

Regional Six-monthly Report of Descriptive Bovine TB Epidemiology for the Low Risk (Four Yearly Testing) Areas of England

Regional Office:

This report contains bovine tuberculosis (TB) information related to the counties of Cumbria (county number 8), Lancashire (21), Greater Manchester (44) and Merseyside (25), all situated in the low incidence (4-yearly testing) region of the North West of England¹.

Mid-year (first six months) for 2015:

1. Cattle Industry in the Region

The low incidence area of the North West of England is formed by four counties and several Metropolitan district local authorities. From a bovine TB point of view and for simplicity, I have divided the region into three geographical areas.

1.1 The county of **Cumbria** has approximately about 3,600 cattle herds. There is approximately a similar number of beef and dairy herds. The size of herds is very variable, ranging from smallholding with 1 or 2 animals to large dairy herds with up to 1000 animals per herd.

A great majority of the farms in Cumbria were depopulated during the FMD epidemic and hence the majority of the herds were re-formed by restocking and buying animals from other areas. Cumbrian farmers tended to buy cattle for restocking purposes from the Southwest of England where TB was and is endemic and the price of live cattle at that time was very low.

Compulsory pre-movement TB testing of cattle as a precautionary measure was not established until 2006, so cattle moving into Cumbria before this date were not subjected to pre-movement TB testing. In recent years, farmers are becoming more aware of the risk of buying cattle from high incidence areas of bovine TB. So most herd owners do not buy in many animals, or they source them from local area via local livestock markets.

However, there are some cattle dealers who bring animals from the high risk areas to be sold through local markets, in relatively high numbers. Purchasers of these animals are not aware of the origin until after animals have been bought, although they have to be pre-movement tested for TB with negative results.

Also a substantial number of Irish imports (Northern Ireland and Republic of Ireland) come through the county, generally ending on beef finishing/fattening herds.

Approximately an average of four to five hundred live cattle movements from other parts of England to Cumbria takes place every month. APHA carry out tracing tests on cattle moved into Cumbria from herds that are found to be infected with bTB after the cattle movement took place.

There are twelve livestock markets in Cumbria. There is an important trade of movement of cattle from Cumbria into Scotland.

There are no Exempt Finishing Units (EFUs), Approved Finishing Units (AFUs), Approved Quarantine Units (AQUs) or TB Isolation Units in Cumbria.

¹ The APHA region of the Northwest of England also includes the county of Cheshire to the south, which is not covered in this report. From 1.1.2013, all cattle herds in Cheshire have been subject to annual TB testing, as that county adjoins the core endemic bTB (high risk) area (HRA) of England and Wales. The northern two thirds of the county are part of the so-called 'edge' area surrounding the core endemic area and is subject to enhanced bTB surveillance measures, whereas the southern third is in the HRA itself.

There are eleven cattle city farms in Cumbria.

1.2 The county of **Lancashire** has approximately 2200 cattle herds. There are a similar number of beef and dairy herds. The size of herds is very variable, ranging from smallholding with 1 or 2 animals to large dairy herds with up to 1000 animals per herd.

The larger dairy herds tend to source their dairy replacements, usually in-calf heifers, from Germany and The Netherlands.

In general terms, most herds do not buy in many animals and replacements are often sourced from local areas or via local livestock markets.

Large intensive beef units try to source cattle locally, but often go further afield into high bTB incidence areas, as cattle prices are cheaper in the high risk (endemic) TB areas.

There is currently one AFU in Lancashire , but no EFUs, AQUs or TB Isolation Units. There are four livestock markets in Lancashire and 14 city farms in the county.

1.3 The counties of **Greater Manchester and Merseyside** have a very small population of cattle. Both counties encompass two of the biggest cities of England and their surrounding metropolitan Boroughs. By contrast, the number of equine premises has increased significantly during recent years.

