Observations on Bovine TB control in cattle in the Low Risk Area of England since 2018, and implications of uncertain efficacy for Strategy and Policy.

An independent evaluation of government bovine tuberculosis interventions in cattle and badgers in the Low Risk Area of England; 2018-2026.

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SUMMARY

The Bovine tuberculosis (bTB) control '*Low Risk Area'* (LRA) of England, was established in 2013 as cattle trading spread the disease further into central and northern England. The LRA constitutes just over half the geographic area of England, land generally to the east and north of the country, including Cumbria.

This report outlines how and why the LRA bTB control area of England missed its targets and was unable to reduce the disease effectively by 2025 in accordance with the stated aims and objectives of Defra's original disease control policy and plans.

The Government's 25-year bTB control strategy, published in 2014,was to obtain Officially TB-Free status for England by 2038. This is looking increasingly unlikely with current approaches, even with large expenditure from public subsidy. Failures have led to the missing of the 2025 LRA TB-Free targets. While current bTB measures do act to identify breakdowns, as infected cattle are traded into the low-risk area on a monthly basis, there are signs that measures to deal with hotspots have been too limited to be effective. Tracing of strains with low levels of infection is restricted, as sampling sites for strain type determination are identified only with the presence of visible lesions at post-mortem.

Evidence for efficacy of badger interventions (badger culling and vaccination) in the LRA remains absent, much as it is for badger culling in the High Risk and Edge Areas. While cattle measures have helped reduce breakdown incidence, there is no evidence of the sharp decline that is typical of effective disease control measures.

Events are consistent with the now widely accepted peer reviewed evidence that the main badger culling trial in the British Isles (RBCT 1998-2005) did not carry out statistical analysis of data in a credible way. Evidence leading to a hypothesis for the bTB perturbation effect of badgers spreading bovine TB is now accepted as unevidenced. At present it is uncertain whether badger plays a role in bovine TB spread in cattle, any more than other wild mammals, infected due to the persistent cattle bTB epidemic. This is an epidemic that has widely infected the countryside via extensive deposition and spreading of bTB infected cattle faeces.

Government bTB wildlife interventions are implemented for an 'anticipated benefit' rather than an evidence-based visible or recordable benefit. Actions are decoupled from clear and direct scientific evidence, and this is an unsustainable position that is not supported by veterinary ethics or practice.

As such, the LRA badger interventions are an exemplar of why Defra's push towards industry - led targeted culling or cluster culling (very similar to LRA culling), and at the behest of the Chief Veterinary Officer, is such a dangerous step in normalizing unproven and hugely wasteful veterinary intervention.

It is imperative that improvements to prevent uncontrolled sale of infected cattle are put in place. This should accompany better biosecurity for the larger indoor dairy herds, ongoing education and mandating responsible cattle sourcing practices. Enhanced sensitivity of cattle testing is needed to control and eradicate local spread of TB in cattle in all risk areas of the UK and beyond. Without this, the epidemic will simply perpetuate, as it has done for decades in the Republic of Ireland, where badger culling has been continuously practiced with no evidence of benefit.

Monitoring Bovine TB control in the Low Risk Area of England since 2018.

Introduction

This report follows up on a previous publication in 2023 (1), outlining why the Low Risk Area (LRA) bovine TB (bTB) control area of England has not been able to reduce the disease in accordance with the stated aims and objectives of disease control policy.

In 2026, three years on, there is further evidence that the focus on badger interventions in the LRA remains ineffective, much as it has been in the High Risk and Edge Areas. While cattle measures have done much to reduce spread, they have failed to bring about the sharp decline expected when disease control measures are effective. This is consistent with the accepted peer reviewed evidence that the main badger culling trial in England did not carry out statistical analysis of data in the most credible way (2,3,4) and that evidence of a so-called perturbation effect spreading bovine TB was erroneous. At present it is uncertain whether badger plays a significant role in disease spread, any more than other wild animals infected due to the persistent cattle bTB epidemic currently infecting much of the countryside via spread of infected faeces.

Background

The English Bovine tuberculosis (bTB) control Low Risk Area (LRA), Edge Area (EA) and High Risk (HRA) areas of England (Table 1. Figure 1.) were established in 2014 as the disease in cattle radiated further into central and northern England. The LRA constitutes just over half the geographic area of England, largely land to the north and east of the country. These areas formed a major part of the Government's 2014 strategy to obtain Officially TB free status (OTF) for England by 2038 (5).

Officially bTB Free country (or regional) status is achieved by having 99.8% of herds retaining OTF status for three consecutive years, as defined by the World Organisation for Animal Health (WOAH), formerly known as the OIE, Terrestrial Code Article 8.12.4. (6). Different levels of bTB prevail in each risk area, and bTB surveillance is adjusted accordingly to the level of disease in each area.

Designated Area	Size of Area (sq.km) & %	No. cattle herds (n)
High Risk Area	35,263 (27%)	18,249 (41%)
Edge Area	25,485 (19 %)	7,925 (18%)
Low Risk Area	72,081 (54%)	18,470 (41%)
Total	**132,829**	**44,644**

Table 1. Designated bovine TB disease control areas and numbers of cattle herds, as of December 2025.

The current Low Risk Area strategy is aimed at reducing the risk of bTB incursions via cattle movements, and containing and eradicating new infections by:

(i) mandatory pre and post movement testing of cattle movements entering the LRA from higher risk areas of the U.K.

(ii) more sensitive testing of infected herds using gamma interferon and severe interpretation of the skin test, SICCT.

(iii) 3km radial testing zone as a consequence of an OTF-W incident. (Officially Tuberculosis -Free Status Withdrawn).

(iv) badger (Meles meles) culling where it is believed [by APHA] that badgers play an important role in maintaining bTB in the badger population and transmitting disease to cattle.

