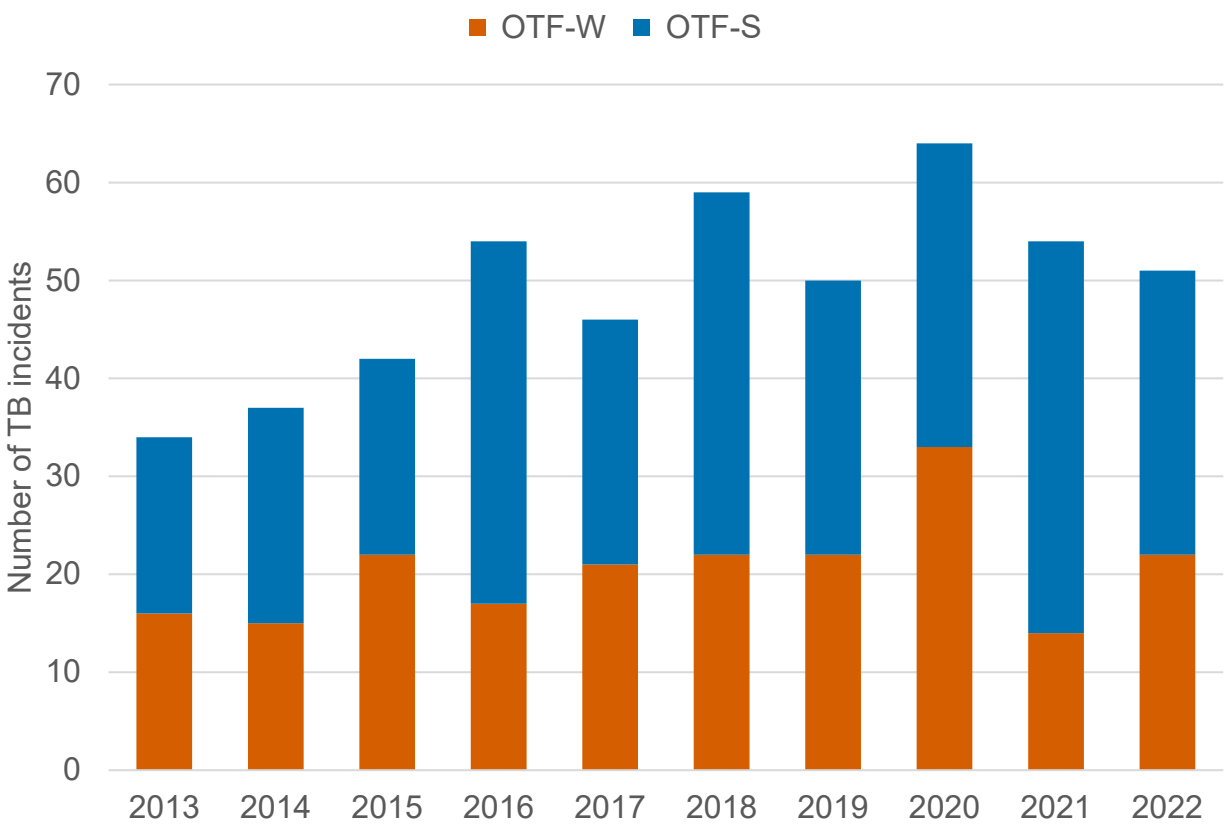


Figure 1: Annual number of new TB incidents in Leicestershire, from 2013 to 2022.

## Disclosing test types

As shown in Figure 2, whole herd testing (WHT) detected most of the new incidents of TB (22) in 2022. This was followed by radial testing (9). In 2020 and 2021, radial testing detected the most incidents of TB in the county, followed by WHT. The reduction in incidents detected by radial may be explained by several reasons:

- reduced local spread from index incidents.
- a change in classification of test types used by APHA- herds in the hotspot area of the north-east undergo more regular testing due to the higher level of disease pressure in the area. It may be that incidents were disclosed on a routine test as opposed to a reactive radial test.
- compared to 2021, more OTFW incidents were disclosed in the south of the county, where disease pressure is less (compared to the north). It would be expected that an area such as this would have fewer incidents in a radial zone compared to one in the north.

Hotspot testing detected 6 new incidents of TB in 2022, an increase from 2 in 2021. This highlights the importance of ongoing compliance with testing regimes.

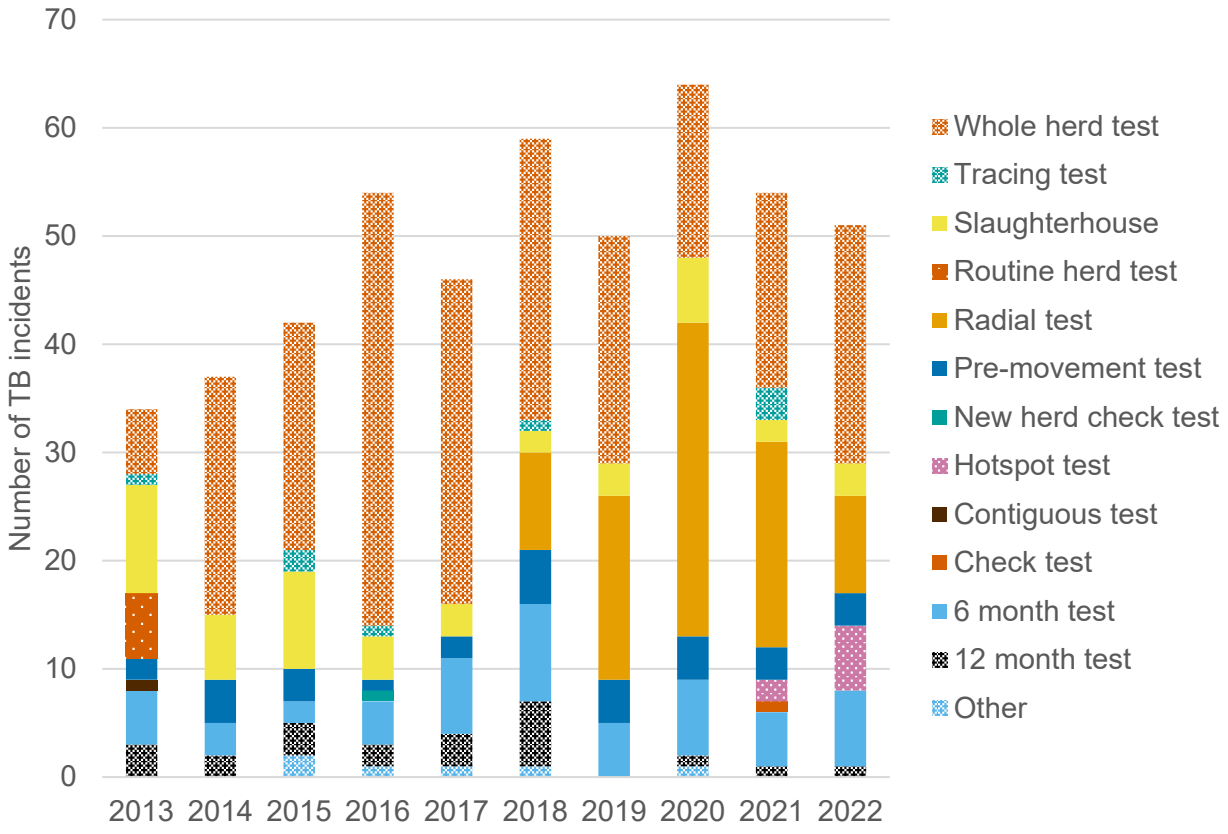


Figure 2: Number of new TB incidents (OTF-W and OTF-S) in Leicestershire in 2022, according to the surveillance methods that detected them.