The number of cattle herds in Greater Manchester is approximately 520 and in Merseyside only about 90 cattle herds. Most of the herds are very small holdings, with an average herd size of 30 to 60 animals. There is an approximately 50-50 split between beef and dairy herds.

A great proportion of herds in these two counties are small herds, with little investment in cattle housing, machinery and equipment.

There is one large finishing unit in Merseyside which sources animals from high risk areas. Fortunately, this unit is surrounded by urban areas and has no neighbouring cattle farms. Many holdings rarely buy in replacements, as the cattle keepers consider their cattle as non-commercial pet animals.

There are no EFUs, AFUs, AQUs or TB Isolation Units in Greater Manchester and Merseyside. Likewise, there are no Livestock markets in Greater Manchester and Merseyside.

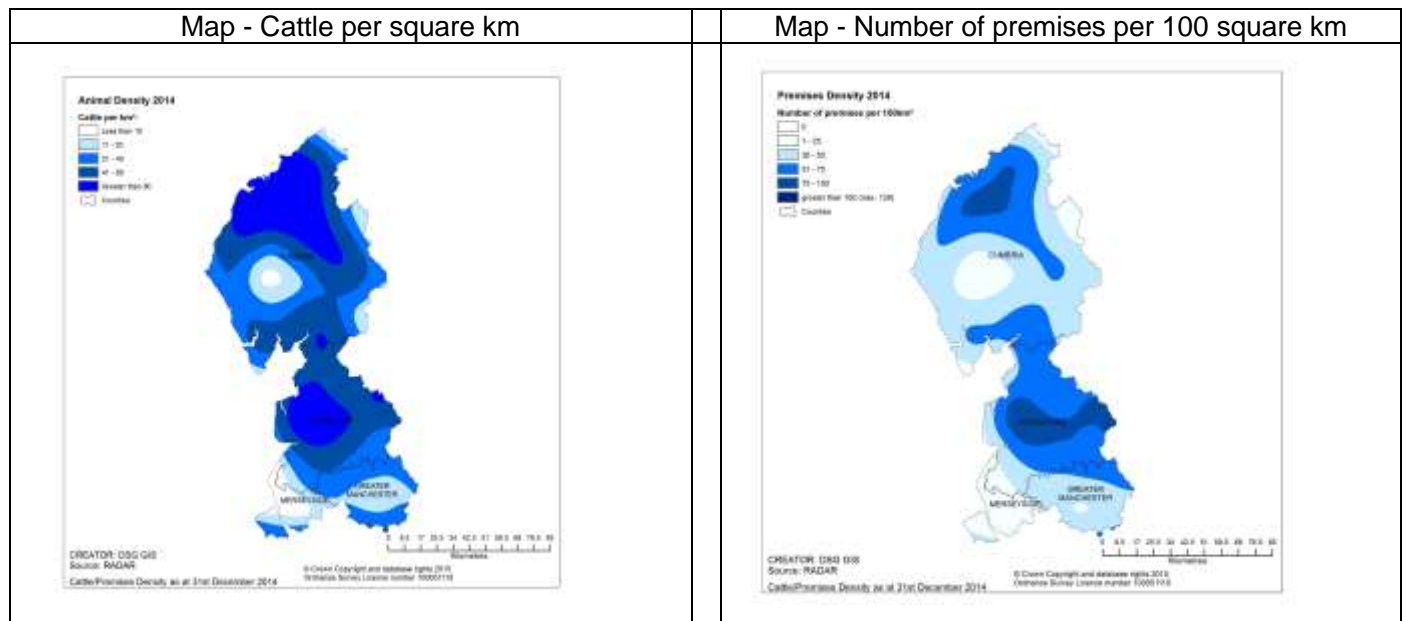
Number of cattle premises by size band in the division at 1 January of the reporting year.

