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## Monthly publication of National Statistics on the Incidence of Tuberculosis (TB) in Cattle to end December 2011 for Great Britain

These statistics were released today, Tuesday 3<sup>rd</sup> April 2012 at 09:30, according to the arrangements approved by the UK Statistics Authority.

The next notice will be updated on Wednesday 18<sup>th</sup> April 2012 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 2009 onwards will be subject to further revision as test and breakdown records are completed.

This notice:

- Explains the delay and historical revisions to these statistics
  - TB Test Statistics – page 2
  - TB Breakdown Statistics – page 4
  - TB Incidence Rate – page 5
  - Cattle TB Slaughter Statistics – page 6
- Presents the key points from the previously unpublished statistics (September to December 2011) and summarises 2011 – page 7
- Presents the historical incidence rate charts on the revised basis – page 8
- Presents the data tables on the revised basis – page 10 and 11

**Delay in the publication of these statistics:** As previously announced, there has been a delay in producing these statistics for September 2011 onwards. TB statistics are now obtained from the AHVLA's new IT system "Sam", which has replaced the "Vetnet" system. Data quality assurance checks have been undertaken to ensure that reliable statistics are produced from Sam. Due to technical constraints, it was not possible to run both the new Sam system and the old Vetnet system in parallel, and this resulted in a delay in these statistics being available while the quality assurance work was undertaken.

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**Revisions to the historical time series - Overview:** As part of the quality assurance work, we have identified and implemented some methodological changes and improvements. This work has also identified further potential improvements which will be taken forward later in 2012. Where there have been revisions to the historical time series, these are detailed below.

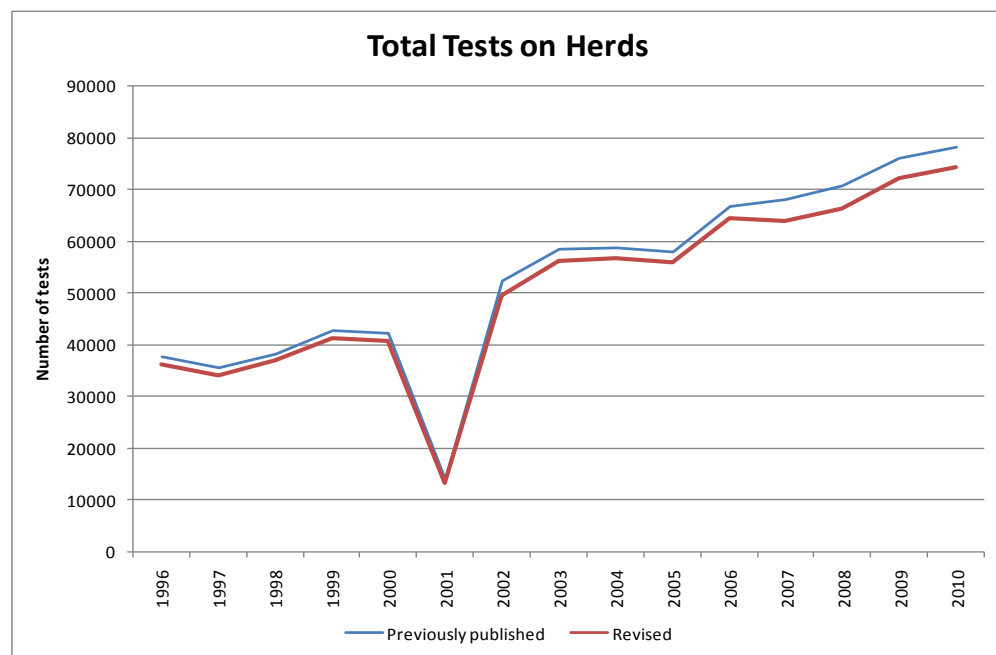
**Revisions to the historical time series – Detail:** The series of graphs below show the scale of the historic revisions on an annual basis. The accompanying text also explains the reason for the revisions for each statistic. A detailed time series showing both the previously published statistics and the revised statistics is published on the Defra website at:

<http://www.defra.gov.uk/statistics/files/defra-stats-foodfarm-landuselivestock-tb-data-120403.xls>

### **TB Test Statistics:**

A methodological change has been applied to all of the revised test statistics. The date of the test is now based on the date the animal was examined by a veterinarian for a reaction to the tuberculin injection (TT2 date), rather than the date the tuberculin was injected (TT1 date). This has resulted in some change across time periods. Cases identified at the slaughterhouse and by gamma interferon tests were previously included in both total tests on herds and tests on OTF herds but have now been excluded in the revised series.