## Duration of TB incidents

A total of 46 TB incidents were resolved in Leicestershire during 2022. Of these, 25 were new TB incidents that started in 2022, 18 had started in 2021, 2 in 2020 and one in 2019.

The median duration for OTF-W incidents that ended in 2022 was 258 days (interquartile range (IQR) 167 to 403). One OTF-W incident took over 550 days to resolve, but the majority (13 out of 14) were ended in 550 days or less.

Most OTF-S incidents that ended in 2022 (25 out of 32) were resolved within 240 days, 3 of which took less than 150 days to resolve. Six incidents were resolved between 241 and 550 days, and one in more than 550 days. The median duration was 172 days (IQR 156.5 to 216).

There were no TB incidents still open at the end of 2022 that had been under movement restrictions for more than 550 days.

The median duration for all incidents (both OTF-W and OTF-S) that ended in 2022 was 179.5 days (IQR 159 to 267). This is shorter than the duration of incidents that ended in

2021; 206 days (IQR 165 to 295). For the whole Edge Area, the median duration of TB incidents that ended in 2022 was 182 days (IQR 157 to 286).

## Unusual TB incidents

One OTF-W incident lasting over a year occurred in a dairy farm of approximately 350 cattle. A total of 94 reactors were removed over the 5 short-interval tests (SITs) carried out on this herd. The most likely cause of infection was residual infection on farm from a previous breakdown, though reinfection via infected wildlife could not be ruled out.

Another OTF-W incident lasted 688 days. Two reactors were removed after skin testing and 6 following an interferon gamma (IFN-γ) test out of a herd of about 350 cattle. This again was likely residual infection from a previous breakdown.

One OTF-S incident lasted 1,092 days. The reactor was purchased from the Edge Area. Delays in incident closure were due to Cattle Tracing System (CTS) discrepancies.

## TB 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. Targeted TB testing takes place in non-bovine herds with laboratory confirmed *M. bovis* infection, and in specific herds of camelids, goats and captive deer at an elevated risk of infection.

There were no incidents of TB in other non-bovine species in Leicestershire in 2022.

## Incidence of TB

In 2022, Leicestershire had 6.5 new incidents of TB per 100 herd-years of risk. This was lower than the Edge Area overall (7.6). Leicestershire was ranked sixth for incidence out of the 11 Edge Area counties. TB incidence per 100 herd-years at risk decreased in Leicestershire in 2022 (6.5) compared to 2021 (7.3), as displayed in Figure 3. This is the second year in a row that the incidence has decreased in Leicestershire since 2020.

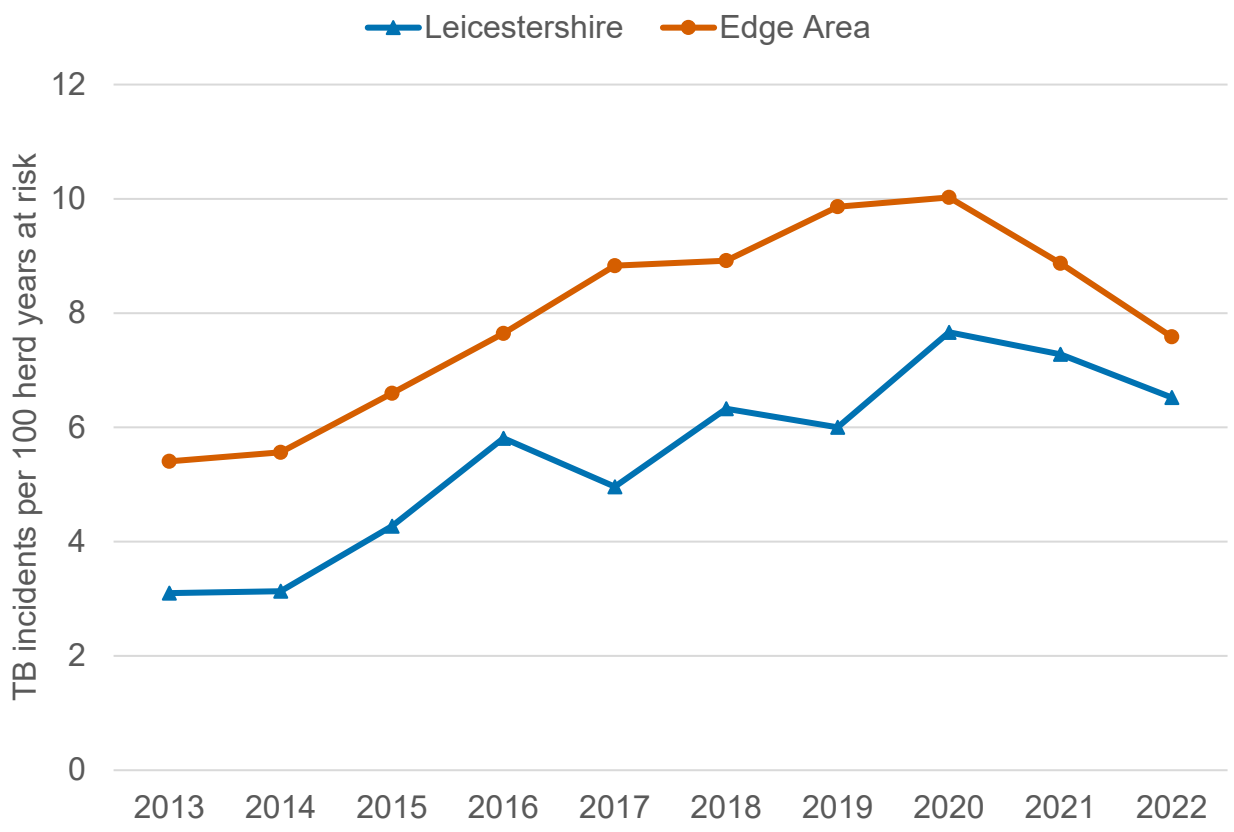


Figure 3: Annual incidence rate (per 100 herd-years at risk) for all new incidents (OTF-W and OTF-S) in Leicestershire from 2013 to 2022.

