Department for Environment Food & Rural Affairs

Monthly publication of National Statistics on the Incidence of Tuberculosis (TB) in Cattle to end January 2014 for Great Britain

These statistics were released today, Wednesday 16 April 2014 at 09:30, with the next notice to be updated on Wednesday 14 May 2014 at 09:30.

These statistics are obtained from the Animal Health and Veterinary Laboratories Agency (AHVLA) work management IT support system (Sam), used for the administration of TB testing in GB. They are a snapshot of the position on the date on which the data were extracted. These statistics may be subject to regular revision until all test results are available. In particular figures from 2012 onwards will be subject to further revision as test and incident records are completed.

The key points relating to January 2014 are:-

- Short term changes in these statistics should be considered in the context of long term trends. The charts and tables in this statistical notice illustrate how the trend in bovine TB incidence has changed since 1996.
- The provisional incidence rate for January 2014 is 4.3% compared with 4.3% for January 2013. However, care needs to be taken not to read too much into short term figures, especially as this figure includes a number of unclassified incidents. As such, the incidence rates are subject to further revisions as more tests and their results for the period are input.
- The number of new herd incidents during January 2014 was 534 compared with 498 for January 2013. The number of tests on officially TB free herds was 8,086 during January 2014, compared with 7,347 during January 2013.
- The number of cattle compulsorily slaughtered as reactors or direct contacts was 2,924 during January 2014, compared with 3,200 during January 2013.

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What is bovine tuberculosis?

Bovine tuberculosis (bTB) is a chronic infectious disease of cattle[1]. The risk bTB poses to human health is low, largely due to milk pasteurisation. The disease is detected either on farms (through mandatory skin tests[2] of cattle herds for bTB at regular intervals) and at abattoirs (through post-mortem meat inspection of cattle carcases).

What are the impacts of bTB?

Bovine TB presents serious challenges to the food and farming industries and has economic and social impacts. The economic costs of a bTB breakdown[3] are shared by farmers and government; in 2012 the estimated average cost of a confirmed herd breakdown in high risk areas of England was £14,000 to farmers and £20,000 to government[4]. Costs are incurred for a number of reasons:

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

Other impacts of high bTB levels can include:

- Restrictions on trade in cattle within Europe[5]
- Significant stress amongst famers, their families and local communities[6]
- The infection spilling over to domestic and wild animals [7].

Why monitor statistics about bTB?

Legal requirements: EU Member States are legally required to have accelerated bTB eradication plans in place in order to achieve officially TB free (OTF) status[8]. Defra and Welsh Government policy is to achieve OTF status for the whole country by 2038, while Scotland achieved OTF status in September 2009. bTB statistics are used in England and Wales to measure progress towards this

[1] bTB is caused by the bacterium *Mycobacterium bovis* (*M. bovis*). Cattle are the natural host of the bacterium, but many other species, including wildlife such as badgers and (less commonly) deer, are also susceptible to *M. bovis* ,can develop TB and transmit the infection to other species.

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

[3] A *breakdown* is the term used to describe the occurrence in a herd of at least one animal with a positive reaction to the skin test, or the identification of *M. bovis* in an animal with TB lesions detected at routine slaughter. The affected herd is then placed under restrictions and loses its Officially TB Free (OTF) status.

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

[5] Because the disease undermines the effective operation of the single market – see the EU Animal Health Strategy

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

[7] For example Broughan, J. M., Downs, S. H., Crawshaw, T. R., Upton, P. A., Brewer, J. & Clifto-Hadley, R. S. (2013) *Mycobacterium bovis* infections in domesticated non-bovine mammalian species. Part 1: review of epidemiology and laboratory submissions in Great Britain 2004-2010. *Veterinary Journal* **198**, 346-35. See also http://www.defra.gov.uk/animal-diseases/a-z/bovine-tb/animal-keepers/other-species/

[8] "OTF Status" takes its meaning from European law: for a region or Member State of the EU to be considered to be OTF the annual incidence of herds with confirmed *M. bovis* infection must not have exceeded 0.1% and at least 99.9% of the herds within it must have been free from bTB at the end of the year for at least six consecutive years.

target, and to support the annual case for Scotland to retain its OTF status, as the qualification is based on herd incidence.