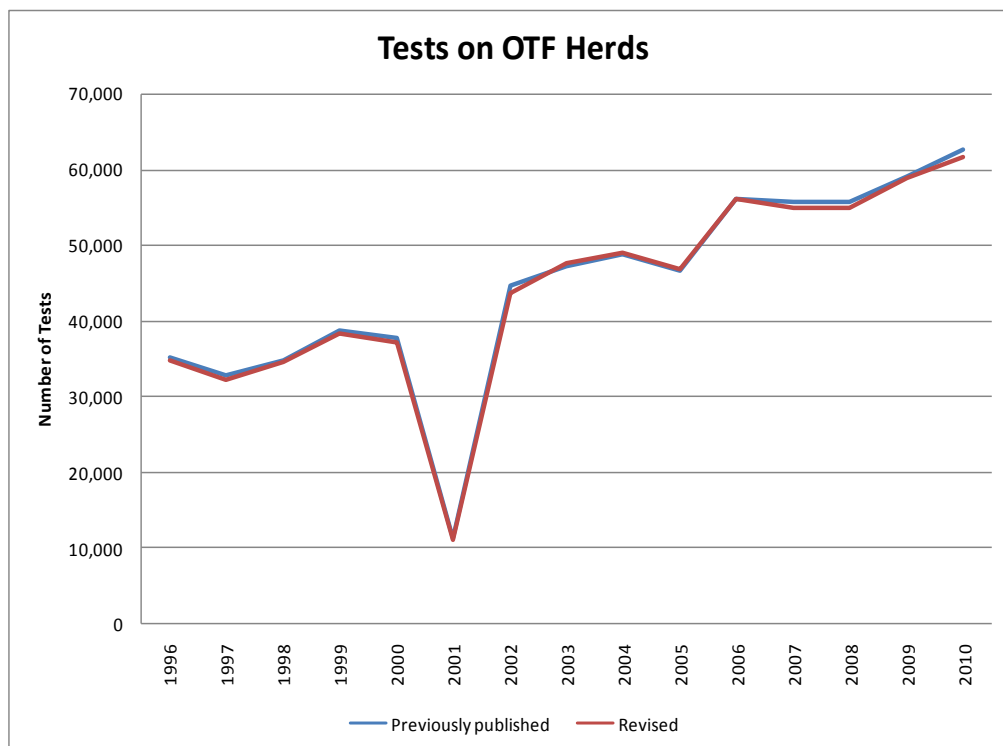
#### **Total Tests on Herds – column (1) in Table 1:**



The revised series is lower than the previously published series. Approximately 80% of the difference is explained by the elimination of some double counting in the previously published statistics. Previously, where a herd test had been completed in more than one farm visit, there were some instances where each visit was counted as a unique test event. However, a herd test should only be counted once even if it had been completed in more than one visit (as only one breakdown

can be triggered from it). The revised statistics have removed this double counting. The remaining difference is largely explained by some incomplete records no longer contributing to the revised statistics, and by Sam now being able to differentiate between species. This ensures that only cattle tests are contributing towards the revised statistics.

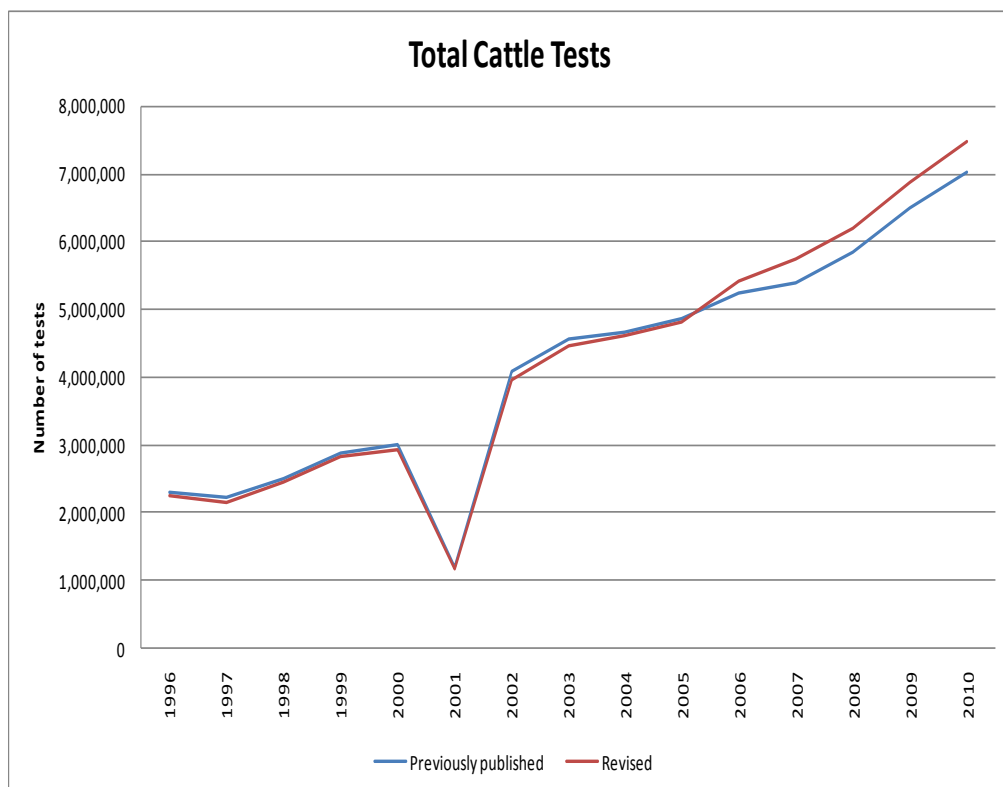
Tests on TB Free (OTF) herds – column (3) in Table 1:



This is a measure of the number of tests on herds which hold 'officially TB-free' status.

The revised statistics are generally slightly lower than the previously published statistics. Some tests on restricted herds (90 day tests and short interval tests) were found to have been included in the previously published statistics and have now been excluded. As described above, there are also a small number of cases where incomplete records and non-cattle tests have been excluded from the revised series.