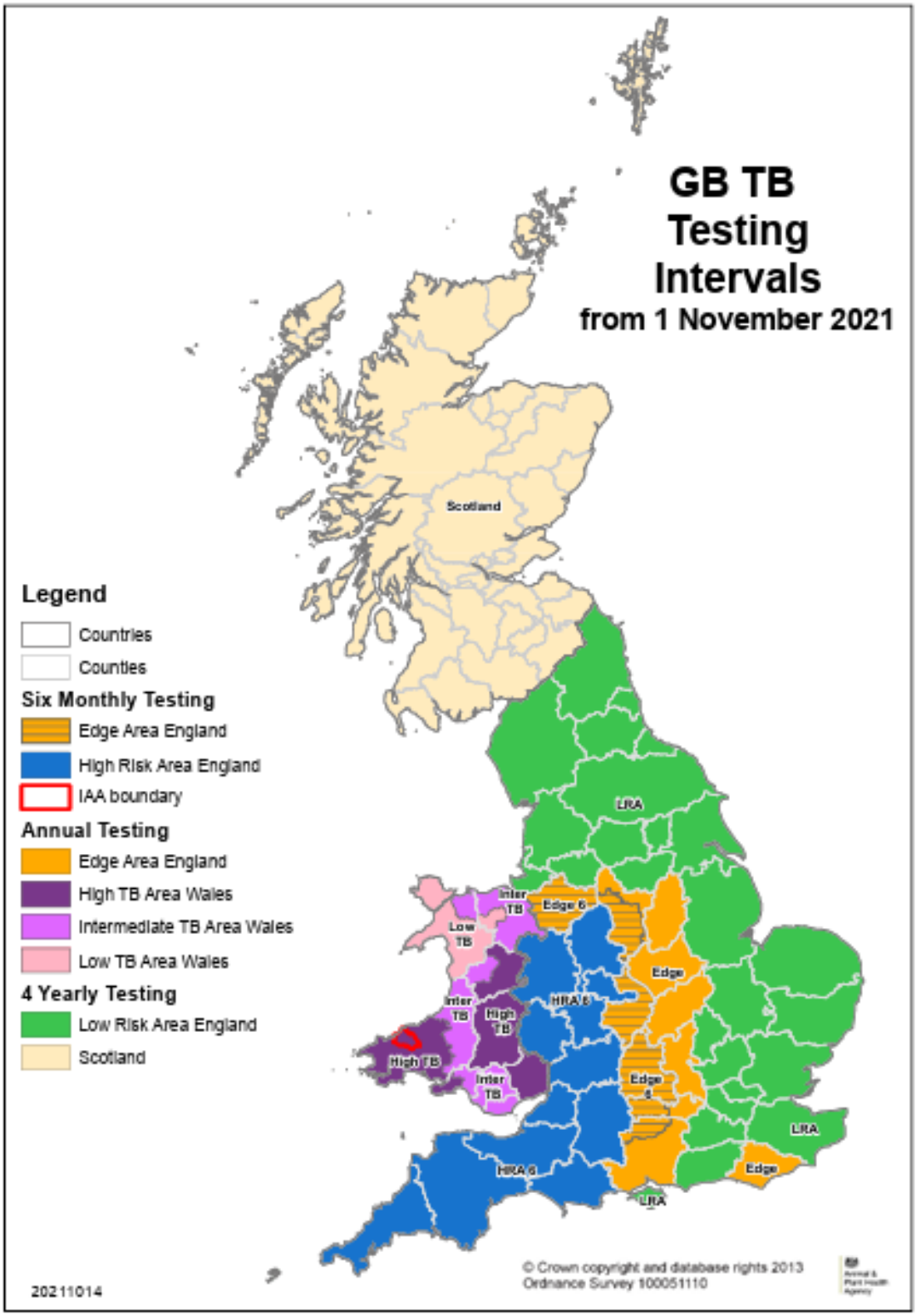


Figure 1. TB risk and surveillance areas of England, effective since January 2021. Source : https://assets.publishing.service.gov.uk/media/617abafde90e0719751282ea/pti-map.pdf

These measures were introduced from 2014 to try to preserve the relatively low bTB status of cattle herds within the LRA, with Defra predicting achievement of TB-free status in the LRA by 2025. This target was not achieved and was put back 13 years to 2038 (7), the same OTF target date for the High Risk and Edge Areas.

The concept of bTB herd breakdown 'hotspots' or clusters of herd breakdowns in the LRA, was introduced in 2016 with the LRA badger culling policy consultation in 2018 (8), whereby badgers were speculatively declared to be the main cause of the spread of bTB in badgers and cattle, and claiming badger to cattle transmission levels (up to 75%) far higher than those theorized (circa 6%) in the HRA. Evidence of this fell on the widely discredited Disease Report Form (1).

A hotspot first develops as a result of infected traded cattle moving into an area and transmitting it locally to badgers. Transmission between herds follows sale of infected stock to adjoining herds, through communal grazing and other forms of cattle-to-cattle contact. Spread of bTB in cattle via trading is facilitated by the standard tuberculin bTB testing only being done every four years in the LRA. By the time a cluster is declared, disease may have been spreading for up to a decade (as tests may be only 50% effective). A withdrawn herd (OTF-W) triggering a hotspot is described as the 'index' case but may not be the site of disease origination. To determine the most likely source of infection APHA will undertake several actions, as follows (9):

> ***1. Disease Investigation visit, requiring completion of a Disease Report Form (DRF) by a vet.***
>
> ***2. Whole Genome Sequencing (WGS) is carried out on isolates from reactor cattle to identify genetically identical or closely related isolates of M. bovis, present elsewhere in U.K.***
>
> ***3. Supplementary interferon gamma testing of all OTF-W breakdown herds. This is mandatory for all single OTF-W herds in the LRA.***
>
> ***4. Observe information on Cattle Tracing System and herd movement records.***
>
> ***5. Assess the results of radial testing conducted within 3km radius of the OTF-W incident.***

There are several types of transmission routes for bTB in the LRA:

(a) cattle purchase from herds in the higher risk areas of England and Wales and from Ireland

(b) hired bTB infected bulls that do not react to tuberculin testing

(c) spread from other breakdowns herds by livestock (e.g. sheep), people, vehicles, equipment and fomites

(d) cross infection due to attendance at agricultural shows

(e) cattle being grazed on common or rented grazing

Hotspots have been referred to by APHA as "potential", then progressing to "confirmed" on identification of a first bTB infected badger (usually road killed) found in and around a breakdown cluster area. Since 2024, APHA have managed the hotspots in five stages, whereby, genetic analysis (whole genome sequencing: WGS) identifies the strain type, in order to try to trace the source. Then, normal LRA breakdown procedures will be introduced, including *radial testing,* which is testing of herds within a 3 km radius of the index OTF-W herd.

If there is no WGS evidence of cattle movement as the origin of disease, the 5 stage programme will be introduced, incorporating increased frequency of tuberculin testing from every 4 years to annual or 6-monthly testing. 'Found dead' wildlife surveillance is introduced at stage 2 (9).

Badger culling in the LRA is based upon opinions of the Chief Veterinary Officer using circumstantial assumption rather than direct evidence. The 2018 consultation document stated that badger removal takes a 'precautionary approach', which endorses the shooting of all badgers caught within a 'core' area regardless of bTB status (8) and the shooting of both infected and healthy badgers from the surrounding land.

"Where TB-positive wildlife is found the Chief Veterinary Officer's advice is that all options to control the transmission between wildlife and cattle should be considered to stamp out the disease quickly. The low level of disease in the LRA and the objective of achieving OTF status justifies taking a precautionary approach, with direct and robust intervention involving both cattle and wildlife controls where necessary."

And further:

"3.4 The aim of badger control in the LRA would be to remove and/or vaccinate badgers from an estimated minimum infected area, based on epidemiological and ecological advice, and from a buffer zone surrounding this as a precaution, to ensure that all infected badgers are removed and/or vaccinated."

"The low level of disease in the LRA and the objective of achieving OTF status justifies taking a precautionary approach, with direct and robust intervention involving both cattle and wildlife controls where necessary."

"6 (c): The principle of taking a precautionary case-by-case approach, dependent on the local conditions and situation, including as regards the number of years in which culling is carried out."

Hotspot and radial testing.

Once a hotspot has been declared with an identified area, cattle within it must be pre movement tested at the vendor's expense, unless destined for slaughter or movement to an *Approved Finishing Unit* (AFU). The shortest duration for a hotspot might be around two and a half years. APHA might adjust the boundary of the Hotspot to include further incidents and increased infection risk, conversely the hotspot boundary might be reduced if that part satisfies certain criteria of disease reduction.