Cattle per premises		0	1 - 50	51 - 100	101 - 200	201 - 350	351 - 500	501+	All	Mean	Median
CUMBRIA	08	22	1242	534	624	436	178	155	3191	141	78
LANCASHIRE	21	24	919	264	322	207	99	60	1895	117	51
MERSEYSIDE	25		38	12	9	5	2	3	69	95	35
GREATER MANCHESTER	44	8	318	65	47	24	2	1	465	52	23

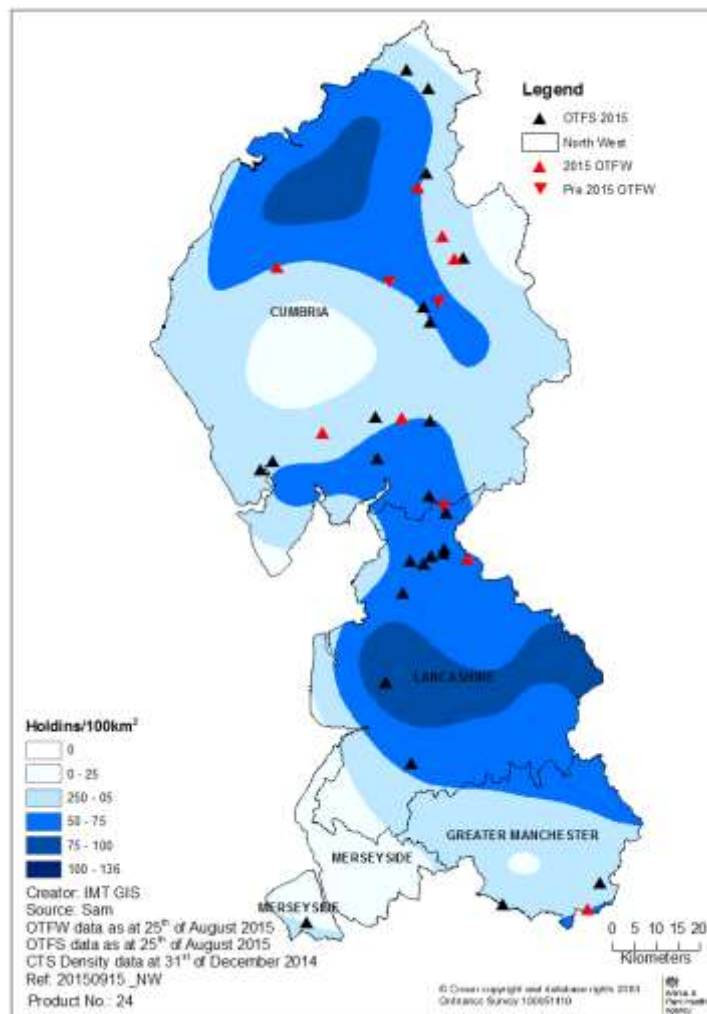
Cattle breed purpose - numbers and percentages at 1 January of the reporting year.

County		Beef	Dairy	Dual Breed	Unknown	Total
CUMBRIA	08	204703 (45.4%)	233765 (51.8%)	12587 (2.8%)	72 (0.0%)	451127
LANCASHIRE	21	65993 (29.8%)	146034 (65.9%)	9632 (4.3%)	27 (0.0%)	221686
MERSEYSIDE	25	3242 (49.4%)	3197 (48.7%)	119 (1.8%)	2 (0.0%)	6560
GREATER MANCHESTER	44	14131 (58.8%)	9282 (38.6%)	587 (2.4%)	26 (0.1%)	24026

Density of cattle and cattle premises at 1 January of the reporting year.