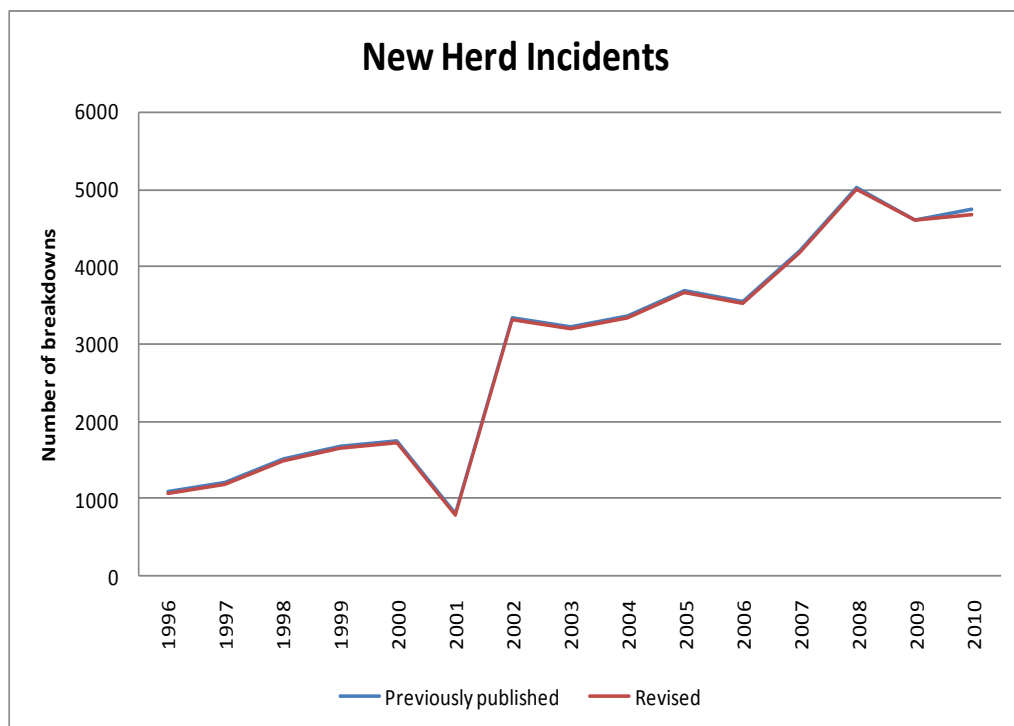
Total Cattle Tests – column (2) in Table 2:



The revised cattle tests are higher than the previously published cattle tests. This is because a methodological improvement has been made to record tests that were not included in the previous series. The increase in the revised series is largely as a result of now including pre-movement and post-movement cattle tests, which were previously excluded.

## TB Breakdown Statistics:

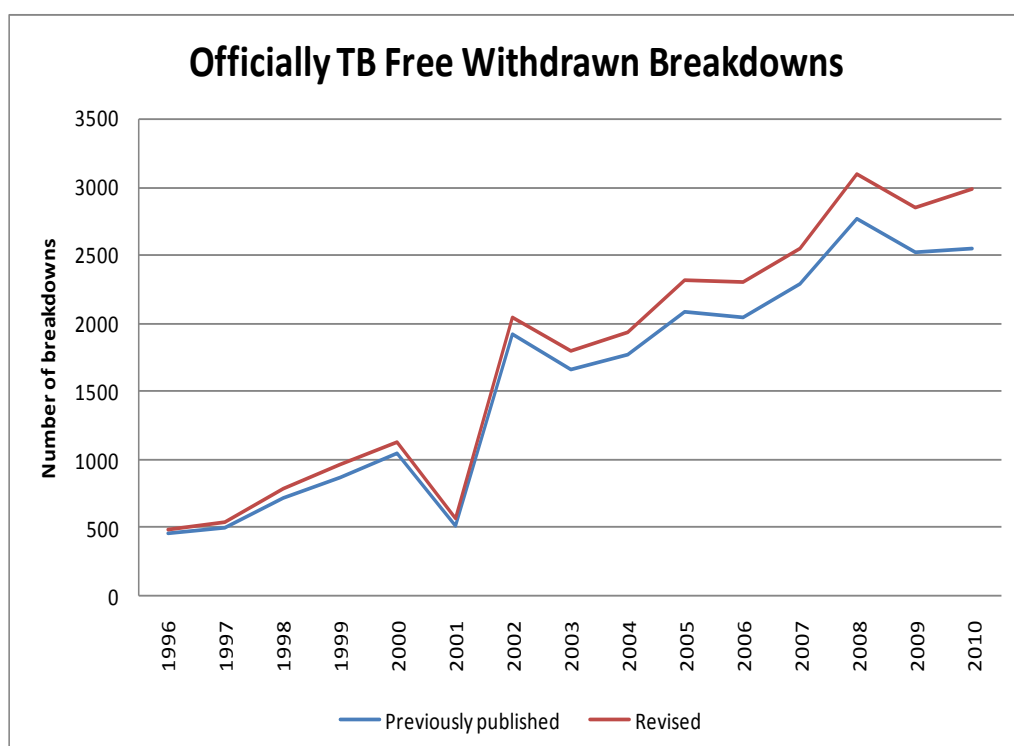
### New Herd Incidents – column (4) in Table 1:



This is a measure of the number of officially TB-free (OTF) herds suffering a 'breakdown' incident (at least one animal reacted to the tuberculin test or a tuberculous animal was identified by routine inspection at slaughter). It should be considered in the context of the number of tests on Officially TB-free herds (OTF) (column 3 in table 1).

The revised time series is not significantly different to the historic time series.