Monitoring policy effectiveness: Statistics on the incidence of bTB in cattle herds and the number of cattle slaughtered as a result of bTB are used by policymakers to monitor the spread and concentration of the disease and to inform decisions around the potential approaches to controlling it. Existing controls include routine testing in cattle based on the disease incidence (or risk) in a given area, restricting movements of cattle from herds where an animal has tested positive for the disease and addressing the problem of disease spread through wildlife (principally badgers).

Factors affecting statistics on incidence of bTB in cattle herds

Variation in the monthly statistics can occur for a number of reasons, including:

- **Disease**: an increase in the trend can be the result of a higher proportion of herds experiencing a breakdown because of an increase in the underlying incidence of bTB.
- **Surveillance policy** (including the frequency of testing): Cattle herds in high risk areas[9] are tested annually and cattle herds in low risk areas are usually tested every four years. If cattle herds in a low prevalence region are tested more frequently than every four years, the increase in the number of bTB tests will not necessarily be followed by a similar increase in the detection of infected cattle and so this may result in a decline in the incidence rate.
- **Seasonality**: more animals are tested when they are housed, during winter months, compared with when they are grazing outdoors in summer months. This is simply because it is easier to gather and test the cattle when they are already contained within a building. The blue trend line in Figures 1 and 2 account for this by presenting seasonally adjusted data.
- Number of **testing days** in a given month: tests tend to be carried out at the beginning of the working week and the results collected and entered into the data system towards the end of the week. Months containing five Fridays may therefore have more positive test results than months containing four.

An extreme example of the impact of testing on the incidence rate can be seen in the statistics for 2001, when bTB testing was significantly reduced for most of the year due to the outbreak of Foot and Mouth Disease but new bTB breakdowns continued to be detected through disease surveillance in abattoirs. This led to an unusually high incidence rate for 2001 and 2002, when effectively two years' worth of breakdowns were identified in one year when the normal testing regime resumed.

Surveillance policy in GB

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

Timeline:

- **1990s**: most herds in GB tested every four years and background testing intervals determined on a parish basis. Herds in parishes with a high incidence of bTB breakdowns (in the South West of England and in parts of Wales) are tested on an annual or biennial basis, with a smaller number of three-yearly testing herds.
- **2004 to 2010**: the proportion of parishes and herds in England and Wales with annual testing increases gradually as the disease spread, with a corresponding decrease in the proportion of parishes with four-yearly testing.

[9] South West, West Midlands and East Sussex, where the majority of TB cases are found and where the prevalence (probability) of TB-infected cattle and badgers is relatively high.

- **October 2009**: the European Commission designates Scotland as an officially bTB free region of the UK.
- **January 2010**: In England, a core annual testing area is established, spanning entire counties in the South West and West Midlands (the 'high risk area') and surrounded by a 'buffer' of two-yearly testing parishes. Most of the rest of England remains on background four-year testing. The Welsh Government puts all cattle herds in Wales on annual bTB testing (with herds in the small Intensive Action Area of West Wales put on 6-monthly bTB testing).
- **2011 and 2012**: further expansion of the annual testing area in England to the east and north.
- **January 2013**: herd testing intervals are determined on a county basis and England is split into annual testing and four-yearly testing counties. Annual testing of herds is extended to all the counties at the edge of the high risk area (more detail below). Three- and two-yearly testing is abolished.

Current differences in surveillance policy in GB

- **England** is divided into two cattle bTB testing frequency areas that broadly reflect the geographically clustered nature of the disease. The majority of bTB cases are found in counties of the South West, West Midlands and East Sussex. These herds are tested for bTB annually and represent nearly 60% of all herds in England. In the rest of England most herds are tested every four years. Herds that have a high risk of contracting bTB or present a potential public health risk (e.g. producer-retailers of unpasteurised milk) are tested annually regardless of their location.
- All herds in **Wales** are tested annually.
- In **Scotland**, a risk-based routine herd testing policy is in place. This targets testing at higher risk herds and exempts low risk herds from routine testing. Around 35 per cent of herds are exempt from testing, with herds that are not exempt tested every four years.

