

DARD Quarterly Disease Report

Bovine brucellosis (BR), bovine tuberculosis (TB) and bovine spongiform encephalopathy (BSE)

Quarterly Update: January - March 2008

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Executive Summary

Bovine Brucellosis (BR)

The fall in **brucellosis incidence** from its peak (annual herd incidence of 1.43%) at the start of 2002 reached its lowest point in October 2005 (0.34%). The rise in herd incidence since October 2005 peaked in October 2006 (0.6%) and then has stayed relatively level until this autumn where there was another rise in incidence. The **annual herd incidence is now 1.01%** while the **annual animal incidence is 0.046%**. However, the herd incidence where BR infection is confirmed by bacteriological culture has remained level since October 2006 at 0.26%.

A decreasing level of BR was observed in only two of the ten Divisional Veterinary Offices (DVOs) with eight DVOs attaining an annual herd incidence of less than 1% (Armagh and Newry DVOs have an annual herd incidence above 3.1% and 2.3%, respectively). Annual animal incidence fell in only one DVO (Newtownards).

The number of **new BR herd breakdowns** during the current quarter was 73, which is a 460% increase over same number as occurred during the same period last year (n=13). The number of **BR reactor numbers also showed a substantial increase of 172%** (144 cf. 53) over this period. The changes in incidence over the last year were mainly due to the ongoing brucellosis hotspot in Armagh and unrelated increases in BR incidence in Newry DVO. Armagh, Enniskillen and Newry DVOs account for 72% of all BR reactors. The number of **BR negative-in-contact (NICs)** animals taken during the current quarter (2,016 animals) **showing a 55% increase** on the number removed during the same quarter in 2007 (1,298 animals). The median **BR reactor removal time** during the 2007 calendar year was **12.3 working days** (cf. 12.3 days during 2006) with **74%** of reactors being removed within the 15 working day target (cf. 79% in 2006).

The introduction of the **premovement testing requirement** in December 2004 has detected **31 BR reactors** from 510,280 **animal tests** with a further **3,722 inconclusive** BR reactors.

Bovine Tuberculosis (TB)

The incidence of **TB has remained fairly static over the last year**. The peak incidence occurred during the spring of 2003 when the annual herd incidence was 10.2%. The **annual herd incidence is now 5.35%** while the **annual animal incidence is 0.45%**. A decreasing level of TB was observed in seven of the ten Divisional Veterinary Offices (DVOs). Newtownards DVO has the highest current annual TB herd incidence of 8.9%.

The number of **TB reactor** animals taken during the current quarter (**2,104 animals**) was similar to the number removed during the same quarter in 2007 (2,210 reactors). The median **TB reactor removal time** has improved slightly (**12.3 working days** during the 2007 calendar year compared to 13 days over

2006) with **79%** being removed within the 15 working day target (cf. 71% over 2006).

New TB herd breakdowns decreased by 2% during the current quarter relative to the same quarter in 2007 with the 12-month moving average being 105 new breakdown herds per month (cf. 114 in March 2007).

Almost half (45%) of the province's 1.63 million cattle (held in 23,500 herds) were tested during this quarter.

Bovine Spongiform Encephalopathy (BSE)