### Officially TB Free Withdrawn Breakdowns (OTFW) - column (5) in Table 1:

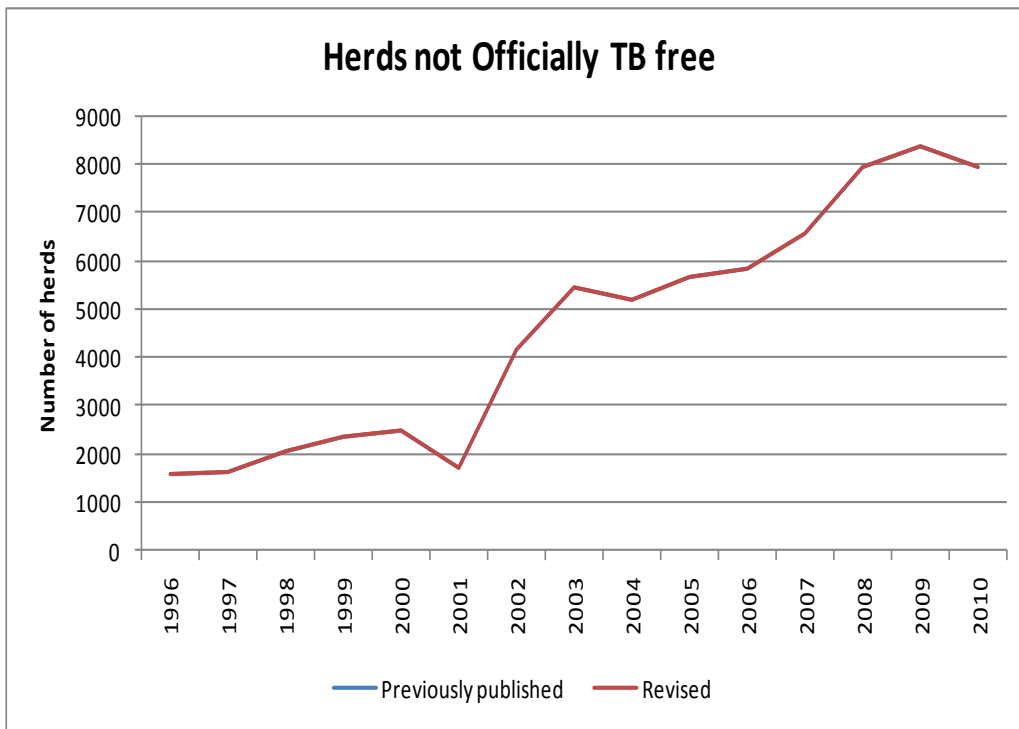


This is a measure of the number of new herd incidents which result in OTF status being withdrawn (OTFW). This occurs when bovine TB is subsequently identified in tissue samples, or an animal is identified with TB at routine slaughter inspection.

OTFW breakdowns triggered by a slaughterhouse inspection were previously recorded in an inconsistent way in Vetnet. Whilst some were recorded as an OTFW breakdown, others were recorded as an 'unconfirmed' breakdown.

Sam now correctly records all historic slaughterhouse breakdowns as OTFW. This is the reason for the revised OTFW statistics being higher than those previously published.

**Herds not officially TB free (non-OTF herds) – column (2) in Table 1:**

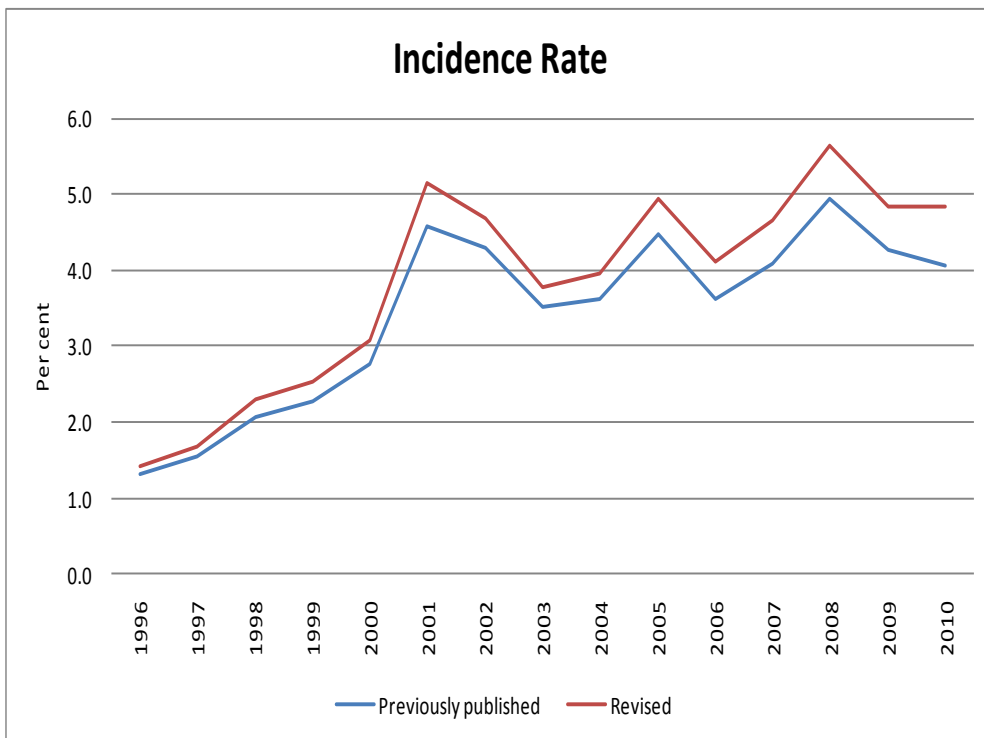


This is a measure of the total number of herds which are not officially TB free.

There is no significant difference between the previously published statistics and the revised statistics.

**TB Incidence Rate – column (6) in Table 1:**

The incidence rate is a measure of herds losing TB-free status – either because an animal reacted to the tuberculin test or was identified during a slaughterhouse inspection, expressed as a percentage of tests on TB-free herds. More specifically, it is calculated by dividing the number of OTFW breakdowns by the number of tests on OTF herds.