2. Geographical Distribution of Bovine TB Breakdowns in the Region



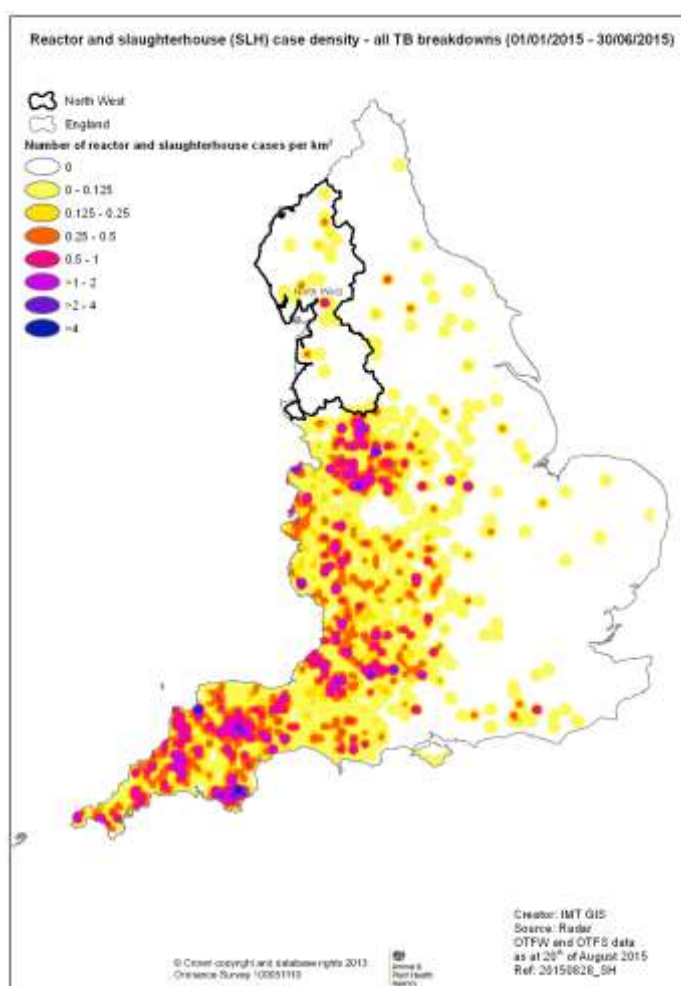
3. Summary of the Regional Headline Cattle TB Statistics