## Prevalence of TB

Whole county herd prevalence increased in 2022 (3.1%) compared to 2021 (2.7%), as displayed in Figure 4. The increase in prevalence contrasts with the decrease in the incidence rate in 2022. As prevalence depends on the number of active incidents at one point in time, any factors that delay the resolution of an incident, or increase the probability of detecting new incidents towards the end of the year, will increase the prevalence.

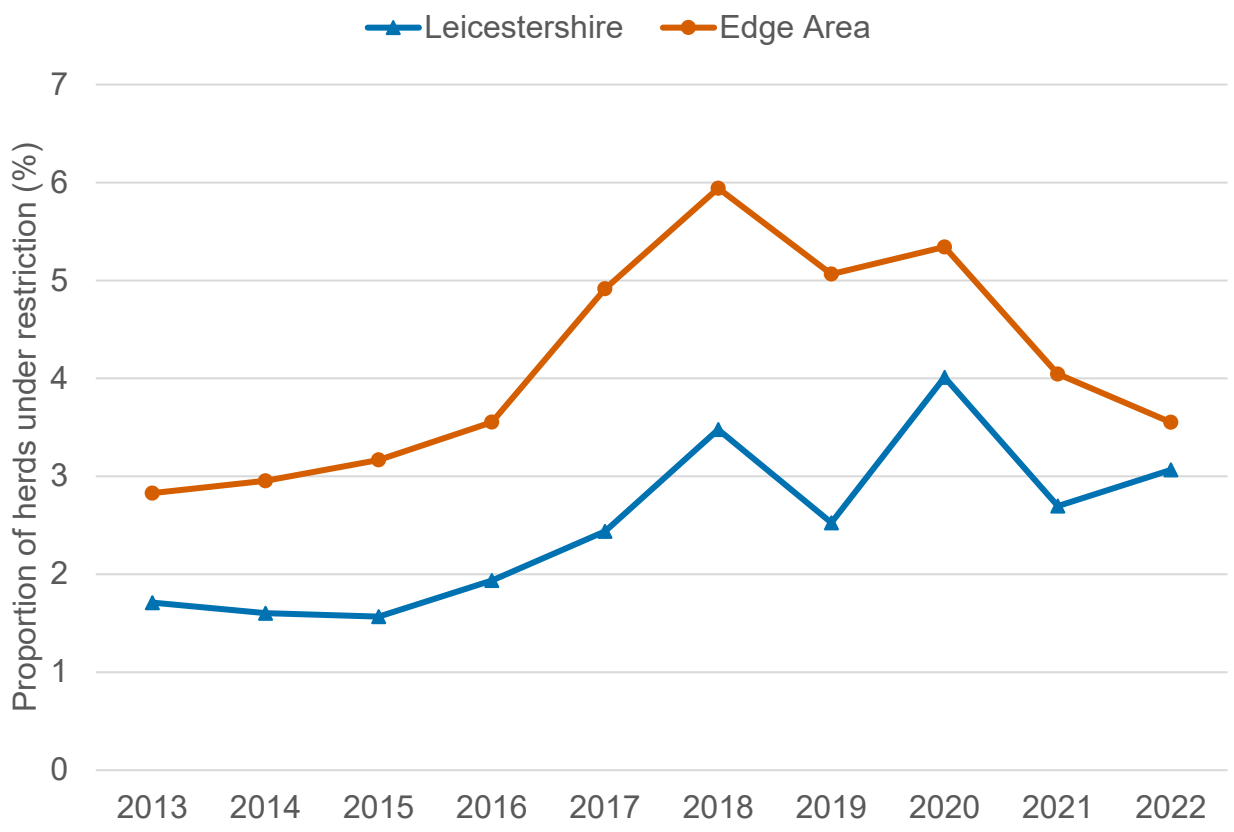


Figure 4: Annual end of year prevalence in Leicestershire, from 2013 to 2022.

## Re-occurring TB incidents

In Leicestershire, 11 of the 28 (38%) herds with a new OTF-S incident in 2022 had a history of TB (experienced another breakdown in the past 3 years). For OTF-W incidents, 5 of the 22 (23%) had a history of TB, as shown in Figure 5. This means 31% of new incidents had a history of TB, which was lower than the Edge Area overall (50%). Leicestershire had the third lowest re-occurring rate after Nottinghamshire (6%) and Hampshire (27%).