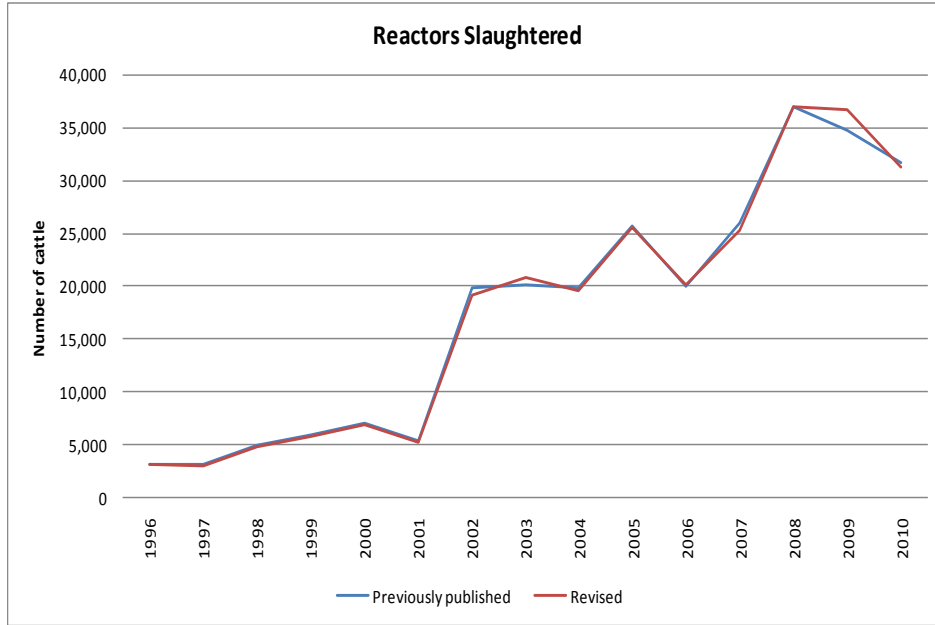


The revised incidence rate is higher than the previously published incidence rate. As shown in previous graphs, the number of tests on OTF herds is largely unchanged. However, the number of OTFW breakdowns has increased as a result of now recording all slaughterhouse cases on a consistent basis. As a result, the incidence rate is at a higher level over the period. The difference is greater in recent years as the number of additional slaughterhouse cases now consistently recorded as OTFW breakdowns in Sam are greater in recent years.

**Cattle TB Slaughter Statistics:**

There has been a methodological change in the way the slaughter statistics are produced. The previously published slaughter statistics based the time reference period on the date the animal was examined by a veterinarian for a reaction to the tuberculin injection (TT2 date). The revised statistics base the time reference period on the actual date of slaughter. Although overall slaughter statistics are consistent over time, this has resulted in some movement across time periods.

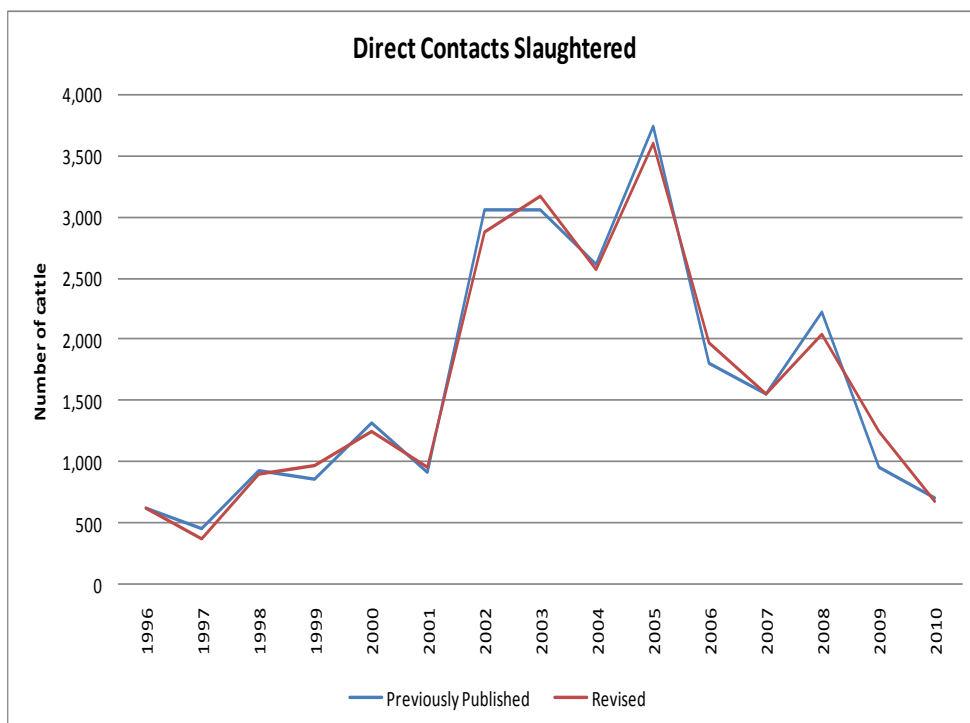
**Reactors slaughtered – column (4) in Table 2:**



This measures the number of cattle compulsorily slaughtered as a consequence of their reaction to the TB test (a 'reactor'). There is little difference between the previously published and revised series. Where there is a difference this is largely explained by the change in time reference period as described above. We also identified some slaughterhouse cases that had been incorrectly included in some of the previously published statistics, and these have now been excluded. This was offset by the inclusion of some IRx2

(an animal that remains an inconclusive reactor at the first retest) and IRx3 (an animal that remains an inconclusive reactor at the first and second retest) cases that should have been included in the previous statistics.