Radial and hotspot testing seeks early detection of any local spread of infection from the index OTF-W incident herd. It plays an important role in prevention of wildlife infection and provides very valuable information on the extent of disease spread around confirmed incidents. However, the bTB incidents that they disclose are not necessarily confirmed as being caused by the same clade of *M. bovis* as the index case. Many incidents in the LRA are disclosed by radial testing of herds considered to be OTF. Between 2019-2024, around **one third** of all new herd incident disclosures (125-150 per year) in the LRA were detected by radial testing.

There is no requirement for pre or post movement testing for stock movements between OTF holdings within the LRA, greatly increasing the risk of spreading undetected disease throughout the LRA. Almost half (45%) of cattle are traded by direct purchase between farms, and within the limitations of tuberculin testing. It is not difficult to understand how

undetected disease remains in an area even after extensive eradication efforts towards cattle and badgers have been made.

There is an abundance of common land within the LRA, particularly in the northern counties, with no requirement for pre or post movement testing when moving on and off it. Common grazing may even be a condition for government subsidies. Grazing common land can be a high-risk strategy as cattle from multiple herds can mix freely.

A documented example in August 2024 of an LRA OTF-W incident in North Lancashire records advice from persons unknown (veterinary or industry or government) for herds to be radial tested to sell their cattle within 30 days of the disclosure, and before enhanced measures and a 3.0 km radial testing area was to be imposed.

If the dispersal of cattle within 30 days around an index case has been common practice before the introduction of radial testing begins, this loophole might help create hotspot areas within the LRA and explain why the LRA did not achieve OTF status by 2025.

Figure 2. Shows how bTB levels have been held constant by the approach since 2014, with no improvement since the introduction of LRA badger culling policy in 2018.

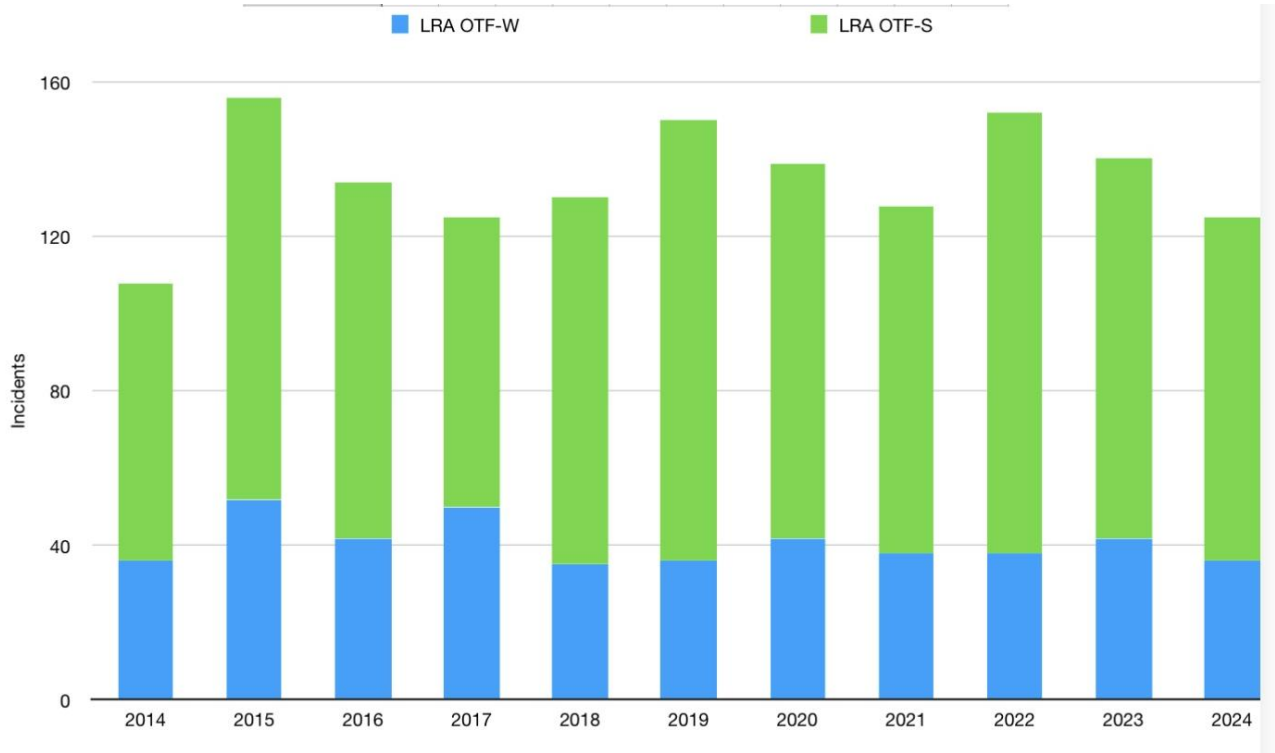


Figure 2. Number of bovine TB herd breakdown incidents (OTFW and OTFS) per year in the Low Risk Area of England over an eleven year period 2014-2024.

OTF-S incidents are around twice as frequent as OTF-W incidents in the LRA. OTF-S incidents constitute 70% of the total breakdowns in the LRA, 2014-2024. OTF-S breakdowns rarely provide isolates for phylogenetic analysis. Around 30% of all incidents in the LRA are OTF-W and capable of providing suitable sampled material for genomic analysis. Most OTF-S incidents tend not to reveal visible lesions and are therefore unable to provide samples for WGS analysis. Inability to determine likely genetic source of infections is one of the drivers used to encourage investigating veterinarians to incorrectly predict a wildlife (badger) source of infection.

Cumbria hotspots

BTB reduction in Cumbria has made little, if any, progress since 2014 in spite of the introduction of hotspot areas accompanied by enhanced cattle control measures, testing and intensive badger culling and vaccination (Figure 3.).