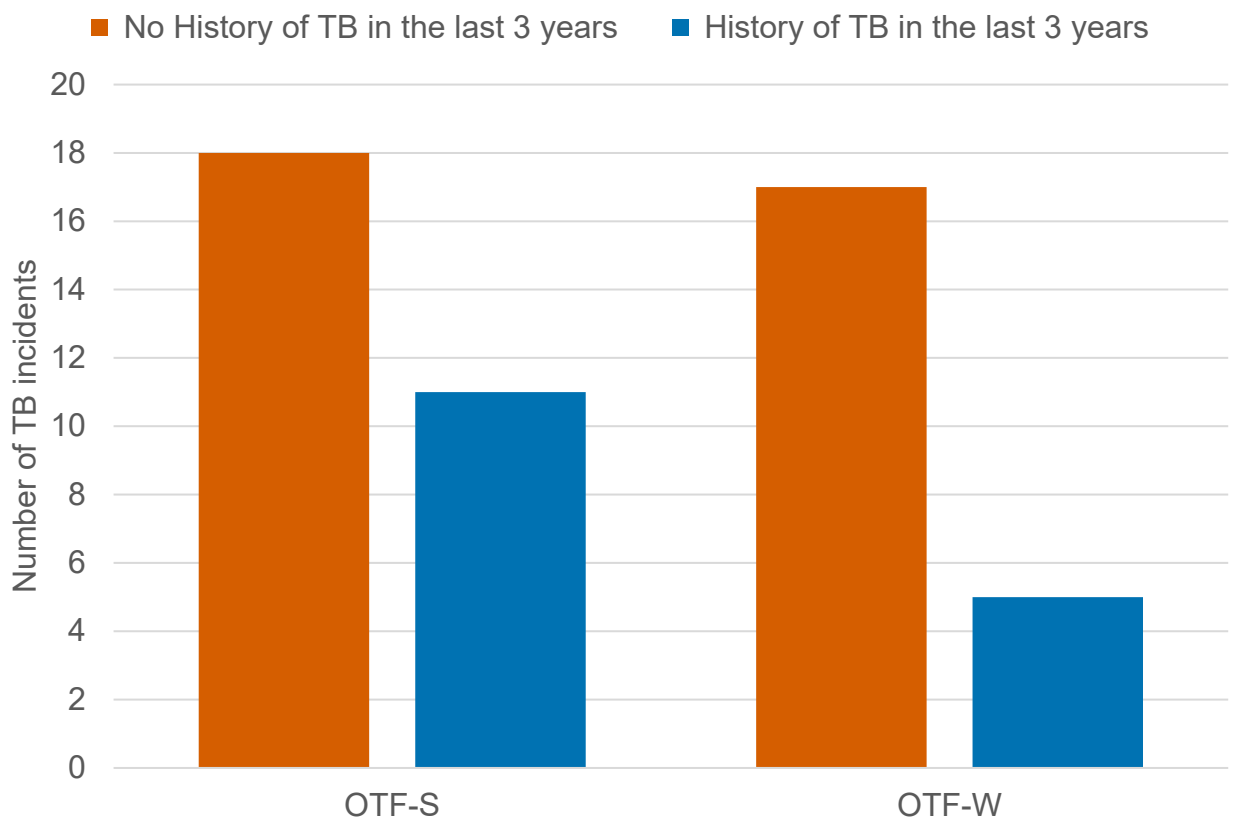


Figure 5: Number of herds with a TB incident (by OTF-W and OTF-S) in Leicestershire in 2022, with and without a history of any TB incident in the previous three years .

## Geographical distribution of TB incidents

The geographical distribution of new TB incidents in 2022 generally mirrored the uneven density of cattle holdings across Leicestershire, with higher densities in the north and south of the county and a low density of herds across the centre. This is similar to the distribution in previous years, as shown in Figure 6.

In previous years, OTF-S incidents were mainly located in the south-west of Leicestershire, however in 2022 they also occurred in the north and east of the county.

The Whole Genome Sequencing (WGS) clades of *M. bovis* isolated from the new TB incident herds detected in 2022 were mainly B3-11 (genotype 25:a).

A small number of TB incidents were caused by WGS clade B6-11.

Two incidents, one in the north-west and the other in the south-west were caused by WGS clade B6-62.

New incidents with B6-52, B1-11, and B6-11/B6-14 were disclosed in one TB incident each.

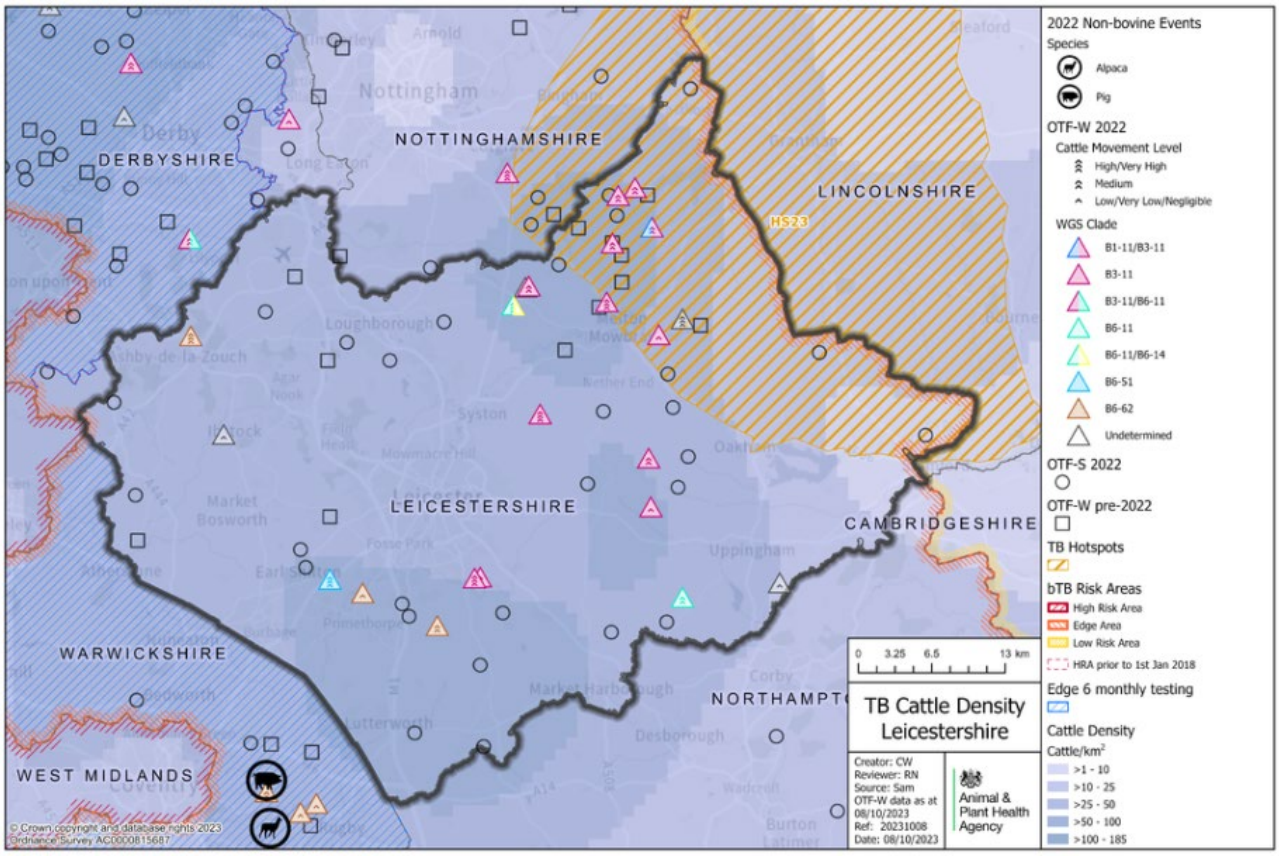


Figure 6: Location of cattle holdings in Leicestershire with new TB incidents (OTF-W and OTF-S) in 2022 and cattle holdings with pre-2022 OTF-W incidents still ongoing at the beginning of 2022, overlaid on a cattle density map. The movement score for each farm is symbolised with 3 chevrons for cattle movements associated with a high likelihood of infection, 2 chevrons for a medium likelihood and one chevron for a low likelihood.

## Skin test reactors and interferon gamma test positive animals removed

In 2022, there was a total of 274 test positive animals in Leicestershire, as shown in Figure 7. This was a decline in the number of test positive animals removed from herds from 482 in 2021. The 2021 figure was likely due to a number of incidents with a high number of reactors being removed. There were also less IFN-γ tests done in 2022, compared to 2021.

Both the diversion of staff resources into the highly pathogenic avian influenza (AI) outbreak, and policy changes, which restricted the mandatory deployment of IFN-γ tests to herds that had another TB incident within the past 18 months, could have accounted for the reduction in IFN-γ tests between 2021 and 2022.

Of the 274 test positive animals in 2022, 52% were skin test reactors and 48% were FN-γ test positive, which was similar to 2021.