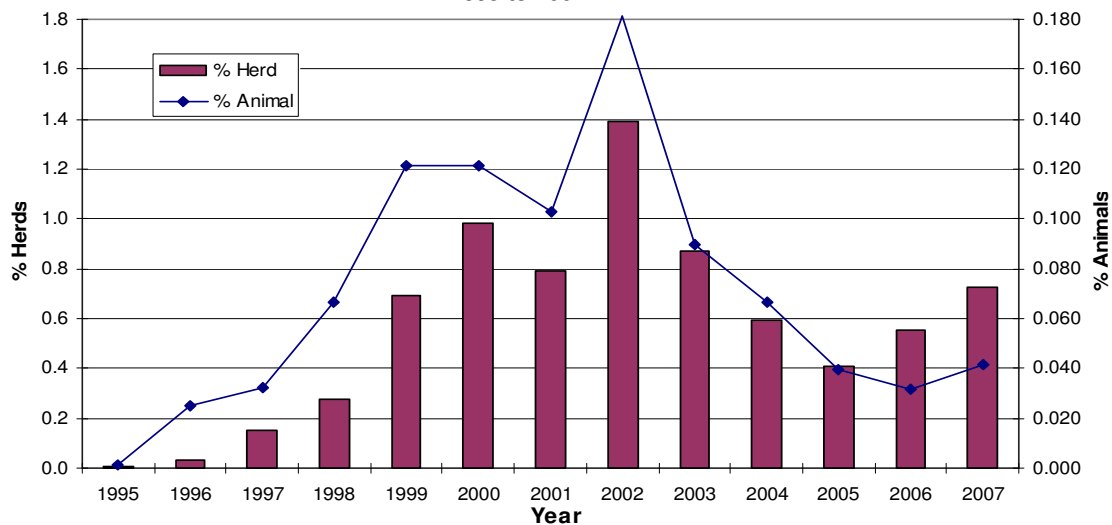
The number of cases has declined to small number in recent years but 2007 saw an increase in the number of cases (14 cases cf. 10 cases in 2006). However, no cases were confirmed during the first three months of 2008 (cf. 9 cases during the same quarter in 2007). The vast majority of cases are now found through the active surveillance programme, particularly in the over 24-month fallen animal surveillance. To date, there have been **2,179 confirmed cases** of BSE from 1,508 farms in the province. None of the 34 clinical suspect cases since the start of 2006 have been confirmed as having BSE.