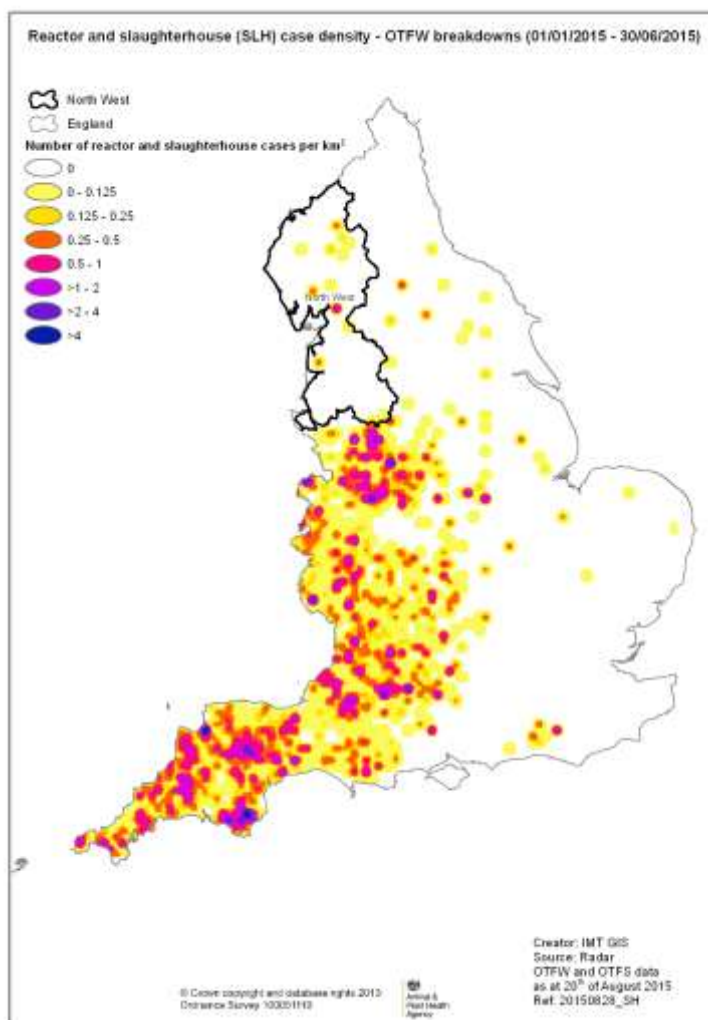
Herd-level statistics	CUMBRIA	LANCASHIRE	MERSEYSIDE	GTR MANCHESTER
(a) Total number of cattle herds live on Sam at the end of the reporting period	3591	2173	89	522
(b) Total number of cattle herds subject to annual TB testing at the end of the reporting period (any reason)	642	250	22	50
(c) Total number of herd tests carried out in the period	1110	556	35	205
(d) Total number of OTF cattle herds TB tested during the period for any reason	542	380	23	181
(e) Total number of OTF cattle herds at the end of the report period (i.e. herds not under any type of TB2 restrictions)	3573	2156	87	516
(f) Total number of cattle herds that were not under restrictions due to an ongoing TB breakdown at the end of the report period.	3584	2171	88	521
(g) Total number of new TB breakdowns detected in cattle herds during the report period	18	10	1	3
• OTF status suspended (OTFS)	12	9	1	2
• OTF status withdrawn (OTFW)	6	1	0	1
(h) Of the new OTFW herd breakdowns, how many:				
• occurred in a holding affected by another OTFW breakdown in the previous three years?	0	0	N/A	0
• could be considered secondary to a primary breakdown based on current evidence?	0	0	N/A	0
• were triggered by skin test reactors or 2xIRs at routine herd tests?	4	0	N/A	0
• were triggered by skin test reactors or 2xIRs at other TB test types (forward and back-tracings, contiguous, check tests, etc.)?	1	0	N/A	1
• were first detected through routine slaughterhouse TB surveillance?	1	1	N/A	0
(i) Number of new breakdowns revealed by enhanced TB surveillance (radial testing) conducted around those OTFW herds				
• OTFS	0	0	0	0
• OTFW	0	0	0	0
(j) Number of OTFW herds still open at the end of the period (including any ongoing OTFW breakdowns that began in a previous quarter)	8*	1		1
(k) New confirmed (positive <i>M. bovis</i> culture) incidents in non-bovine species detected during the report period (indicate host species involved)		0	0	0

* Ref 15/00068 regained OTF 17/7/2015
 Ref 14/04865 regained OTF 14/8/2015

Animal-level statistics (cattle)	CUMBRIA	LANCASHIRE	MERSEYSIDE	GTR MANCHESTER
(a) Total number of cattle tested in the period (animal tests)	129799	53345	3597	7271
(b) Reactors detected:	118	25	1	7
• tuberculin skin test	63	11	1	4
• additional IFN-gamma blood test reactors (skin-test negative or IR animals)	55	14	0	3
(c) Reactors per breakdown	7	3	1	2
(d) Reactors per 1000 animal tests	0.91	0.47	0.28	0.96
(e) Additional animals identified for slaughter for TB control reasons (DCs, including any first-time IRs)	5	0	0	3
(f) SLH cases (tuberculous carcasses) reported by FSA	3	2	1	0
(g) SLH cases confirmed by culture of <i>M. bovis</i>	1	1	0	0

Density of TB reactors and slaughterhouse cases in TB breakdowns per km²





4. Suspected Sources of *M. bovis* Infection for all the New OTFW Breakdowns Identified in the Report Period

Most likely origin	Provisional	Final
Introduction (e.g. purchase) of infected animal(s)	4	
Local - lateral spread from neighbouring holdings:	1	
<ul style="list-style-type: none"> exposure to infected wildlife e.g. badgers 		
<ul style="list-style-type: none"> other farmed species 		
<ul style="list-style-type: none"> recrudescence of residual infection from a previous TB breakdown 		
<ul style="list-style-type: none"> infected human source 		
Undetermined/obscure	3	
Other (explain)		