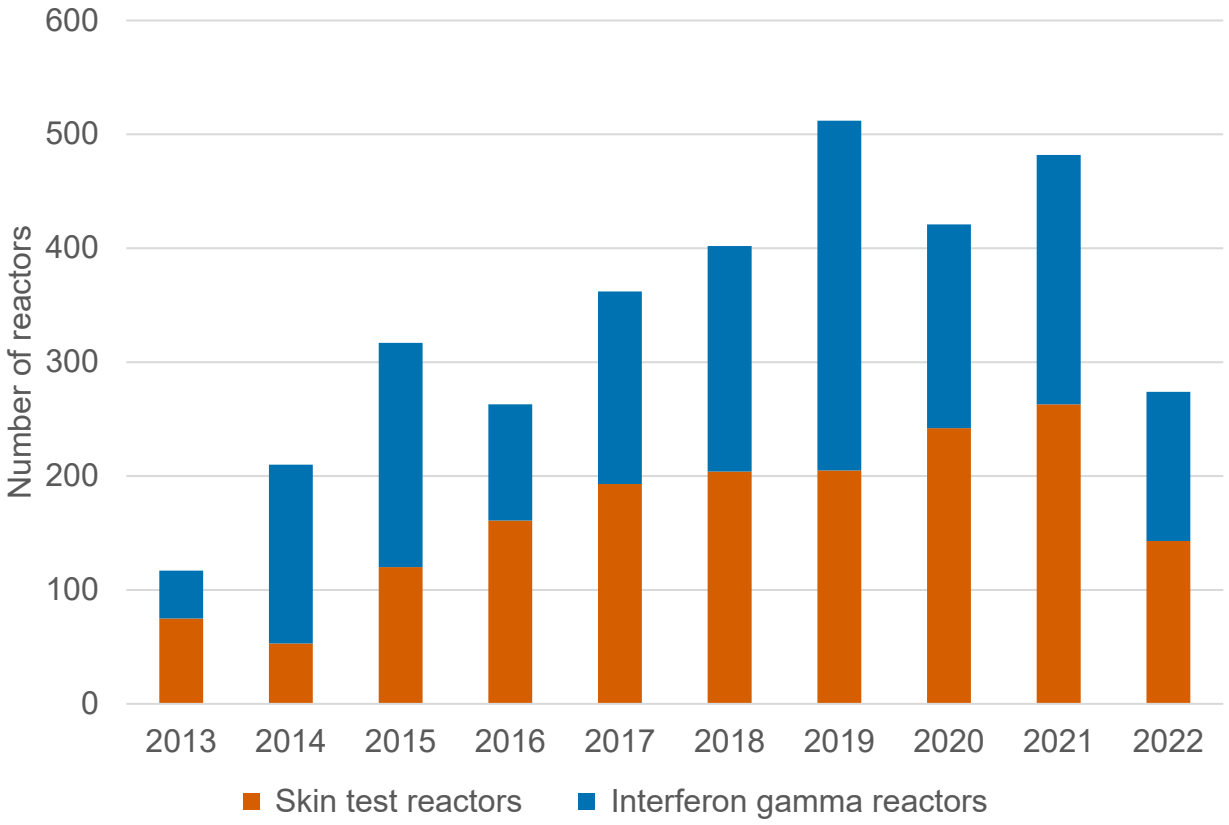


Figure 7: Number of skin test reactors (SICCT) and interferon gamma (IFN-γ) test positive cattle removed by APHA for TB control reasons in Leicestershire, from 2013 to 2022.

## Main risk pathways and key drivers for TB infection

It is important to try to understand the risk pathways and key drivers that are likely to have introduced TB infection into a herd. This information can help identify mitigations that may reduce TB risk for individual businesses.

Implementing practical measures can help to reduce the risk of TB incursion into a herd that is TB free (biosecurity), as well slowing disease spread within a herd where TB is present (biocontainment).

Furthermore, the ibTB online tool can be used to inform purchasing choices, reducing the risk of introducing undetected infection when moving cattle into a herd.

In 2022, 7 out of 51 (14%) new TB incidents in Leicestershire received a preliminary or final APHA veterinary investigation to identify the source of infection. The results of these investigations are reported in Appendix 3. The small number of investigations carried out in 2022 was mainly due to the diversion of field resource to the large AI outbreaks which occurred in 2021 and 2022.

New data driven methods to quantify the likelihood of risk pathways for TB infection have been developed by APHA. These include the:

- Cattle Movement Algorithm
- WGS Local Reservoir Indicator

The Cattle Movement Algorithm uses cattle movement data to identify individual animals that were moved into a herd as having a negligible, very low, low, medium, high or very high likelihood of being the source of the TB infection. At the herd level, the cattle movement score is dictated by the highest ranked animal movement into that herd. Herds are classified as having either:

- cattle movements associated with a high likelihood of infection (a herd with any movements scored as a high or very high likelihood)
- no cattle movements with a high likelihood of infection (the highest likelihood score was negligible, very low, low or medium).

The WGS Local Reservoir Indicator uses WGS data from cattle *M. bovis* isolates to identify TB incidents that are linked by genetics, time and space. A TB incident where at least one other TB incident is identified that satisfies all the following 3 criteria is considered to have evidence of a local reservoir of infection:

- it has a WGS with no more than three single nucleotide polymorphism (SNP) differences relative to the TB incident of interest
- it is within 4 years before or 6 months after the start date of the incident of interest,
- it is within a 9km radius of the incident of interest.

Further details about the methodology used can be found in the explanatory supplement to the annual reports 2022.

There is always a variable degree of uncertainty about the estimated true routes of TB infection into a herd. The absence of a local reservoir, 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 8 provides the percentage of herds where each risk pathway combination was identified. The spatial distribution of these categories are presented in Figure 9. Each category is described in greater detail in the following text.