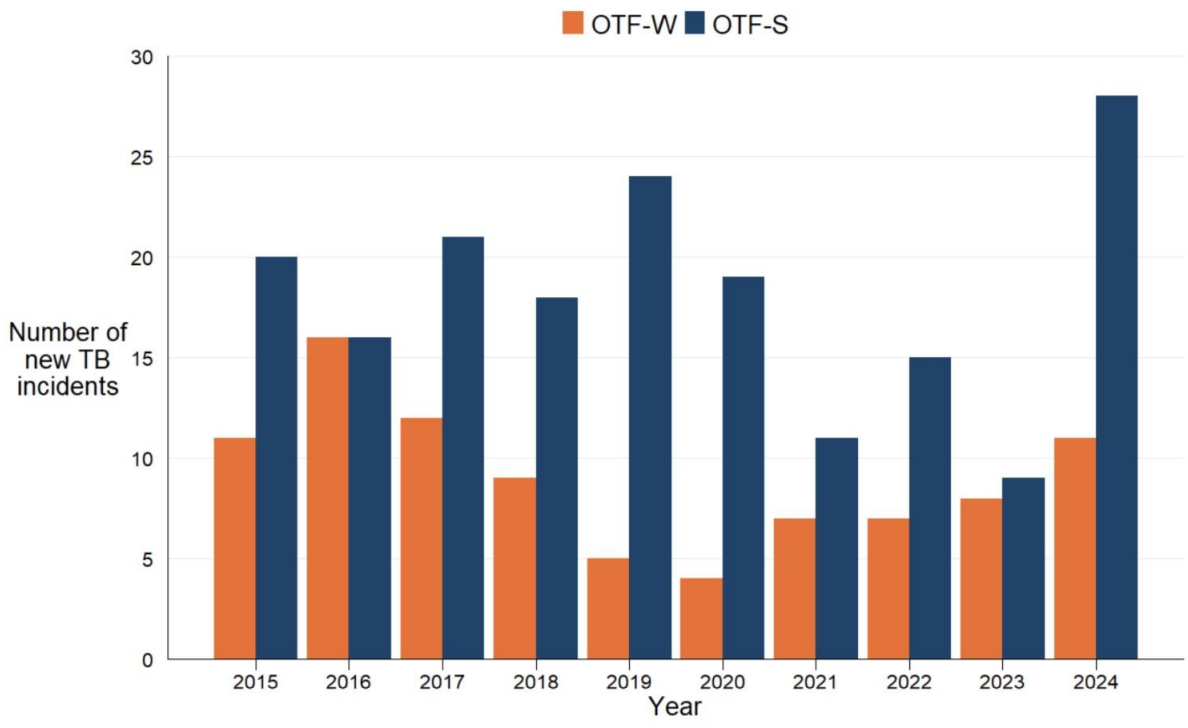


Figure 3. Annual bovine TB herd breakdown incidents (OTFS and OTFW) in the County of Cumbria over the ten year period 2015-2024.

Strain B6-23 (17z) in Cumbria and Northumberland.

In spite of removing 1,115 badgers from Area 32 (land south of Penrith) between 2018 and 2021, strain B6-23 (17z) has not been eradicated from Cumbria (8). Strain B6-23 is still dispersing within Northern England. There have been three reported cases, one of which was declared in 2022 just outside the eastern boundary of Badger Control Area 32 (an area within Hotspot 21) where badgers have been heavily culled since 2018. The transmission pathway alluded in 2022 to a possible wildlife source, but the 2024 APHA epidemiology report (7) states that there had been some cattle movements onto the affected farm within Hotspot 21 (HS 21), with no mention of wildlife.

Further north, a single OTF-W incident was declared to the West of Carlisle in 2024, caused by clade B6-23. The origin of the incident remains unknown. However, further epidemiological investigation, including WGS evidence suggests that it is more likely to have been the result of a separate incursion from Northern Ireland, as opposed to an epidemiological link with other incidents within HS21, although an obvious route of introduction into the herd via imported animals has not been found.

The Department of Agriculture, Environment and Rural Affairs (DAERA) and the Agri-Food Biosciences Institute (AFBI) in Northern Ireland suggested the isolate was more closely related to those from previous incidents in Northern Ireland than to any isolates identified from incidents in HS21. This is evidence of longer term arrival and persistence of unidentified infection in herds in England from Northern Ireland.

In Northumberland, another clade B6-23 OTF-W incident was detected following slaughterhouse surveillance in 2024, involving a beef finishing herd, exempt from routine TB testing. The affected holding typically receives a large number of animals from across GB. The reactor animal was not a direct import from NI but had moved around several holdings in Scotland before moving to Northumberland. This herd gained OTF status following a voluntary full depopulation of the premises. This leaves several unanswered questions for this herd. How many SICCT and gamma reactors were disclosed following restriction? How many further confirmed B6-23 reactors were disclosed, and why did the premises voluntarily depopulate?

It is interesting to note that B6-23 was introduced into Cumbria by or before 2011(10) and is still circulating within and outside the county. And, as above, the number of OTF-S incidents have always predominated in Cumbria, unable to provide genomic data to identify the clade of *M. bovis* involved and likely source.

How inadequate testing following the discovery of B6-23 in 2014 led to disease spread.

The first recorded case of B6-23 in Cumbria was detected in 2014 by slaughterhouse surveillance in a 9-month old calf. Four-yearly tuberculin (SICCT) testing, with its relatively poor sensitivity, had failed to detect the disease sooner. Not until 2016, when it was recognised that a cluster of breakdowns was developing in the Shap area, was Hotspot 21 established, accompanied by inadequate hotspot tests including radial testing.

Before 2017, there were a few instances when radial surveillance zones were not thought necessary once field delivery teams had carried out a veterinary risk assessment and concluded that the risk of disease spreading from the affected herd was negligible. The small number of exemptions to initiate radial testing was subsequently considered by TB leads and the *Veterinary Heads of Field Delivery*.

Prior to 2017 an inconclusive reactor (IR) had to be immediately isolated from the rest of the herd to reduce disease spread. The IR would be retested using SICCT after a minimum of 60 days. If the animal tested negative it became a resolved IR, and the herd's OTF status would be re-instated, the IR would have been allowed to move freely around the county and elsewhere. The specific resolved IR policy which introduced lifelong movement restrictions for resolved IRs was not introduced in England until November 2017, a change from the prior policy framework. Without doubt, until and possibly beyond 2017, countless resolved IRs moved around the county or between local herds spreading disease until becoming reactors.

Mandatory post movement testing of animals entering the LRA from other areas of the U.K. was not introduced until 2016.

From November 2014 until November 2017 the geographic cluster of B6-23 included 24 breakdowns on 21 separate cattle holdings in Cumbria HS21. Not until November 2017, 3 years after the index case, were further enhanced cattle control measures implemented to

increase the detection of infection at an early stage. B6-23 had been circulating in the area for several years, and since at least 2011, enabling disease to proliferate for at least 3 years before enhanced measures and movement controls were introduced. Had annual testing, mandatory post movement testing of cattle entering the LRA, and movement restrictions for resolved IRs been the norm in the LRA it is likely B6-23 would have been detected earlier and attributing infection to wildlife would not have even been considered.

Meanwhile *Freedom of Information* requests have revealed several thousand cattle movements onto and off B6-23 farms from 2014 - 2021, many of which were not subject to enhanced testing until 2016/2017, by which time the pathogen had spread over a wide area.

Cattle movements on and off B6-23 (17z) farms in Cumbria HS21 2014-2021

Year	Number of movements on	Number of movements off.
2014	1971	1454
2015	1825	1330
2016	1395	1074
2017	956	794
2018	1238	763
2019	1293	985
2020	1401	1198
2021	1126	1101
Total	11205	8699
Exemptions: The following movements have been excluded	Movement from farm to market/showgrounds and back to the same farm.	Births and deaths. Movement to slaughter

Table 2. Cattle movements on and off B6-23 (17z) farms in Cumbria HS21 2014-2021Data Source. FOI responses from APHA.