More information on bovine TB can be found at:

England: https://www.gov.uk/government/policies/reducing-bovine-tuberculosis

Wales: http://wales.gov.uk/topics/environmentcountryside/ahw/disease/bovinetuberculosis

Scotland: http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/animal-welfare/Diseases/disease/tuberculosis

Methodology

For a description of the data sources and methodology used in the calculation of the TB statistics, together with notes on data revisions policy etc. Refer to the Annex document at :-
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/305850/bovinetb-annex-24apr14.pdf

Further Information

1. This statistical notice and a wide range of other statistics are available on the internet at -
https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/about/statistics

Figure 1: Number of officially TB free herd status being withdrawn incidents, as a percentage of tests on officially TB free herds :-

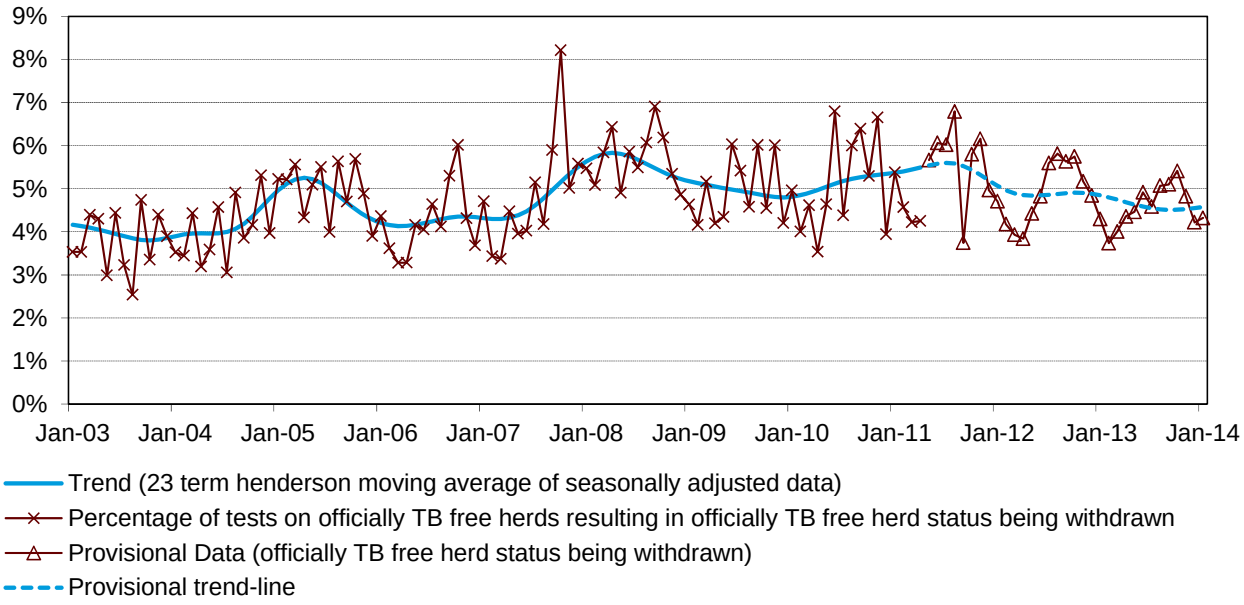
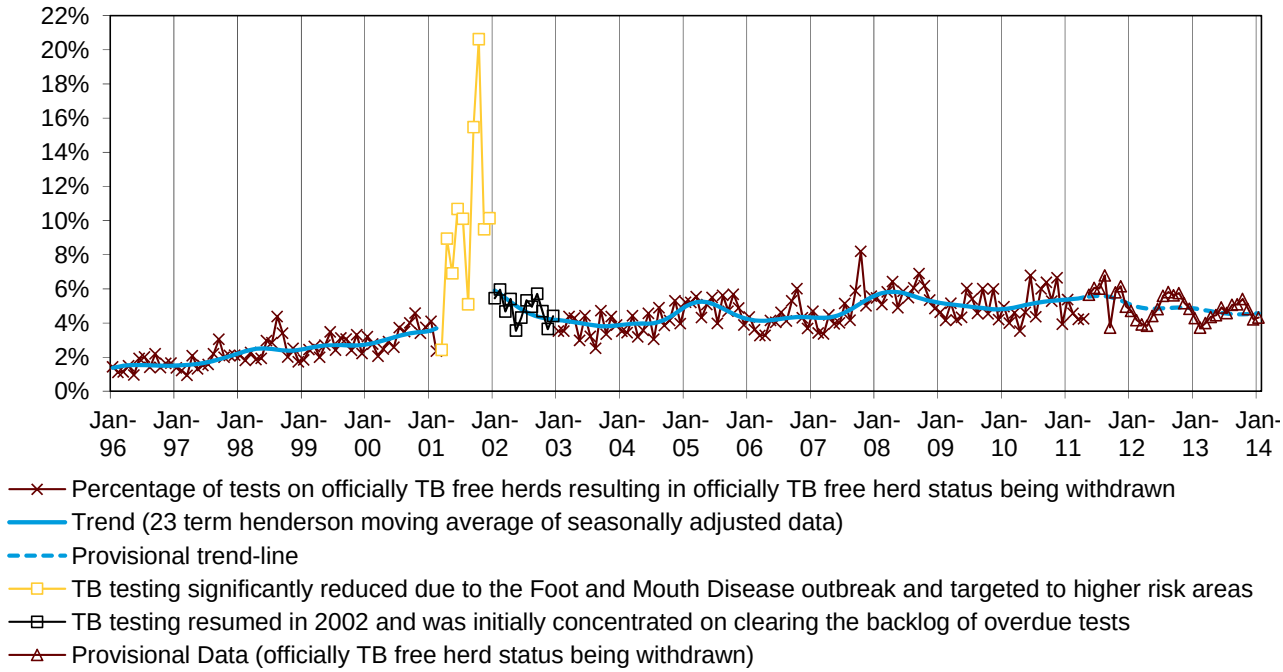