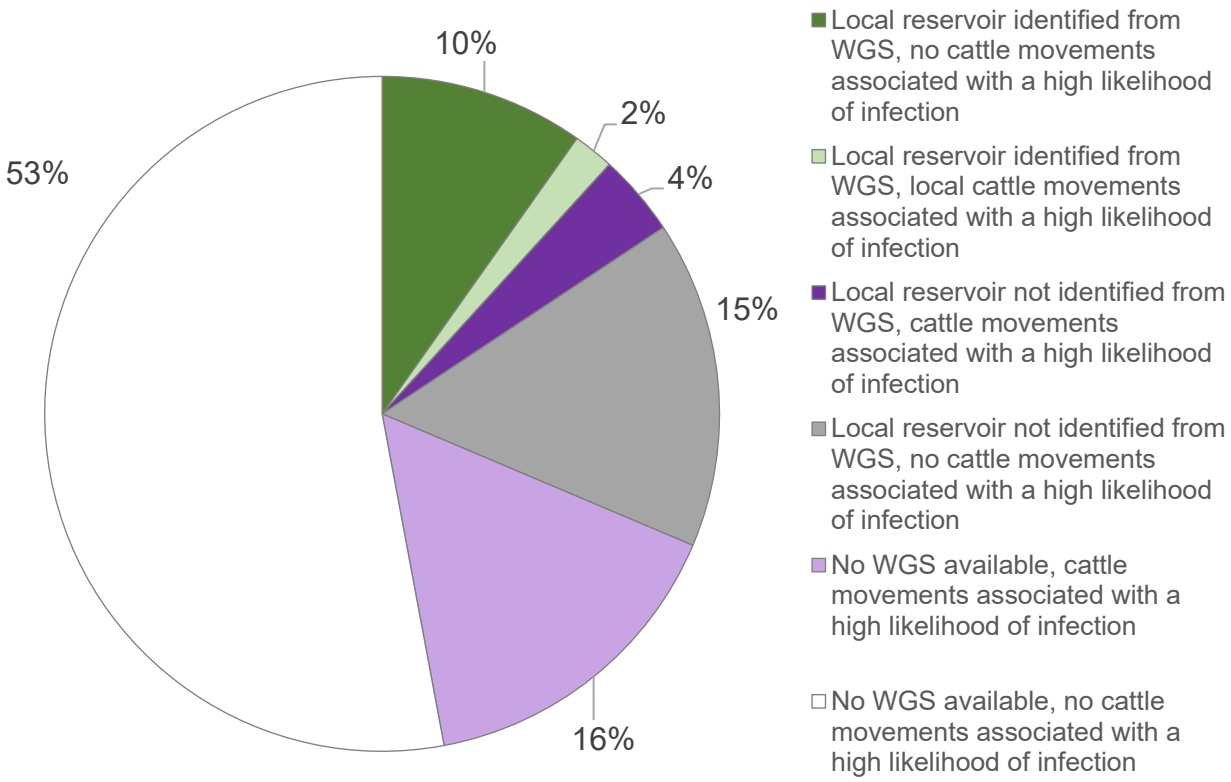


Figure 8. Risk pathway combinations identified by the WGS local reservoir indicator and cattle movement algorithm for all 51 new TB incidents in Leicestershire in 2022

WGS data was available for 16 (31%) of all new TB incidents in Leceistershire. The WGS Local Reservoir Indicator identified a local reservoir of infection for 6 (12%) new TB incidents in 2022.

Of the TB incidents with WGS data available, 5 (10%) had a local reservoir identified without evidence of cattle movements associated with a high likelihood of TB infection. These are dark green symbols in Figure 9. For these cases, 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.

One TB incident had evidence of both a local reservoir and local cattle movements (within 25km) associated with a high likelihood of TB infection. For this incident, local cattle movements may have played a part in the spread of local infection, in addition to the previously listed local pathways. This incident is symbolised in light green.

In Leicestershire, 2 TB incidents (4%) had evidence of cattle movements associated with a high or very high likelihood of TB infection, and no evidence of a local reservoir, where

WGS was available. For those herds it was considered more likely than not that cattle movements played a part in the introduction of infection (dark purple symbols, Figure 9).

For a further 8 (16%) TB incidents, there was evidence for cattle movements with a high or very-high likelihood of TB infection, but WGS data was not available to look for a local reservoir. These incidents are depicted in light purple in Figure 9 due to the lack of genetic evidence.

For 8 (15%) TB incidents, the WGS Local Reservoir Indicator did not find evidence of a local reservoir, and there was no evidence of cattle movements associated with a high likelihood of TB infection. The source of infection was unclear for these TB incidents (grey symbols, Figure 9).

There was no evidence of cattle movements associated with a high likelihood of TB infection and no WGS available to explore the presence of a local reservoir for 27 of the 51 (53%) TB incidents. These are shown as white dots in Figure 9, as there was insufficient evidence to determine a likely infection pathway.

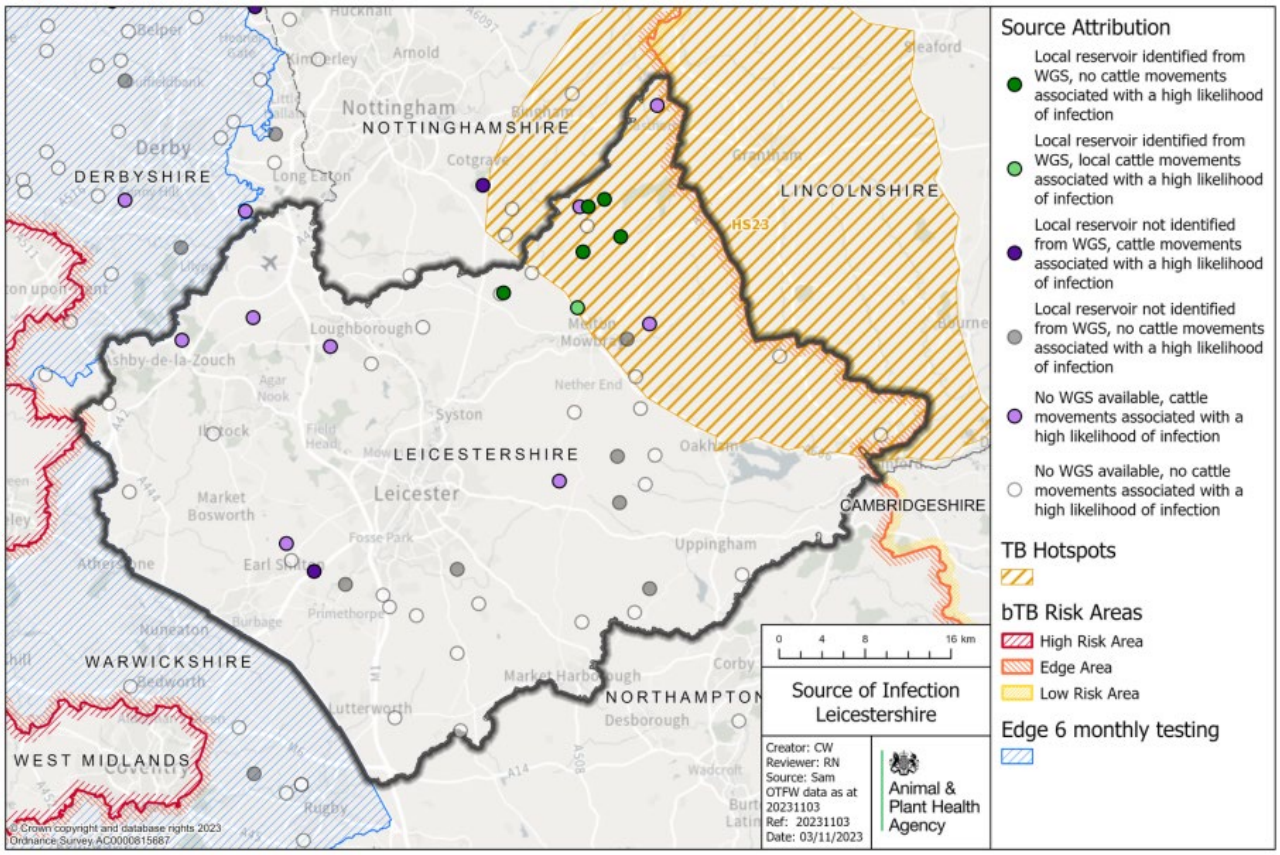

Figure 9: Map of the available evidence for risk pathways of TB infection into the herd, for all TB incidents (OTF-W and OTF-S) in Leicestershire that started in 2022.