Enhanced measures introduced in autumn 2017 included:

- Six-monthly whole herd testing
- Pre movement testing of all cattle over 42 days
- IRs alone detected would trigger OTF-S status pending the 60 day IR retest
- Discretionary parallel gamma testing of OTF-S herds
- Severe interpretation for both OTF-W and OTF-S herds

As a consequence of the introduction of these additional measures and increased sensitivity of testing, incidents were reduced to zero by the following September 2018, before badger culling was introduced into Area 32. In fact, no 17:z isolates have been identified in cattle herds in HS21 since 2018.

Hotspot 29. Badger Control Area 73

Hotspot 29 running north south along the Eden Valley, was established in January 2023 in response to an increase in OTF-W incidents over previous years. It covers an area of 510 sq.km. Herds in HS29 were subject to enhanced surveillance, moving onto six-monthly testing in October 2023. As a consequence of implementing enhanced measures and movement controls 10 months following the establishment of the hotspot, disease was brought under control in Area 73 far more quickly compared with the delays experienced in Hotspot 21, Area 32.

APHA's hotspot management stage 2 states: ***"After sufficient testing of cattle is completed, e.g. two years of six-monthly testing, and thereafter annually, there is a thorough review of the available evidence, and controls are reduced or increased as justified. APHA also consider introducing wildlife surveillance."***
See: https://www.gov.uk/government/publications/bovine-tb-hotspots-in-the-low-risk-area-of-england/april-2025-tb-hotspots-in-the-low-risk-area-of-england
Aspects of the prescribed management stages were either shortened or not followed, paving the way for rapid implementation of enhanced measures etc. resulting in a far quicker reduction in incidents in Area 73 (Table 3).

Year	BTB Herd incidents	Remarks. Refers to HS29 which includes BCA 73
2020	**0**	**No new incidents disclosed**
2021	**6**	**An increase in OTF-W incidents along the Eden valley was detected in 2021**
2022	**8**	**Additional OTF-W incidents were disclosed in 2022, leading to the establishment of Potential Hotspot Area 29 (PHA29) at the beginning of 2023. There were no enhanced TB cattle control measures in PHA 29, apart from radial testing zones triggered around OTF-W incidents**
2023	**6**	**In 2023, HS29 is only just embarking on enhanced bTB control measures for cattle herds and wildlife control measures were under consideration. Hotspot established Jan 2023. Enhanced bTB cattle control measures were introduced in HS29. All cattle herds are subject to 6-monthly testing from October 2023, and compulsory pre-movement testing. One of the enhanced bTB control measures in place for cattle herds in HS29 is to apply whole herd movement restrictions when only so-called inconclusive reactors have been disclosed at a bTB test.**
2024a	**4**	**January to September 2024 disclosed before badger culling commenced in September 2024.**
2024b	**3**	**September to December.**
2025	**0**	
2026	**2**	**Year to the end of March 2026**

Table 3. New herd bTB incidents in Badger Control Area 73

There were no new incidents disclosed in area 73 during 2025. Six incidents disclosed in 2024 were resolved in 2025, a further five incidents disclosed in 2023 and 2024 were resolved in 2024. There have been two new herd incidents to date in 2026.

The WGS clade of *M. bovis* is associated with both badgers and cattle in HS29 is B3-11, the home range of which is Cheshire, Derbyshire, Staffordshire and Shropshire. A licensed badger cull began in September 2024 in an area of 181.5km2, known as Area 73, within Hotspot 29. 576 badgers were removed, and of the shot badgers that underwent PME (n=449), 24 were positive for *M.bovis* giving a prevalence of 5.6%. Data for Area 73 will not be released until 2026.

Situation in Cumbria to date

In 2025 there have been 21 new herd incidents reported in Cumbria to date, not dissimilar to the number of incidents reported in 2020 (n=23). The trend in the LRA has shown no overall improvement since the introduction of the 2014 Bovine TB Eradication Strategy, with the LRA eradication target having been extended by 13 years to 2038.

Cumbria Area 32 having undergone badger culling and vaccination is still not free of disease.

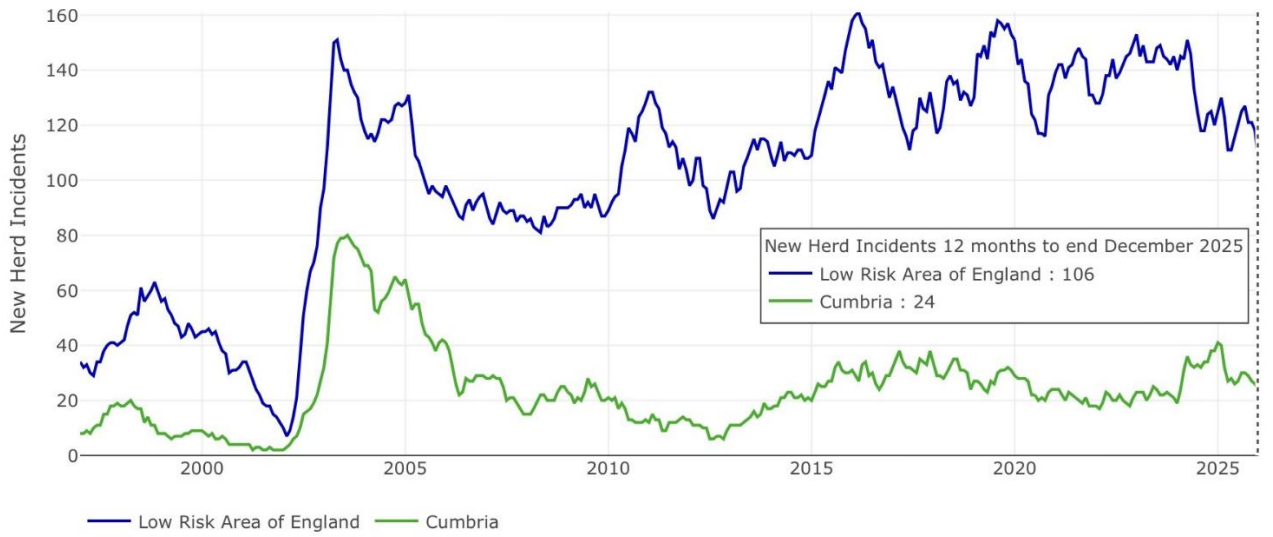
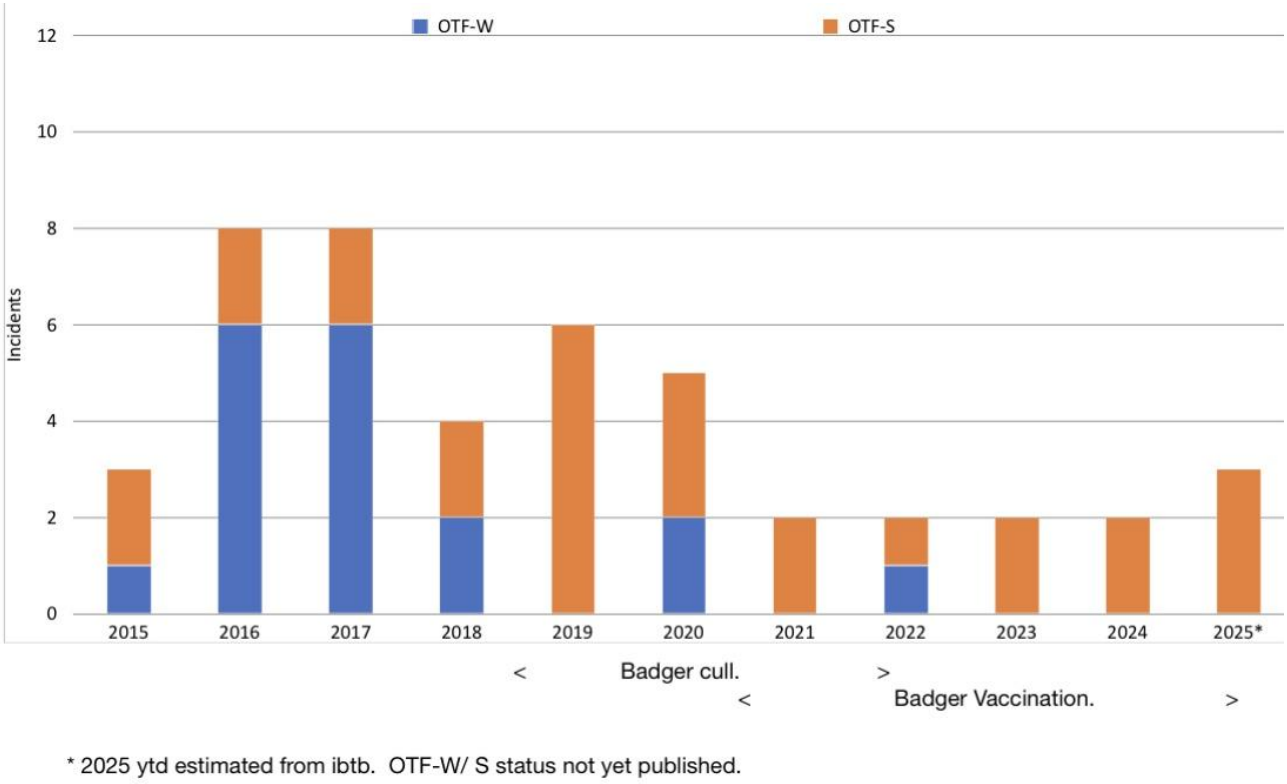