**Direct Contacts slaughtered – column (5) in Table 2:**



This is a measure of the number of cattle compulsorily slaughtered as 'direct contacts'. These are cattle have been considered by a veterinarian to have had 'direct contact' with a TB 'reactor'. The difference between the series is solely down to the change in time reference period as described above.

**The key points relating to the period for which publication was delayed (September 2011 to December 2011) are :-**

- The provisional September to December 2011 incidence rate (calculate as OTFW breakdowns divided by the number of tests on OTF herds) is 4.8%, compared to 5.4% for the same 4 month period in 2010. 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 this period was 1,555 compared to 1,551 for the same period in 2010. The number of tests on officially TB free herds was 21,169 in 2011, compared to 19,773 in 2010.
- The number of cattle compulsorily slaughtered as reactors or direct contacts was 10,971 in 2011, compared to 10,858 in this 4 month period during 2010.

**The key points relating to 2011 are:**

- The provisional 2011 incidence rate is broadly equivalent to the 2010 incidence rate at 4.9%.
- There were a total of 4,824 new herd incidents in 2011, compared to 4,678 in 2010.
- The number of tests on officially TB free herds was 62,400 in 2011, compared to 61,600 in 2010.
- Just over 34,000 cattle were compulsorily slaughtered as reactors or direct contacts in 2011, compared to just under 32,000 in 2010.

Chart 1 below shows the TB herd incidence rate in Great Britain since 2003.

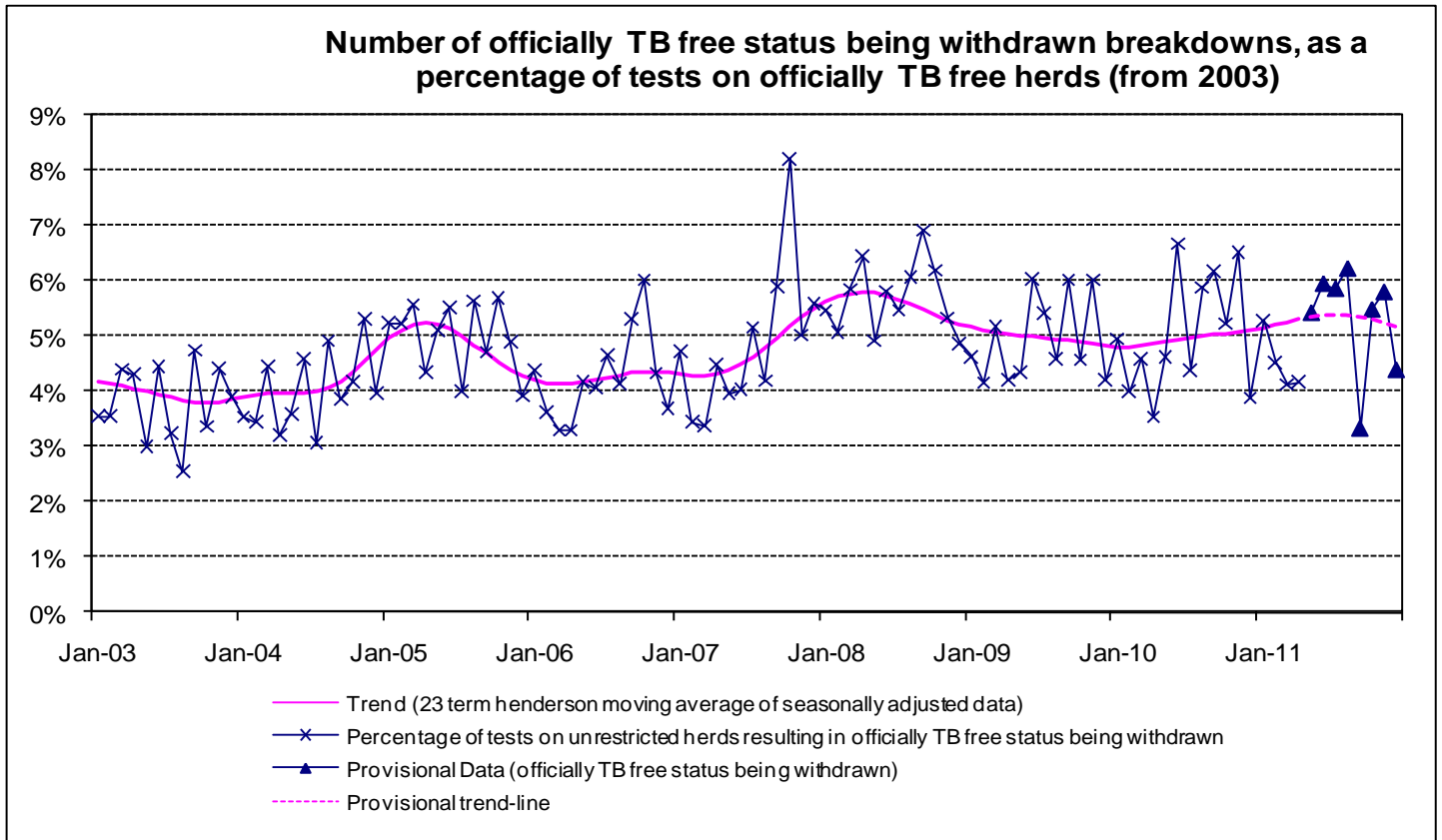
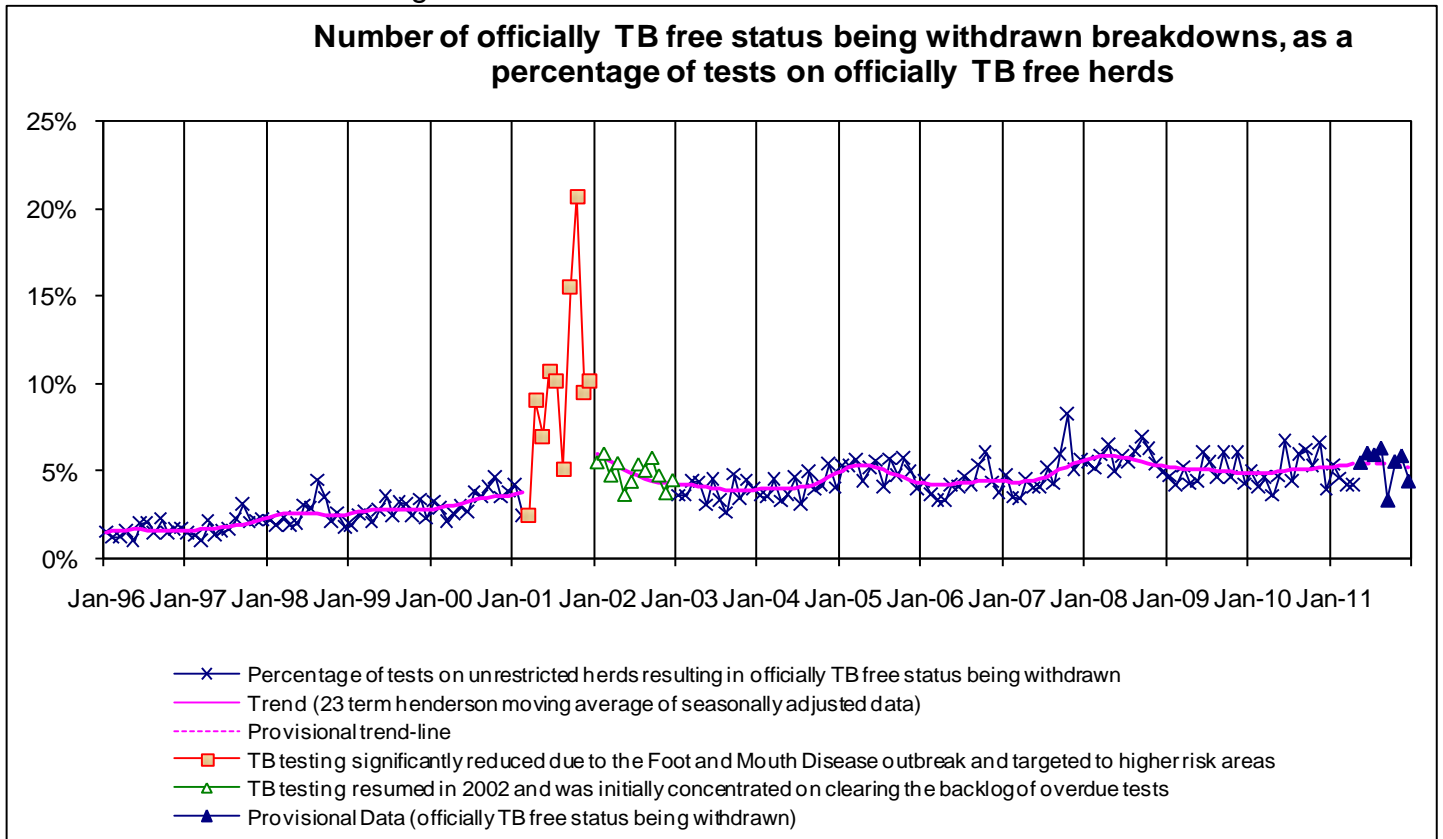