## Confirmed Hotspot 23

Most OTF-W incidents were found in north-east Leicestershire near Melton Mowbray. This area is covered by confirmed Hotspot 23 (HS23), which straddles south-west Lincolnshire, north-east Leicestershire, and south-east Nottinghamshire. All incidents in this area with WGS results were caused by clade B3-11 (genotype 25:a ) of *M. bovis* (Figure 10), except one incident with clade B1-11. From this evidence it is apparent that TB has become endemic in the north-east of the county (HS23) where the presence of WGS clade B3-11 is expanding across the Leicestershire border into Nottinghamshire and Lincolnshire as shown in Figure 6.

HS23 was identified in 2018. Cattle and susceptible non-bovine farmed species (deer, goats, and camelids) have been subjected to enhanced TB surveillance and control measures since then. Wildlife has been monitored for TB by post-mortem examination and tissue sampling to attempt to isolate *M. bovis* of any deer and badger found dead in the area and reported to APHA.

No ‘found-dead’ badgers within HS23 were reported to APHA in 2022. This may be due to collections being suspended during the AI season as well as licensed badger culling operations being carried out in the area since 2020. The public are encouraged to continue to report badger and wild deer carcases found in this area.

The original hotspot boundary was reviewed in June 2020 and its area was extended further into Leicestershire and Lincolnshire and included part of south-east Nottinghamshire. The extended hotspot area became effective from September 2020, when culling of badgers in Leicestershire was also licensed by Natural England.

During 2022, 241 badgers were removed from the Leicestershire portion of the Hotspot. See Summary of 2022 badger control operations.

In 2022, no badgers were vaccinated in Leicestershire. See Summary of badger vaccination in 2022.

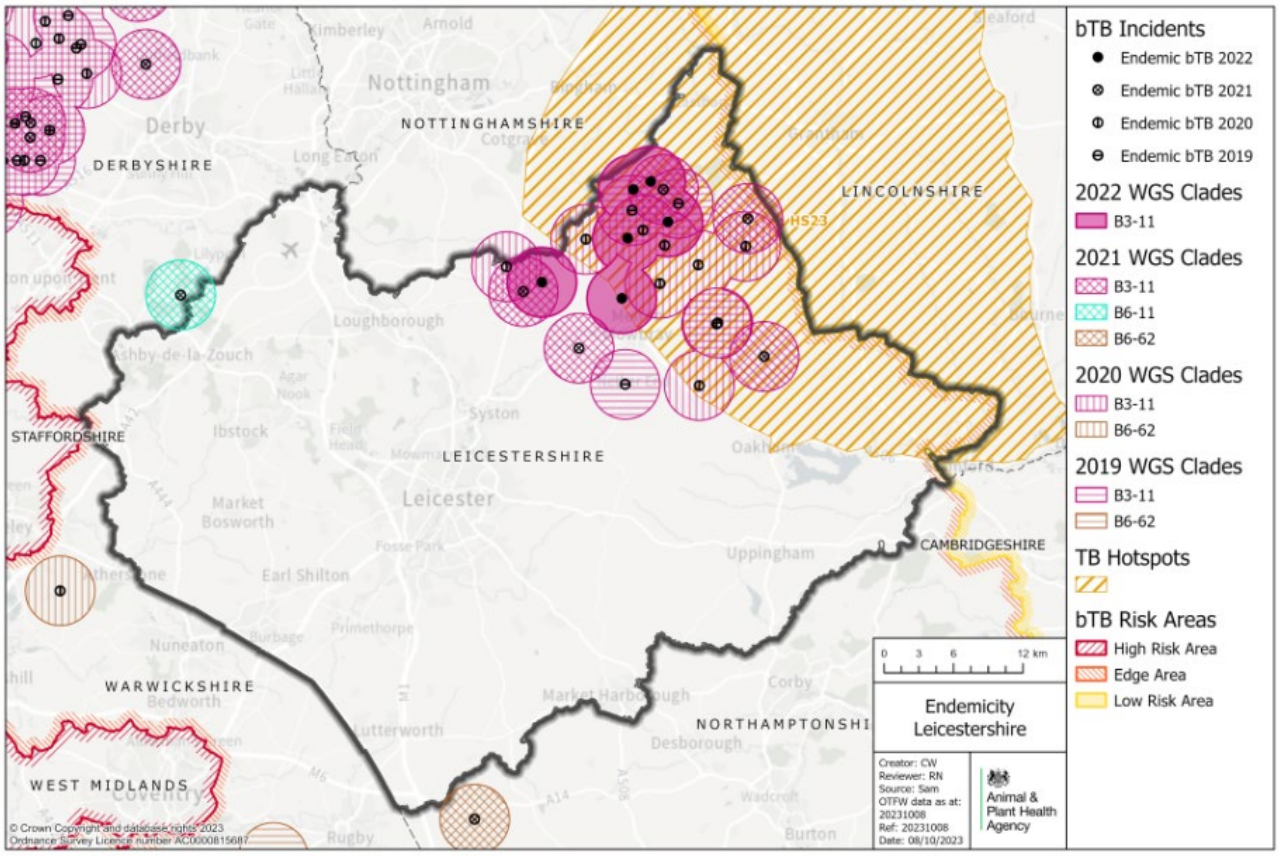


Figure 10: WGS clades of M. bovis detected in Leicestershire between 2019 and 2022, where the WGS identified in the infected herd was within 3 SNPs of another TB incident in the past 4 years and 9km (OTF-W incidents only).

# Forward look

The measures needed to address the most common risk pathways for TB infection in Leicestershire are:

- prevention of interactions between cattle and wildlife on farm to minimise spread of TB from wildlife to cattle, and cattle to wildlife
- incentivising the uptake of effective on-farm biosecurity measures by farmers, reducing the purchase of high-risk animals, and limiting nose-to-nose contacts with neighbouring herds
- improving diagnostics, surveillance and epidemiology to detect and remove TB more effectively from cattle herds
- further work by APHA and stakeholders to determine the most likely risk pathways for incidents with an uncertain pathway, with the added help where possible of WGS
- continuation and further adoption of measures to prevent the spread of TB from wildlife within HS23, including biosecurity, badger culling or vaccination, and local control of the wild deer population, where appropriate

Although the herd incidence and prevalence of TB declined again in 2022, it is unlikely that Leicestershire will achieve OTF status by 2025.