1. Bovine Brucellosis (BR)

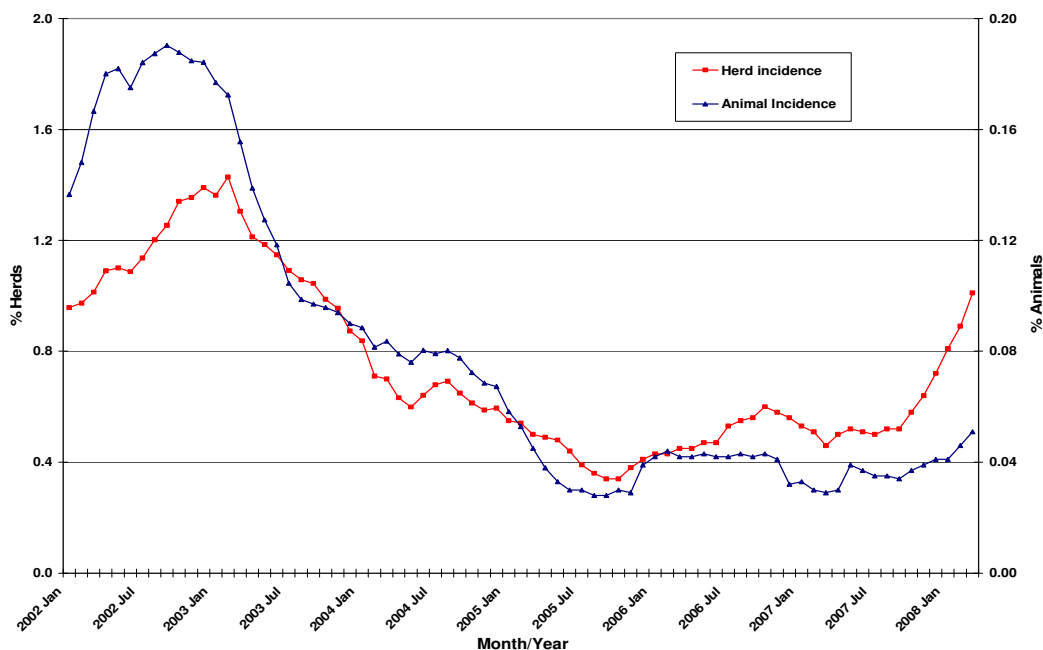
1.1 Disease trends

Of the 20,200 herds (970,400 cattle) within Northern Ireland that were actively monitored for Brucellosis by blood or bulk milk sampling, there were 211 new breakdown herds over the last 12 month period (493 Br reactor animals). This is 113% higher (99 new herd breakdowns) than in the previous 