Figure 2: Number of officially TB free herd status being withdrawn incidents, as a percentage of tests on officially TB free herds :-



The charts published in this statistical notice, together with the equivalent figures from January 1996 onwards, are also available in spreadsheet format on the Defra web site at :- https://www.gov.uk/government/publications/incidence-of-tuberculosis-tb-in-cattle-in-great-britain. Visit the third link (MS Excel spreadsheet) entitled “Incidence of TB in cattle in Great Britain - GB dataset”.

TABLE 1: TB INCIDENTS IN GREAT BRITAIN - HERDS

			Total tests on herds	Herds not Officially TB free due to a bovine TB incident (non-OTF Herds)	Tests on officially TB free herds **(OTF)**	New herd incidents (NHI)	**NHI** *of which:* officially TB free herd status withdrawn **(OTFW)**	Number of OTFW incidents as a percentage of tests on officially TB free herds
			(1)	(2)	(3)	(4)	(5)	(6)
1996			36,314	1,589	34,812	1,075	490	1.4%
1997			34,065	1,632	32,295	1,195	540	1.7%
1998			37,046	2,077	34,502	1,514	787	2.3%
1999			41,365	2,374	38,338	1,661	967	2.5%
2000			40,669	2,482	37,184	1,738	1,135	3.1%
2001		*	13,187	1,697	11,118	802	571	5.2%
2002		**	49,709	4,167	43,641	3,323	2,042	4.7%
2003			56,208	5,460	47,568	3,214	1,789	3.8%
2004			56,836	5,220	49,027	3,341	1,934	4.0%
2005			55,887	5,669	46,725	3,665	2,308	4.9%
2006			64,457	5,859	56,051	3,530	2,303	4.1%
2007			64,145	6,582	54,856	4,188	2,546	4.7%
2008			66,432	7,935	54,854	5,011	3,093	5.6%
2009			72,205	8,386	58,894	4,599	2,847	4.9%
2010			74,474	7,964	61,587	4,723	3,013	4.9%
2011			76,659	8,243	62,489	4,912	3,112	5.2%
2012		(prov)	88,572	8,970	73,654	5,152	3,470	4.8%
2013		(prov)	86,813	9,235	72,165	4,814	3,234	4.5%
2012	Jan	(prov)	8,194	4,303	6,995	485	*326 - 333*	*4.7% - 4.8%*
	Feb	(prov)	9,060	4,423	7,700	465	*316 - 327*	*4.1% - 4.2%*
	Mar	(prov)	11,719	4,630	10,284	592	*400 - 408*	*3.9% - 4.0%*
	Apr	(prov)	7,892	4,679	6,535	405	*248 - 254*	*3.8% - 3.9%*
	May	(prov)	7,305	4,725	5,993	448	*261 - 269*	*4.4% - 4.5%*
	Jun	(prov)	5,426	4,601	4,177	325	*200 - 203*	*4.8% - 4.9%*
	Jul	(prov)	5,064	4,531	3,862	313	*215 - 217*	*5.6% - 5.6%*
	Aug	(prov)	5,421	4,502	4,242	353	*244 - 249*	*5.8% - 5.9%*
	Sep	(prov)	5,880	4,468	4,741	367	*264 - 270*	*5.6% - 5.7%*
	Oct	(prov)	6,817	4,580	5,749	444	*328 - 333*	*5.7% - 5.8%*