Chart 2 below shows the long-term trend for the TB herd incidence rate in GB.



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 :-

<http://www.defra.gov.uk/statistics/files/defra-stats-foodfarm-landuselivestock-tb-data-120403.xls>



## **Notes**

### **Herd terminology**

1. The terminology used to describe TB breakdowns in this notice to classify herds according to their TB status has been brought in line with that used in EU regulations. This means that in Table 1 of this notice the following changes have been made :-

#### **Old terminology**

Herds under movement restriction  
Unrestricted herds  
New confirmed herd incidents

#### **New terminology**

Herds not officially TB free (non-OTF herds)  
Officially TB free (OTF) herds  
New herd incidents with OTF status withdrawn (OTFW)

2. There is no change to the composition of the underlying data. Further information on this and TB incident classification can be found at :-  
[http://animalhealth.defra.gov.uk/about/publications/ov/e-newsletter/jan10\\_OV\\_newsletter.pdf](http://animalhealth.defra.gov.uk/about/publications/ov/e-newsletter/jan10_OV_newsletter.pdf)
3. Data for more recent months should be treated as provisional results, as a number of TB incidents are still 'unclassified'. These are TB incidents that at the end of the period covered by this notice had not been designated OTFW, but were still ongoing and could become OTFW if further testing revealed one or more animals with post mortem evidence of TB.

### **Methodology**

1. Certain statistics are affected by seasonal patterns and variations in the frequency of testing. TB testing is seasonal as more herds are tested in the winter when more cattle are housed. The animals tested are not a random sample of the whole GB herd. Furthermore, herds are tested more frequently in areas of higher TB incidence than in those of historically low incidence. In general, as more tests are carried out, more TB incidents (infected herds) are likely to be found.
2. The herd TB incidence figure is calculated by first estimating a point average for OTFW incidents where there are a number of unclassified results (the average of the ranges provided in the accompanying tables, for each month), this average is then divided by the number of tests in OTF herds each month, and an average is then calculated.
3. The trend in the incidence of TB in cattle in Great Britain is analysed using a 23-term Henderson moving average of the seasonally adjusted data of the incidence rate (the number of OTFW breakdowns divided by the number of tests on OTF herds).
4. From March to December 2001, the trend was not published because the reliability of the underlying data was significantly affected as a result of the disruption to TB testing during the Foot and Mouth Disease outbreak. Publication of the underlying trend resumed from January 2002 onwards, although 2002 data and trend should be treated with caution as post-FMD testing was initially targeted at higher risk herds and herds with overdue tests.