13-24 months. The current annual herd incidence was 1.01% with an animal incidence of 0.051%. For the last 13-24 months, annual herd incidence was 0.46% and animal incidence was 0.028%. Peak herd incidence (1.43%) occurred in early 2003.

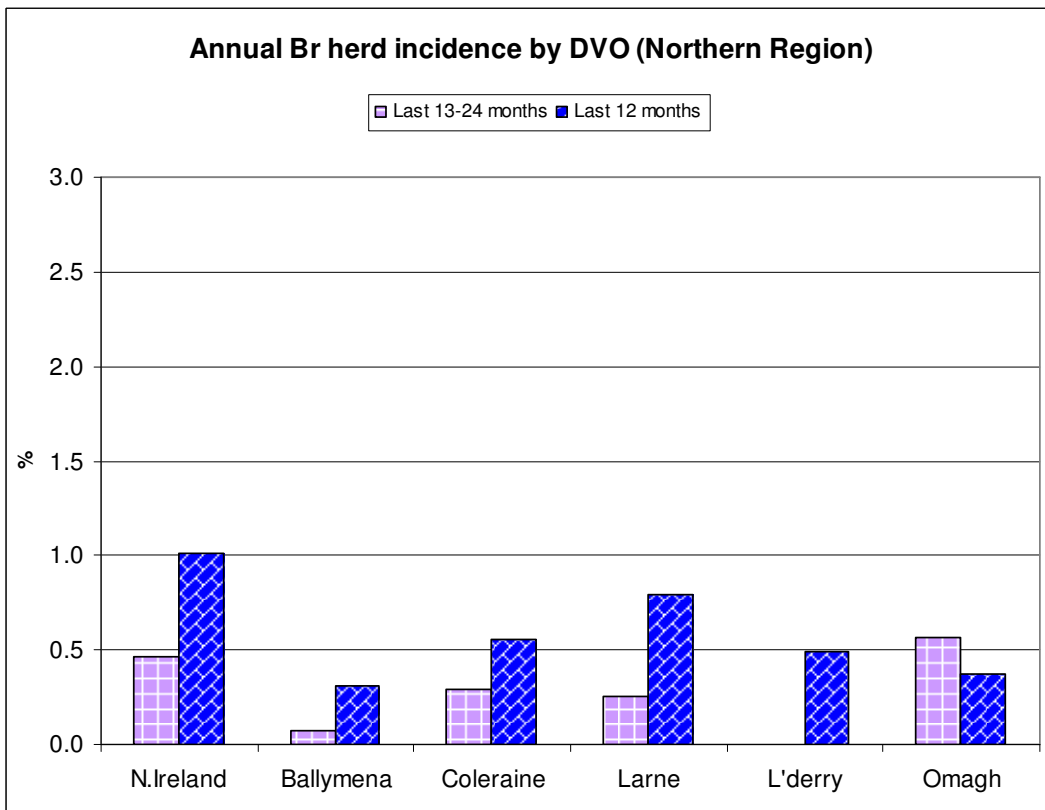
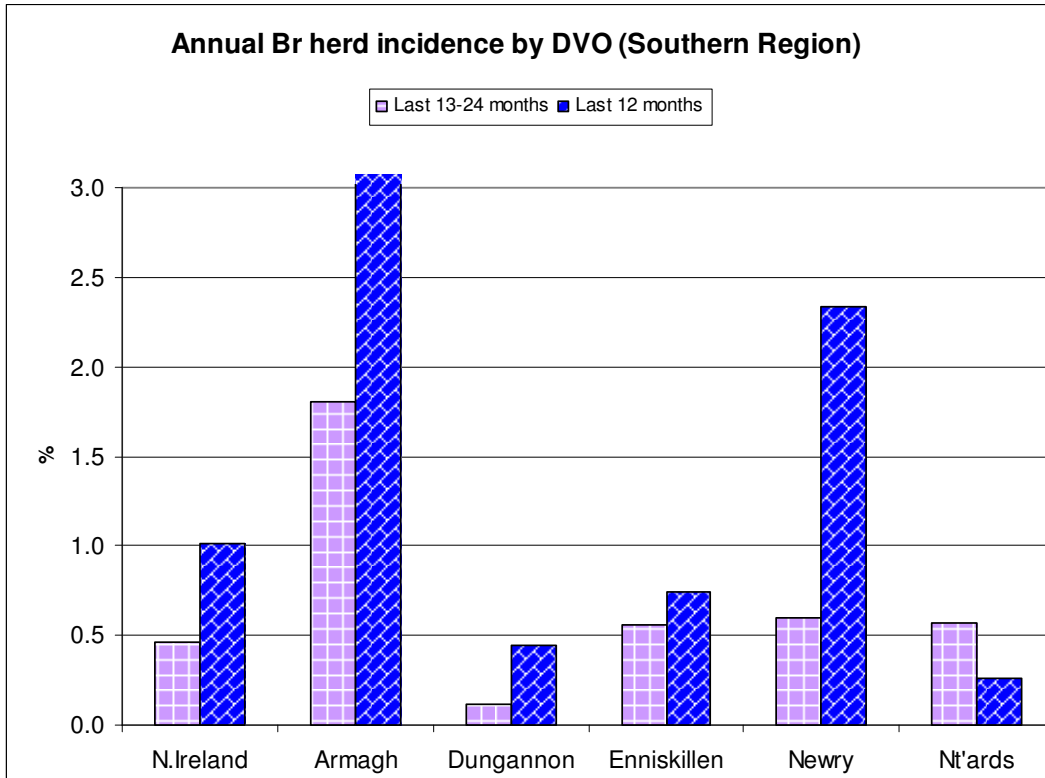
**BR annual herd and animal incidence:
1995 to 2007**