	Nov	(prov)	9,060	4,719	7,679	559	*393 - 401*	*5.1% - 5.2%*
	Dec	(prov)	6,734	4,732	5,697	396	*275 - 277*	*4.8% - 4.9%*
2013	Jan	(prov)	8,759	4,919	7,347	498	*311 - 320*	*4.2% - 4.4%*
	Feb	(prov)	9,005	4,941	7,562	400	*280 - 285*	*3.7% - 3.8%*
	Mar	(prov)	9,254	4,969	8,012	490	*318 - 324*	*4.0% - 4.0%*
	Apr	(prov)	8,081	4,965	6,607	422	*285 - 291*	*4.3% - 4.4%*
	May	(prov)	7,355	4,809	5,973	402	*264 - 269*	*4.4% - 4.5%*
	Jun	(prov)	5,084	4,610	3,946	323	*191 - 197*	*4.8% - 5.0%*
	Jul	(prov)	5,081	4,473	3,860	277	*175 - 179*	*4.5% - 4.6%*
	Aug	(prov)	5,545	4,350	4,409	327	*222 - 225*	*5.0% - 5.1%*
	Sep	(prov)	5,980	4,326	4,911	350	*250 - 251*	*5.1% - 5.1%*
	Oct	(prov)	7,273	4,405	6,209	469	*334 - 338*	*5.4% - 5.4%*
	Nov	(prov)	8,562	4,500	7,429	502	*357 - 360*	*4.8% - 4.8%*
	Dec	(prov)	6,834	4,506	5,900	354	*247 - 251*	*4.2% - 4.3%*
2014	Jan	(prov)	9,633	4,707	8,086	534	*348 - 351*	*4.3% - 4.3%*

Notes:- The data are a snapshot extracted from Sam. Data for 2012 onwards will remain provisional and subject to revision until all culture results are available and final data validation has been carried out. The herd incidence rates for the latest months are given as a range because a number of incidents are still unclassified, so data for these months should be treated as provisional results.

(1) Herds for which tuberculin skin testing is carried out on at least one animal during the period shown. Does not include gamma tests.
(2) Herds that had lost their OTF status at some time during the period shown due to a TB incident.
(3) Any test carried out in an OTF herd during the period shown. Does not include gamma tests.
(4) Herds which were previously OTF but either had cattle that reacted to a tuberculin test or had a tuberculous animal disclosed by routine meat inspection at slaughter, during the period shown.
(5) New herd incidents (column 4) where OTF status was withdrawn from the herd.
(6) Column 5 as a percentage of column 3.
* Data for 2001 are not comparable with other years. During the outbreak of Foot and Mouth Disease, TB testing was significantly reduced and necessarily targeted to areas of higher risk.
** Data for 2002 are not comparable with other years. Testing resources were concentrated on herds overdue their tests (because of the backlog caused by the Foot and Mouth Disease outbreak).