		Probability of isolated, sporadic ('one-off') breakdown, without secondary local spread from the index case		
		Likely (no secondary breakdowns detected)	Possible (no secondary breakdowns detected, but dataset incomplete)	Not likely (secondary spread from the index case, or exposure to a common wildlife source has occurred)
Probability of introduced <i>M. bovis</i> infection introduced via cattle movements	Definite			
	Likely	4		
	Possible		4	
	Not likely (indigenous infection in the locality)			

List the CPHs of those herds with OTFW breakdowns categorised as definite or likely introduced cases with no evidence of local spread (greyed-in boxes):

08/369/0042
08/131/0037
08/119//0005
21/184/0056

5. Overview of the bTB Control Programme in the Region

The 2013 radial testing regime has been instigated for OTFW breakdowns, the specific details of which can be seen in the reports of each premises breakdown (please see below).

Regular communication/meeting with local NFU representatives ongoing regarding the disease situation. In addition close liaison with the veterinary practices in the affected areas which has been well received.

Liaison and educational meetings with NFU and local farmers regarding the regional bTB situation and control have been held in Cumbria and in Lancashire .

6. Wildlife

Three 'potential hotspot' areas of enhanced TB surveillance in cattle herds and wildlife are in force in this region, following the identification in 2014 of OTFW TB breakdowns of obscure origin, namely:

- HS – 15, Lune Valley, Lancashire (ongoing) :

22 submissions to date. 19 badgers and 2 deer. 10 culture negative results received. 12 Culture results still pending

Wildlife surveillance zones were established in Goosnargh, Lancashire, and Millom, Cumbria. Although stakeholders were notified outside the reporting period, they were as a result of breakdowns disclosed within it:

- HS – 16, Goosnargh, Lancashire (notification 04/04/2014):

1 deer submission to date, culture still pending

- HS-17, Millom, Cumbria (notification 17/04/2014):

3 submissions to date, 1 deer and two badgers. Cultures pending

7. Other Susceptible Species

Nothing to add

North West Radial Overview 2013 to date

(2012 radials are all now closed and premises returned to 48m UMR)

2013 OTFW breakdowns now closed – Radial test results as of April 2015

OTFW	TB Incident Status	Immediate Rad	Rad 6	Rad 12
Lancaster, Lancashire	Regained OTF status August 2013 Regained OTF status October 2013 Both premises epidemiologically linked for Radial test	69 premises: 17 in existing radial. 49 clear tests 7 NES 2 premises disclosed as OTFW (13/01719 & 13/00353 below) 4 premises OTFS 1 excluded 6 herds disclosed IRs	69 premises : 17 in existing radial 25 clear tests 7 NES 2 premises disclosed as OTFW had regained OTF status 1 test disclosed IR All testing completed - clear	5 NES 31 tested Clear Rest in existing radials
Grange Over Sands, Cumbria	Regained OTF status October 2013	26 Premises 18 tested clear 3 NES 1 disclosed one IR 4 overdue	All premises tested clear	All premises tested clear
Carnforth, Lancashire	Regained OTF status July 2013	6 premises tested clear	6 Premises tested clear	IR disclosed on one premises – rest clear
Preston, Lancashire	Regained OTF status August 2013	97 premises 53 tested clear 5 exempt/NES 39 previously tested	All testing Clear	1 x OTFS now clear
Lancaster, Lancashire	Regained OTF status Sept 2013	57 premises 31 tested clear 6 exempted/NES 1 in existing RAD 1 OTFS 18 pending tests were clear	All bar one premises tested clear. All tests completed. 1 premises OTFW (14/00449)	1 x OTFS now clear
Millom, Cumbria	OTF status regained 20/12/2013	61 premises 6 exempted 1 NES 3 inc in existing Rad: All tests completed - clear	All tested clear	1 x OTFS Now clear
Carnforth, Lancashire	OTF status regained 6/3/2014	43 premises 5 exempted 9 inc in existing Rad : 38 tested clear. 3 disclosed IRs subsequently resolved. 1 herd became OTFS due to NVL R but has since regained	All testing completed, One premises has become OTFW (ref 14/1310 due to purchase from ref 14/01304)	All premises clear to date