# Appendix 1: cattle industry demographics

Table 1: Number of cattle herds by size category in Leicestershire as of 31 December 2022 (RADAR data)

| Size of herds | Number of herds in Leicestershire |
|---|---|
| Undetermined | 6 |
| 1 to 50 | 342 |
| 51 to 100 | 143 |
| 101 to 200 | 143 |
| 201 to 350 | 81 |
| 351 to 500 | 27 |
| Greater than 500 | 49 |
| Total number of herds | 791 |
| Mean herd size | 135 |
| Median herd size | 67 |

Table 2: Number (and percentage of total) of animals by breed purpose in Leicestershire as of 31 December 2022

| Breed purpose | Number (and percentage of total) cattle in Leicestershire |
|---|---|
| Beef | 68,684 (64%) |
| Dairy | 34,934 (32%) |
| Dual purpose | 3,460 (3%) |
| Unknown | 1 (0.001%) |
| Total | 107,079 |

# Appendix 2: summary of headline cattle TB statistics

Table 3: Herd-level summary statistics for TB in cattle in Leicestershire between 2020 and 2022

| Herd-level statistics | 2020 | 2021 | 2022 |
|---|---|---|---|
| (a) Total number of cattle herds live on Sam at the end of the reporting period | 1,012 | 941 | 927 |
| (b) Total number of whole herd skin tests carried out at any time in the period | 1,155 | 1,081 | 1,011 |
| (c) Total number of OTF cattle herds having TB whole herd tests during the period for any reason | 833 | 786 | 768 |
| (d) Total number of OTF cattle herds at the end of the report period (herds not under any type of Notice Prohibiting the Movement of Bovine Animals (TB02) restrictions) | 917 | 861 | 847 |
| (e) Total number of cattle herds that were not under restrictions due to an ongoing TB incident at the end of the report period | 969 | 913 | 895 |
| (f.1) Total number of new OTF-S TB incidents detected in cattle herds during the report period (including all Finishing Units) | 31 | 40 | 29 |
| (f.2) Total number of new OTF-W TB incidents detected in cattle herds during the report period (including all Finishing Units) | 33 | 14 | 22 |
| (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? | 8 | 4 | N/A |
| (g.2) Of the new OTF-W herd incidents, how many were triggered by skin test Reactors or 2xIRs at routine herd tests? | 9 | 6 | 10 |

| Herd-level statistics | 2020 | 2021 | 2022 |
|---|---|---|---|
| (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)? | 18 | 6 | 9 |
| (g.4) Of the new OTF-W herd incidents, how many were first detected through routine slaughterhouse TB surveillance? | 5 | 2 | 3 |
| (h.1) Number of new OTF-W incidents revealed by enhanced TB surveillance (radial testing) conducted around those OTF-W herds | 16 | 5 | 5 |
| (h.2) Number of new OTF-S incidents revealed by enhanced TB surveillance (radial testing) conducted around those OTF-W herds | 13 | 14 | 4 |
| (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, but not including non-grazing Approved Finishing Units) | 25 | 9 | 15 |
| (j) New confirmed (positive *M. bovis* culture) incidents in non-bovine species detected during the report period (indicate host species involved) | 0 | 1 cat | 0 |
| (k.1) Number of grazing approved finishing units active at end of the period | 0 | 0 | 0 |
| (k.2) Number of non-grazing approved finishing units active at end of the period | 15 | 14 | 14 |
| (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 Leicestershire between 2020 and 2022

| **Animal-level statistics (cattle)** | **2020** | **2021** | **2022** |
|---|---|---|---|
| (a) Total number of cattle tested in the period (animal tests) | 168,741 | 164,071 | 156,368 |
| (b.1) Reactors detected by tuberculin skin tests during the year | 242 | 263 | 143 |
| (b.2) Reactors detected by additional IFN-γ blood tests (skin-test negative or IR animals) during the year | 179 | 219 | 131 |
| (c) Reactors detected during year per incidents disclosed during year | 6.6 | 8.9 | 5.4 |
| (d) Reactors per 1,000 animal tests | 2.5 | 2.9 | 1.8 |
| (e.1) Additional animals slaughtered during the year for TB control reasons (dangerous contacts, including any first time IRs) | 21 | 10 | 8 |
| (e.2) Additional animals slaughtered during the year for TB control reasons (private slaughters) | 20 | 24 | 22 |
| (f) Slaughterhouse (SLH) cases (suspect tuberculous carcases) reported by Food Standards Agency (FSA) during routine meat inspection | 14 | 10 | 15 |
| (g) SLH cases confirmed by culture of *M. bovis* | 6 | 3 | 6 |

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 here.

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 2022, 7 out of 51 (14%) new TB incidents in Leicestershire received a preliminary or final APHA veterinary investigation to identify the source of infection. The small number of investigations carried out in 2022 was mainly due to the diversion of field resource to the large AI outbreaks which occurred in 2021 to 2022.

Each TB incident could have up to three 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 2022.

Table 5: Suspected sources of M. bovis infection for the 7 incidents with a preliminary or a final veterinary assessment in Leicestershire, in 2022

| Source of infection | Possible (1) | Likely (4) | Most likely (6) | Definite (8) | Weighted contribution |
|---|---|---|---|---|---|
| Badgers | 2 | 0 | 5 | 0 | 61.7% |

| Source of infection | Possible (1) | Likely (4) | Most likely (6) | Definite (8) | Weighted contribution |
|---|---|---|---|---|---|
| Cattle movements | 2 | 1 | 0 | 0 | 9.4% |
| Contiguous | 1 | 0 | 0 | 0 | 2.4% |
| Residual cattle infection | 0 | 0 | 1 | 0 | 12.2% |
| Domestic animals | 0 | 0 | 0 | 0 | 0% |
| Non-specific reactor | 0 | 0 | 0 | 0 | 0% |
| Fomites | 0 | 0 | 0 | 0 | 0% |
| Other wildlife | 4 | 0 | 0 | 0 | 7.2% |
| Other or unknown source | 0 | 0 | 0 | 0 | 7.1% |

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

Data Protection:
For information on how we handle personal data visit www.gov.uk and search Animal and Plant Health Agency Personal Information Charter.

This publication is available Bovine TB epidemiology and surveillance in Great Britain.

Any enquiries regarding this publication should be sent to us at the National TB Epi Mailbox.

www.gov.uk/apha

APHA is an Executive Agency of the Department for Environment, Food and Rural Affairs and also works on behalf of the Scottish Government, Welsh Government and Food Standards Agency to safeguard animal and plant health for the benefit of people, the environment, and the economy.