Figure 4. New herd incidents in Cumbria (green line) compared with the English LRA as a whole over the last 25 years.

Table 4 shows headline LRA parameters over the recent decade showing unsatisfactory progress.

	Nos.OTF Herds	New Herd Incidents	Incidence %	Prevalence %
12/14	39	109	0.6	0.2
12/24	78	125	1.0	0.4
12/25	70	106	0.9	0.3

Table 4. Headline LRA parameters over the recent decade (2014-2025).



* 2025 ytd estimated from ibtb. OTF-W/ S status not yet published.

Figure 5. Cumbria Area 32 Badger Control Area. Herds in Existence Incidents (OTFW and OTFS) by calendar year 2015-2025 (2025 estimated from ibtb online mapping resource). Source: APHA Badger Control Monitoring Report and ibtb mapping.

Table 5 shows how breakdowns have progressed with no apparent change during wildlife interventions. However, most OTFW incidents (n=13) occurred before badger culling began and there has been little or no trend in OTFS incidents although breakdowns are so low that nothing is conclusive. There is no evidence that infection has responded to badger culling and vaccination; evidence of its efficacy in disease control is not detectable suggesting that it does not contribute.

Incidents Calender Year	OTF-W	OTF-S	Badgers Culled	Badgers Vaccinated
2015	1	2		
2016	6	2		
2017	6	2		
2018	2	2	602	
2019	0	6	317	
2020	2	3	134	100
2021	0	2	62	111
2022	1	1		140
2023	0	2		169
2024	0	2		224 by APHA
2025*		3		

Table 5. Detected bovine TB Incidents (2015-2025) with badgers culled and vaccinated each year in Cumbria area 32.

A potential emerging hotspot in south Cumbria.

A cluster of breakdowns has reappeared around Kendal and further west. A previous hotspot, Potential Hotspot 26 (PHS 26, 197.8km2) has been reported in this area previously. The hotspot was established in 2019, following a cluster of TB incidents in South Cumbria between Kendal and Windermere. Wildlife carcasses were examined but *M. bovis* was not identified in any of the submissions. No enhanced TB control measures were applied to cattle herds in PHS26, apart from radial testing. PHS26 closed in July 2024, as a result of no new incidents being disclosed since 2021.

Between April - October 2025, eight new incidents have been disclosed in approximately the same area where Provisional Hotspot (PHS) 26 previously existed.

As a result of four-yearly testing, no movement controls of cattle between OTF herds and more than half a million cattle movements within the LRA each year, means cattle could move freely within an LRA county and beyond without ever having been tested. This is clearly a potential pathway to undetected disease spread.
Kendal is a large scale cattle trading centre close to the eastern boundary of PHS 26. This is good evidence that untested cattle from OTF herds traded at large markets within the LRA are the precursor of new hotspots?

Veterinary advice from the APHA Cumbria Epidemiology Report 2024

Text in this report (11) indicates:

"More broadly, purchasing undetected, infected cattle continues to present a significant risk to herds in Cumbria. Introductions of cattle without due regard to the TB history of the herd of origin may result in single incidents or, as alluded to above, in infection being transmitted from cattle into local wildlife, and hence the establishment of new TB hotspots."

However, there is absolutely no evidence to support wildlife as the source of hotspot establishment, this is pure speculation. It continues:

"Farmers in Cumbria, in addition to complying with the TB movement testing regulations, need to ensure that they take an informed approach to sourcing cattle. This could include following advice from their private veterinarians and using the ibTB interactive map."

And:

"Consideration should be given to supplementing mandatory pre- (and post-) movement skin tests of incoming animals with private IFN-γ testing, particularly those purchased from higher risk areas of England and Wales. The identification of WGS clades of M. bovis endemic to Ireland highlight the particular risk posed by cattle from this part of the UK, and the potential role of transit holdings in Scotland. More work is needed to understand this risk pathway."

Hotspot 23 Lincolnshire

Hotspot 23 (HS23) was established in 2018 following the disclosure of *M. bovis* in a cattle herd in southwest Lincolnshire. Due to its proximity and shared genotype with a cluster of breakdowns in northeast Leicestershire, the hotspot straddles Lincolnshire, Leicestershire and Nottinghamshire.

HS23 became a confirmed hotspot in August 2020 and was extended to a huge area of 1,550 Sq. km, the largest of all hotspots. Surveillance measures including radial and annual testing were implemented. From January 2018-December 2024 there have been 163 breakdowns in HS23, yet herds within HS23 have only been subject to six-monthly testing since October 2024.

The WGS clade associated with B3-11 is predominately found in Cheshire, Derbyshire, Staffordshire and Shropshire. Investigations conclude that it had originally been introduced to the Edge portion of the hotspot via cattle movements from Cheshire or Staffordshire and subsequently to the LRA.

Following an evidence review in 2024, the boundary of the hotspot was adjusted to cover 850km2.