		OTF		
Lancaster, Lancashire	OTF status regained 10/1/2014	38 premises 3 exempted/NES 8 in existing Rad: 3 premises became OTFS other tests were clear. OTF has since been regained for these premises	All tested clear	All tested clear
Ulverston, Cumbria	OTF status regained 14/1/2014	78 premises 5 exempted, 5 NES, 19 inc in existing Rad, 47 tested clear 2 tests disclosed Rs NVL/Culture neg. OTF status has since been regained. Rest tested clear	All testing clear.	Due from 04/2015 – 21 tested clear or NES
Preston, Lancashire	OTF status regained 23/1/2014	77 premises identified 6 in other radials. All tested clear	1 x OTFS – now clear	Due from 08/2015 – 1 premises tested clear
Carlisle, Cumbria	OTF status regained 23/1/2014	94 premises identified of which 20 in existing radial. One herd in radial disclosed a NVL culture negative reactor and is OTFS	All tested clear	Due from 06/2015 – 42 premises clear, 1 NES

2014 OTFW Breakdowns –resultant Radial Zones (as of September 2015)

OTFW	TB Incident Status	Immediate Rad	Rad 6	Rad 12
Carlisle, Cumbria	OTFW 28/01/2014	69 premises identified, of which 6 in existing radial and 10 exempted. Out of the 53 premises remaining, 47 tested clear, 5 are NES, 1 disclosed an OFTS (2xIR) breakdown.	1 x OTFS	Due from 11/2015
Millom, Cumbria	OTFW 07/03/2014	47 premises in the radial. Of these 47 premises, 39 have tested clear, 3 were in existing radials, 4 NES and one test disclosed an IR but this has tested clear.	All tested clear	Due from 10/2015
Preston, Lancashire	OTFW	Originated from 14/1304 and housed since purchased, so not being instigated at present		

Carnforth, Lancashire	OTFW	Originated from 14/1304 and housed since purchased, so not being instigated at present		
Carnforth, Lancashire	OTFW	129 premises in radial, but excluding those already in existing radials, NES and exempted herds 45 premises due for testing from 04/2014.	Due from 10/2014 All tested clear	Due from 04/2015 38 tested clear. 2 were OTFS now resolved.
Lancaster, Lancashire	OTFW	64 premises initially identified. 9 were exempted, 11 were in exiting radials and 2 had NES. Of the 42 premises then remaining, 4 had NES, 36 tested clear but 14/01971 - 21/416/0002 disclosed as OTF(W).	Due from 11/2014 All tested clear	Due from 05/2015 7 tested clear to date
Lancaster, Lancashire	OTFW	72 Premises initially identified. 50 already in existing radials, 7 exempted from testing & 1 premises with no cattle livestock unit. 13 premises tested clear. 1 premises disclosed an IR with a target date for re-test of 09/11/14 (now clear)	Due from 03/2015 1 x OTFS2 premises (now resolved) – rest clear	6 tested clear to date
Penrith, Cumbria	OTFW	71 premises identified of which 7 are exempt and 2 have no recorded cattle All tested clear	Due from 09/2015 – 9 tested clear to date. 1 x NES	Due from 09/2016
Penrith, Cumbria	OTFW	71 premises in radial – 1 x OTFS culture pending. All others tested clear	Due from ~ 10/2015	Due from ~10/2016