### **Further Information**

1. This statistical notice and a wide range of other statistics are available on the internet at -  
<http://www.defra.gov.uk/statistics>
2. For further information on TB in cattle, TB testing and much more, please go to the Defra TB Website - <http://www.defra.gov.uk/animal-diseases/a-z/bovine-tb/>

**TABLE 1: TB INCIDENTS IN GREAT BRITAIN - HERDS**

		Total tests on herds	Herds not officially TB free (non-OTF herds)	Tests on officially TB free herds (OTF)	Of which: New herd incidents	Of which: officially TB free withdrawn (OTFW)	Number of OTFW breakdowns 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		66,433	7,951	54,855	5,007	3,087	5.6%
2009	(prov)	72,208	8,402	58,897	4,599	2,846	4.9%
2010	(prov)	74,476	7,977	61,588	4,678	2,974	4.9%
2011	(prov)	76,538	8,121	62,401	4,824	2,939	4.9%
2010	Jan	(prov) 6,852	3,692	5,758	433	283	4.9%
	Feb	(prov) 8,114	3,782	6,916	438	276	4.0%
	Mar	(prov) 8,121	3,921	7,143	526	326	4.6%
	Apr	(prov) 8,834	3,949	7,365	427	258	3.5%
	May	(prov) 5,833	3,898	4,764	388	217	4.6%
	Jun	(prov) 4,059	3,891	3,104	388	205	6.7%
	Jul	(prov) 5,086	3,698	3,733	243	161	4.4%
	Aug	(prov) 3,956	3,530	3,032	284	177	5.9%
	Sep	(prov) 4,939	3,459	3,937	350	240	6.2%
	Oct	(prov) 6,244	3,486	5,232	399	273	5.2%
	Nov	(prov) 6,664	3,646	5,687	516	369	6.5%
	Dec	(prov) 5,774	3,624	4,917	286	189	3.9%
2011	Jan	(prov) 7,825	3,888	6,526	532	343	5.3%
	Feb	(prov) 7,905	4,032	6,648	461	298	4.5%
	Mar	(prov) 8,606	4,163	7,479	501	304	4.1%
	Apr	(prov) 7,029	4,146	5,689	394	234	4.2%
	May	(prov) 6,140	4,194	4,896	459	258 - 273	5.3% - 5.6%
	Jun	(prov) 4,671	4,116	3,411	344	198 - 208	5.8% - 6.1%
	Jul	(prov) 4,645	3,998	3,379	296	175 - 221	5.2% - 6.5%
	Aug	(prov) 4,226	3,833	3,204	282	168 - 231	5.2% - 7.2%
	Sep	(prov) 5,888	3,631	4,654	236	146 - 163	3.1% - 3.5%
	Oct	(prov) 5,990	3,589	5,015	413	264 - 286	5.3% - 5.7%
	Nov	(prov) 6,549	4,365	5,560	483	305 - 340	5.5% - 6.1%
	Dec	(prov) 7,064	5,040	5,940	423	246 - 275	4.1% - 4.6%

**Notes:-** The data are a snapshot extracted from Sam. Data for 2009 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.
- (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.
- (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		66,433	6,193,800	39,015	36,972	2,043
2009	(prov)	72,208	6,862,447	37,985	36,744	1,241
2010	(prov)	74,476	7,471,049	31,965	31,292	673
2011	(prov)	76,538	7,578,945	34,136	33,415	721
2010	Jan	(prov) 6,852	708,549	2,147	2,122	25
	Feb	(prov) 8,114	816,481	3,128	3,099	29
	Mar	(prov) 8,121	792,330	2,993	2,941	52
	Apr	(prov) 8,834	901,602	2,417	2,345	72
	May	(prov) 5,833	510,695	2,917	2,827	90
	Jun	(prov) 4,059	377,309	2,538	2,484	54
	Jul	(prov) 5,086	530,286	2,758	2,675	83
	Aug	(prov) 3,956	391,601	2,209	2,169	40
	Sep	(prov) 4,939	489,229	2,263	2,196	67
	Oct	(prov) 6,244	631,191	2,765	2,702	63
	Nov	(prov) 6,664	718,211	2,958	2,903	55
	Dec	(prov) 5,774	603,565	2,872	2,829	43
2011	Jan	(prov) 7,825	790,673	2,659	2,594	65
	Feb	(prov) 7,905	784,154	3,582	3,535	47
	Mar	(prov) 8,606	849,096	3,155	3,116	39
	Apr	(prov) 7,029	754,646	2,620	2,564	56
	May	(prov) 6,140	560,661	2,883	2,838	45
	Jun	(prov) 4,671	459,073	3,184	2,942	242
	Jul	(prov) 4,645	490,763	2,458	2,421	37
	Aug	(prov) 4,226	404,833	2,624	2,578	46
	Sep	(prov) 5,888	580,020	2,565	2,512	53
	Oct	(prov) 5,990	557,487	2,032	2,016	16
	Nov	(prov) 6,549	670,602	3,076	3,037	39
	Dec	(prov) 7,064	676,937	3,298	3,262	36

**Notes:** The data are a snapshot extracted from Sam. Data for 2009 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. (same as column 1 in Table 1).
  - (2) Number of animals tested.
  - (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).