Lincolnshire Badger Control Area 54 (within Hotspot 23)

The handful of bTB breakdown Incidents (maximum 3 per year) in area 54 are shown by calendar year at Figure 6. Information has been taken from the APHA Badger Control Monitoring report, and the duration of badger interventions is also indicated. As with Cumbria, there is no evidence of badger interventions contributed to prevention of spread of disease in cattle herds. There has been little change in infection rate even if older infections are being detected more effectively by enhanced testing.

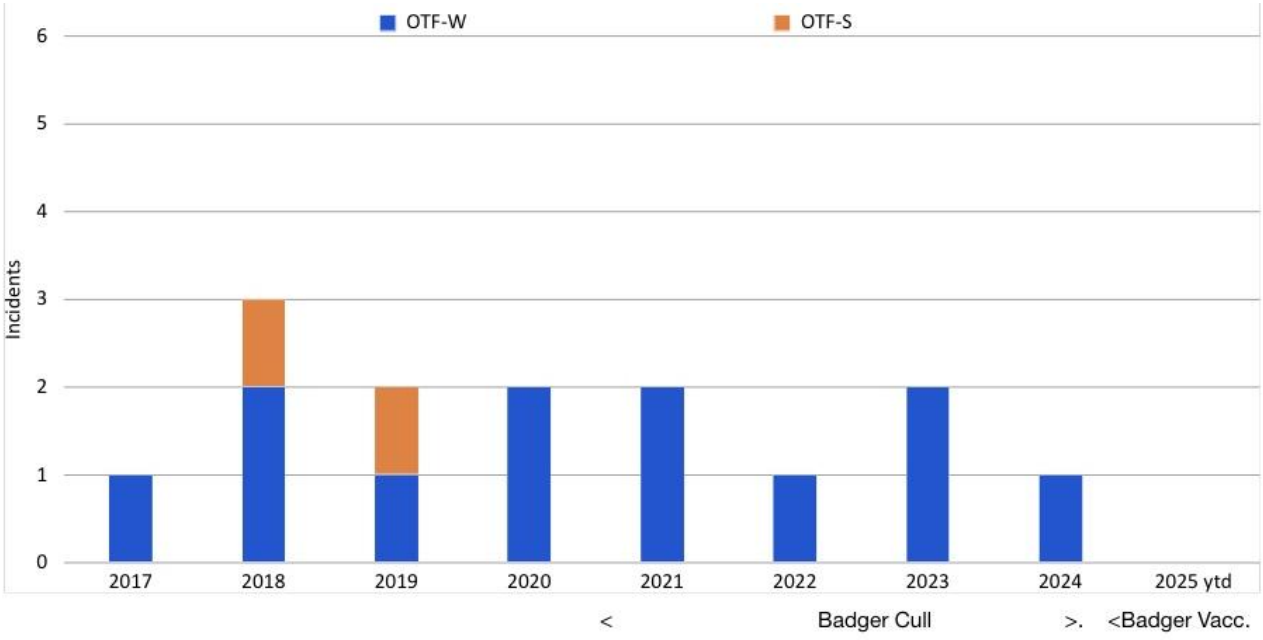


Figure 6. Lincolnshire 54 Badger Control Area. Herds in Existence Incidents by calendar years. Source: APHA Badger Control Monitoring report.

Table 6., shows the detected bovine TB Incidents in the Lincolnshire Area 54 Badger Control Area (2017-2025) with badgers culled and subject to PM and resulting bTB prevalence.

Incidents / Calender Year	OTF-W	OTF-S	Badgers Culled	Carcasses Positive for M.Bovis	Badger Prevalence	Badgers Vaccinated
2017	1	0				
2018	2	1				
2019	1	1				
2020	2	0	139	34 of 139	24.5%	
2021	2	0	161	16 of 156	10.3%	
2022	1	0	80	6 of 80	7.5%	
2023	2	0	89	4 of 89	4.5%	
2024	1	0	54	3 of 46	6.5%	
2025 ytd		0				TBA

Table 6. Detected bovine TB Incidents (2017-2025) in Lincolnshire Area 54, with badgers culled and subjected to prevalence testing.

Following 5 years of badger culling in Area 54, shooting 523 badgers, there has been no improvement in the annual number of incidents (2017-2024). The fifth and final cull in Area 54 took place in 2024. Badger vaccination has taken the place of culling in 2025 over the whole

of Area 54. A total of only 14 incidents were disclosed over the eight years: 6 prior to badger intervention and 8 during the 5 years of badger culling.

Area 54 was increased in size by approaching 50%: from 102 sq km to 146 sq. km, while HS23 in Lincolnshire is the largest hotspot covering a huge area of 1,550 sq. km. It is unclear why such a small initial badger cull area, with so few bTB herd breakdowns was chosen with respect to the large area of the other Lincs cull area (inc. parts of Notts and Leics) covered by HS23 which had 163 breakdowns over a similar timetable.

Lincolnshire Hotspot 28 (no cull area)

A cluster of incidents caused by infection with clade B3-11 of *M. bovis* were disclosed in 2019/2020 around the town of Louth in east Lincolnshire. As a result of increasing disease, APHA declared a new potential hotspot PHS28 in July 2020. The cluster is most likely related to *M.bovis* isolates in Cheshire, so undetected infection brought into the county is likely to be responsible for the introduction of TB to the area. Wildlife surveillance, radial and annual testing were implemented in the designated area. The boundary of PHS 28 was adjusted in 2023 according to the geographical distribution of cattle herds, incidents and the location of two bTB positive testing badger carcasses.

Since establishing PHS 28 in 2020 there have been 58 incidents up until the end of 2024, of which 30 were OTF-W and 28 OTF-S. A further 14 new incidents have been identified in 2025. All herds have been subject to annual testing from October 2023. Not until 2025 were more cattle controls introduced, including all herds moving to 6 monthly testing, together with increased use of gamma interferon.

In early 2024 a decision was made to introduce badger vaccination in HS28. 172 badgers were vaccinated.