2015 – OTFW Breakdowns – Resultant Radial Zones as of September 2015

OTFW	TB Incident Status	Immediate Rad	Rad 6	Rad 12
Kendal, Cumbria	OTFW	54 premises identified of which: 8 exempt/no cattle 2 in existing radial All tested clear	Due from 09/2015 – 10 tested clear to date	Due from 09/2016
Carnforth, Lancashire	OTFW	To date 127 premises identified of which: 5 exempt/no cattle 117 initial or modified radial regime 5 premises in on going incident All tested clear	Due from 11/2015	Due from 11/2016
Keswick, Cumbria	OTFW	47 premises identified to date of which: 11 exempt All tested clear	Due from 10/2015 – 1 tested clear to date	Due from 10/2016

Carlisle, Cumbria	OTFW	71 premises identified to date of which: 27 are exempt 2 in existing or superceded radials – All tested clear	Due from 10/2015	Due from 10/2016
Penrith, Cumbria	OTFW	82 premises identified to date with cattle – 1 premises OTFW. All rest clear	Due from Dec 2015	Due from Dec 2016
Penrith, Cumbria	OTFW	123 premises initially identified of which 40 were eligible for intial RAD setup 28 premises have tested clear (or NES) to date	Due from Feb 2016	Due from Feb 2017
Penrith, Cumbria	OTFW	164 premises identified initially of which 14 were already in a RAD. 1 has no cattle and 4 are ongoing breakdowns. 75 premises have been set RAD testing to date – the rest are pending (Due 11/2015) 1 tested to date - clear	Due from May 2016	Due from May 2017

Glossary

- Edge Area (EA) – the annual TB testing area of England situated between the High and Low Risk Areas
- Epidemiology – the science that studies the patterns, causes, and effects of health and disease conditions in defined populations
- Genotype – the genetic makeup of a cell, an organism, or an individual usually with reference to a specific characteristic under consideration
- High Risk Area (HRA) – the annual testing area of England comprising the South West, West Midlands and part of East Sussex, in which *M. bovis* infection is endemic in cattle herds and in badgers
- Potential ‘Hotspots’ – a temporary area of enhanced TB cattle and wildlife surveillance that may be declared around some OTFW TB breakdowns of uncertain origin detected in a Region of historically low TB incidence
- Low Risk Area (LRA) – the four-yearly TB testing area of the North and East of England in which *M. bovis* infection occurs only sporadically in cattle and is not considered endemic in wildlife. Although the default testing interval for routine TB surveillance is four years, some higher risk herds in the LRA are subjected to annual testing. There is also more intensive surveillance testing (radial testing) around any herds in the LRA (and parts of the Edge Area) that have their officially TB free status withdrawn due to a TB breakdown
- OTF – Officially Tuberculosis Free status. Herds that are not subjected to TB movement restrictions of any type are classified as OTF
- OTF-S – Officially Tuberculosis Free Suspended status. In England, an OTFS breakdown is a herd in which all the reactors removed had no visible lesions (NVL) on post-mortem examination and had negative culture results for *M. bovis*
- OTF-W – Officially Tuberculosis Free Withdrawn status. In England, an OTFW breakdown is a herd in which at least one test reactor with visible lesions (VL) and/or an animal with *M. bovis*-positive culture result have been disclosed
- Persistent herd breakdown – a herd that has been under TB movement restrictions for 18 months or longer due to infection with *M. bovis*
- bTB – (bovine) Tuberculosis (infection of cattle with *M. bovis*)
- IFN- γ – interferon-gamma test. A supplementary in vitro blood test for TB used by APHA in conjunction with the tuberculin skin test in some situations, usually to improve the overall diagnostic sensitivity in infected herds with OTF status withdrawn.

The Animal and Plant Health Agency is an Executive Agency of the Department for Environment, Food and Rural Affairs working to safeguard animal and plant health for the benefit of people, the environment and the economy.