TABLE 2: TB INCIDENTS IN GREAT BRITAIN - ANIMALS

		Total tests on herds	Total cattle tests	Cattle compulsorily slaughtered as reactors or contacts:		
				Total	Reactors	Direct contacts
		(1)	(2)	(3)	(4)	(5)
1996		36,314	2,249,891	3,776	3,151	625
1997		34,065	2,170,630	3,384	3,017	367
1998		37,046	2,447,848	5,685	4,782	903
1999		41,365	2,825,177	6,754	5,794	960
2000		40,669	2,931,658	8,123	6,877	1,246
2001	*	13,187	1,181,861	6,156	5,200	956
2002	**	49,709	3,961,145	22,072	19,191	2,881
2003		56,208	4,474,526	23,972	20,798	3,174
2004		56,836	4,604,721	22,214	19,636	2,578
2005		55,887	4,811,699	29,231	25,627	3,604
2006		64,457	5,417,573	22,062	20,090	1,972
2007		64,145	5,753,244	26,882	25,330	1,552
2008		66,432	6,178,789	39,007	36,968	2,039
2009		72,205	6,840,568	37,979	36,739	1,240
2010		74,474	7,447,653	31,949	31,277	672
2011		76,659	7,587,837	34,238	33,453	785
2012	(prov)	88,572	8,025,374	37,734	37,049	685
2013	(prov)	86,813	8,379,087	32,620	31,724	896
2012 Jan	(prov)	8,194	720,197	2,580	2,537	43
Feb	(prov)	9,060	781,983	3,769	3,714	55
Mar	(prov)	11,719	990,541	3,124	3,090	34
Apr	(prov)	7,892	722,232	2,805	2,774	31
May	(prov)	7,305	579,720	3,467	3,414	53
Jun	(prov)	5,426	489,517	2,526	2,460	66
Jul	(prov)	5,064	477,332	3,311	3,244	67
Aug	(prov)	5,421	486,936	2,989	2,864	125
Sep	(prov)	5,880	546,983	2,637	2,619	18
Oct	(prov)	6,817	656,076	3,935	3,874	61
Nov	(prov)	9,060	931,365	3,753	3,681	72
Dec	(prov)	6,734	642,492	2,838	2,778	60
2013 Jan	(prov)	8,759	771,730	3,200	3,141	59
Feb	(prov)	9,005	814,930	3,104	2,997	107
Mar	(prov)	9,254	851,320	2,973	2,860	113
Apr	(prov)	8,081	825,180	2,726	2,690	36
May	(prov)	7,355	664,268	3,243	2,962	281
Jun	(prov)	5,084	481,224	2,035	2,004	31
Jul	(prov)	5,081	512,935	2,706	2,651	55
Aug	(prov)	5,545	535,760	2,523	2,470	53
Sep	(prov)	5,980	575,275	2,105	2,067	38
Oct	(prov)	7,273	721,844	2,855	2,811	44
Nov	(prov)	8,562	921,014	2,750	2,715	35
Dec	(prov)	6,834	703,607	2,400	2,356	44
2014 Jan	(prov)	9,633	988,714	2,924	2,884	40

Notes: The data are a snapshot extracted from Sam. Data for 2012 onwards will remain provisional and subject to revision each month until all culture results are available and final data validation has been carried out.

(1) Herds in which tuberculin skin testing was carried out in at least one animal during the period shown. Does not include gamma tests. (same as column 1 in Table 1).

(2) Count of the number of tests on cattle. An individual animal could be tested more than once in each time period.

(3) Animals compulsorily slaughtered because they reacted to the tuberculin skin test or because they were considered to be direct contacts (see below). Not all of these animals showed evidence of *Mycobacterium bovis* infection at post-mortem examination.

(4) An animal which was compulsorily slaughtered because it responded to the tuberculin skin test in a way that was consistent with it being infected with *Mycobacterium bovis*.

(5) An animal in an OTFW incident that, although not a test reactor, was considered to have been exposed to *Mycobacterium bovis* and compulsorily slaughtered.

* Data for 2001 are not comparable with other years. During the outbreak of Foot and Mouth Disease, TB testing was significantly reduced and necessarily targeted to areas of higher risk.

** Data for 2002 are not comparable with other years. Testing resources were concentrated on herds overdue their tests (because of the backlog caused by the Foot and Mouth Disease outbreak).