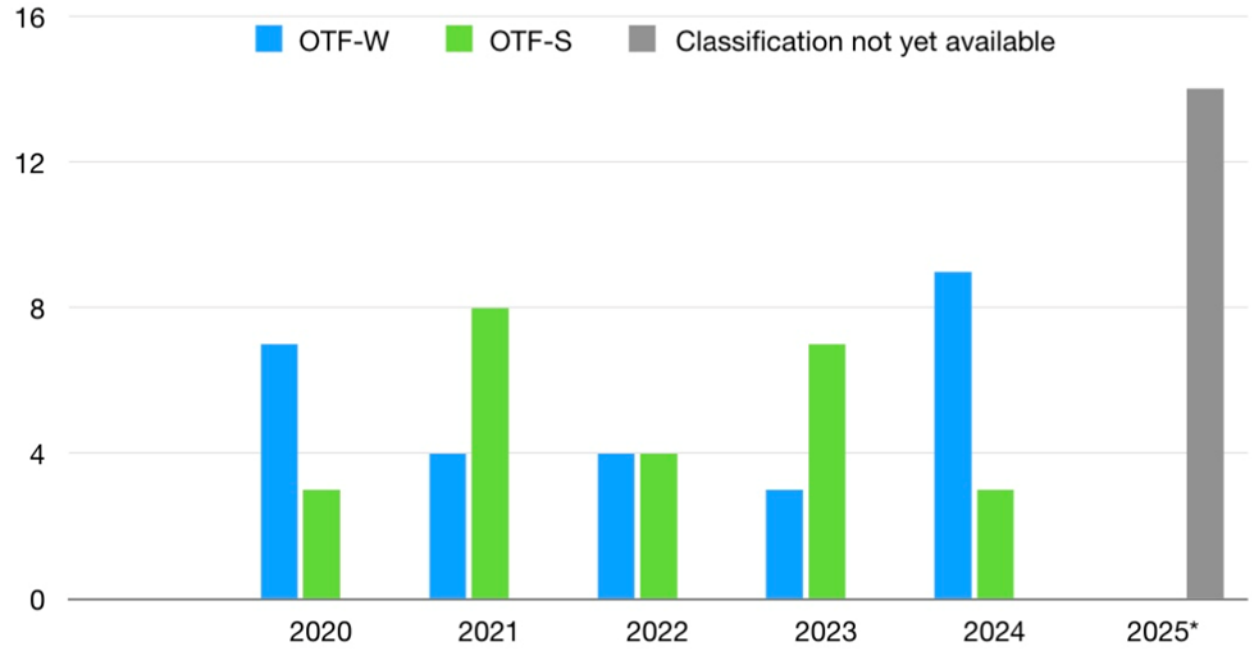


Figure 7. BTB herd incidents for Lincolnshire bTB Hotspot 28: 2020-2025, where badger vaccination began in 2024.

Year	OTF-W	OTF-S	Classification not yet available	
2020	7	3		Hotspot established. July 2020 Radial Testing 2020
2021	4	8		
2022	4	4		
2023	3	7		Annual testing started October 2023
2024	9	3		Vaccination of 172 badgers
2025*			14	6 monthly testing and increased gamma testing

Table 7. BTB herd incidents for Lincolnshire bTB Hotspot 28: 2020-2025, where badger vaccination began in 2024. ***Source 2019-2024 Lincs Epi Report 2024. 2025 data is ibTB total incidents only***

Since a cluster of bTB breakdowns was recognised in east Lincolnshire in 2020, disease has rapidly spread throughout the designated hotspot. Radial testing was introduced in 2020, followed by annual testing in October 2023. Further cattle controls and measures including six-monthly testing were delayed until 2025, with the lack of surveillance leading to disease spread throughout the region. Around half of the breakdowns in HS28 are OTF-S, without WGS data to identify the *M.bovis* clade, limiting interpretation of source.

Herd Prevalence in LRA Counties of Cumbria and Lincolnshire

Figure 8. shows the comparative historic bovine TB prevalence trends for the counties of Cumbria and Lincolnshire over the last 30 years. It shows how Lincolnshire has increased rapidly from around 2016 and how in Cumbria there has been a continuing slight upward trend.

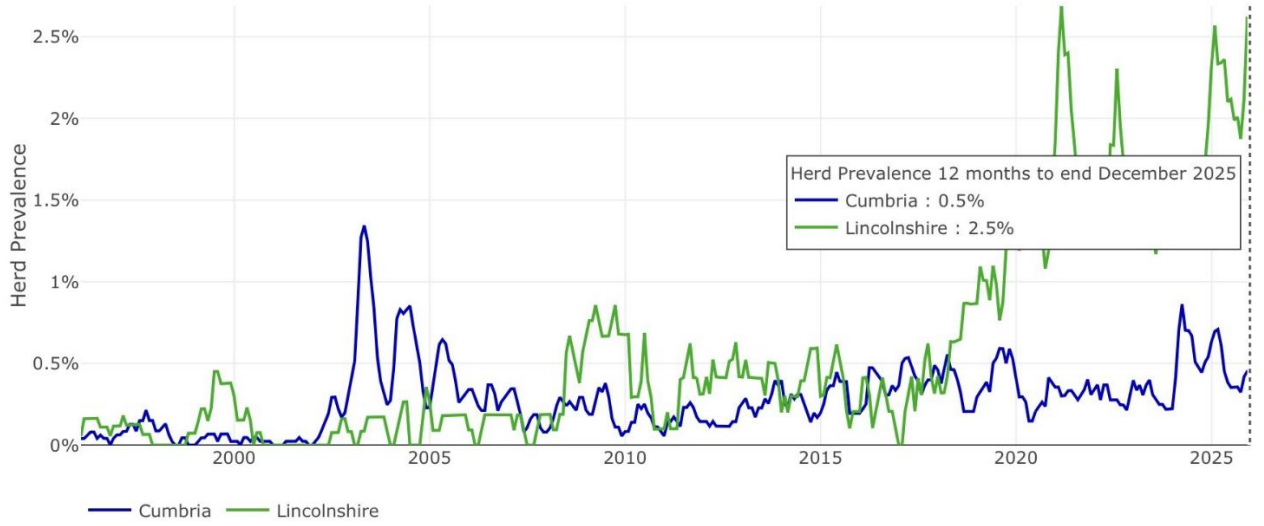


Figure 8. Comparative historic bovine TB herd prevalence (% of herds) in the counties of Cumbria and Lincolnshire over the last 30 years. Source ibtb online.

Discussion

Taken together, while bTB cattle control measures do act to resolve breakdowns following the trading of infected cattle into the low risk area on a monthly basis, there are signs that measures to deal with hotspots have been largely ineffective other than reducing the number of older cases with visible lesions. This effectively limits the tracing of strains as it is only with visible lesions that obvious sites for sampling can be located. These failures have led to the the 2025 eradication targets being missed.

It should be noted that Officially TB Free (OTF) country (or regional) status is achieved by having 99.8% of herds retaining OTF status for 3 consecutive years, as defined in the WOAH Terrestrial Code Article 8.12.4. It is uncertain whether OTF status can be achieved by 2038 in Lincolnshire due to the levels of disease in ongoing hotspots.

It is imperative that improvements to biosecurity, ongoing education and encouragement of responsible cattle sourcing practices, together with enhanced sensitivity of testing are implemented to control and eradicate local spread of TB in cattle.

There are no signs that badger interventions have contributed at all to disease control, alone or in combination with other measures. They appear to be ineffective, and this is consistent with modern interpretation of experimental trial data upon which badger culling was introduced in England in 2013.

The main threat to bovine TB control is resistance to a transition to the new corrected understanding of badger culling, which shows that it has never had a measurable effect on disease control. The hypothesized possibility of significant transmission from badger to cow based upon DNA evidence extrapolations (often using previous flawed modeling) cannot be used to continue to justify mass badger culling. To date, the government has not adequately or effectively explained the truth about the science to industry, is still using out of date messaging, and providing incoherent assessment procedures for veterinarians. In this scenario the outmoded view of badger 'playing a role' becomes the driver to actions, rather than the outcome in terms of disease control in cattle herds. Efficacy is apparently no longer important as a measure of success; this is a step too far. The result will be to perpetuate ineffective disease management endlessly. New leadership within government will be required to resolve this situation, as has been recommended recently (4). The mistakes of the past are not being owned by those involved, and no individual appears to have the authority and expertise to bring about the necessary change to prevent protracted failure.

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