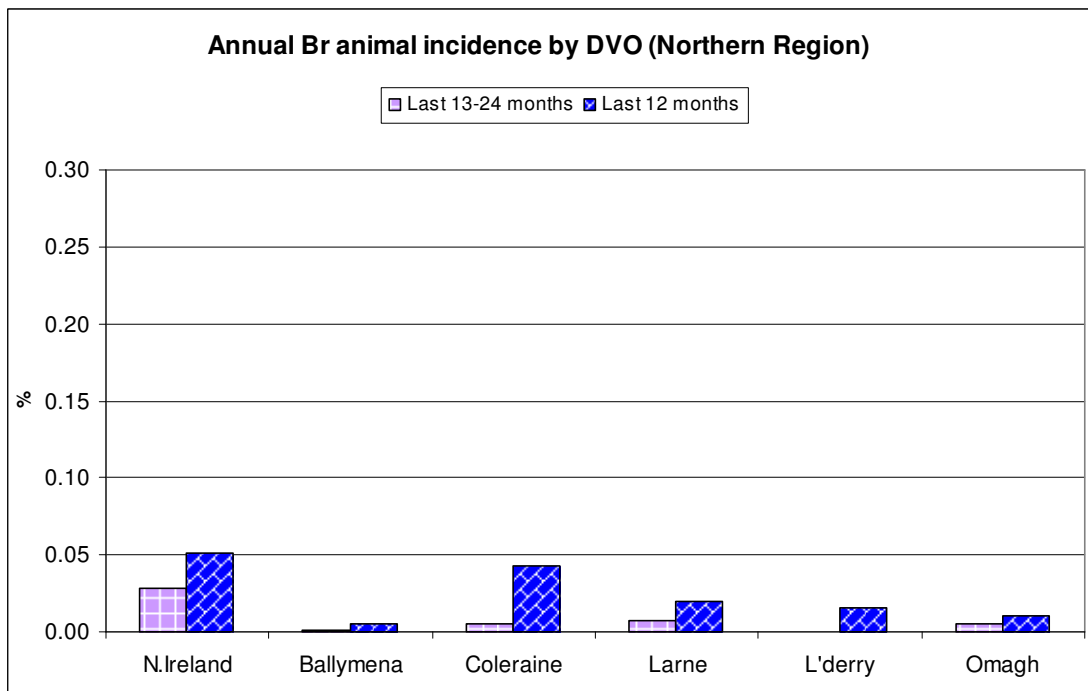
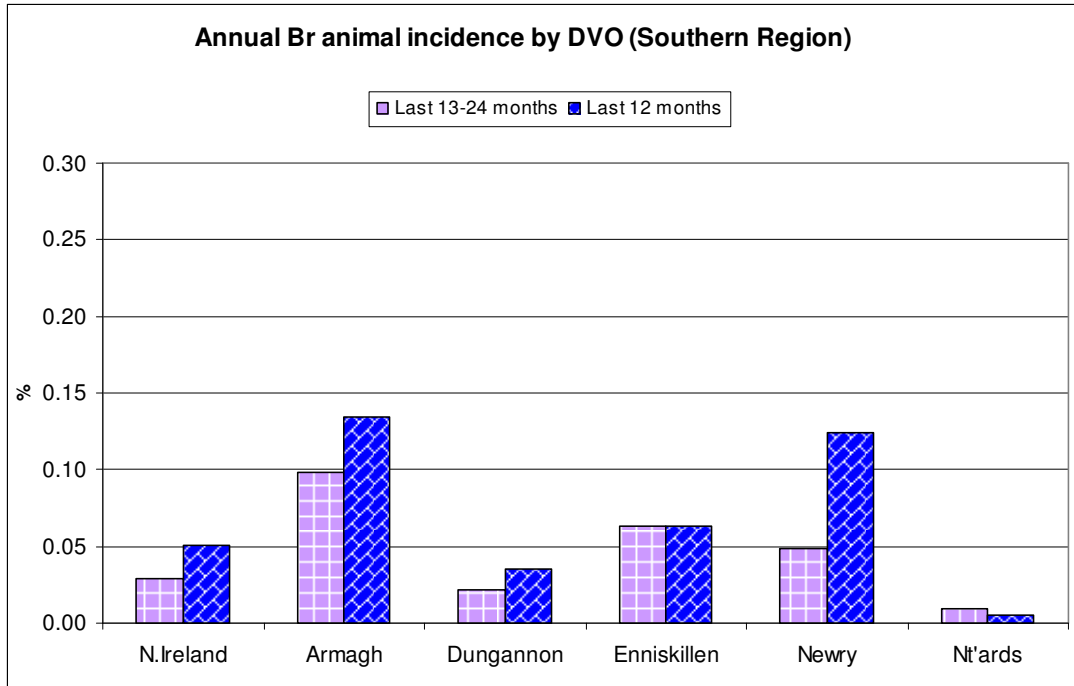
**BR Herd and Animal Incidence
(12 month moving average: January 2002 to March 2008)**



The annual herd incidence fell in only two of the ten DVOs. Current annual herd incidence is 1.01% compared with 0.46% in the previous 13-24 month period. Two DVOs have a herd incidence of over 1% (Armagh DVO=3.08%; Newry DVO=2.33%).



There was a fall in annual animal incidence within one DVO (Newtownards). Current annual animal incidence is running at 0.051% which is higher than the rate observed in the previous 13-24 month period (0.028%). Armagh (0.135%), Newry (0.124%) and Enniskillen (0.063%) have contributed the majority of the reactors (72%).

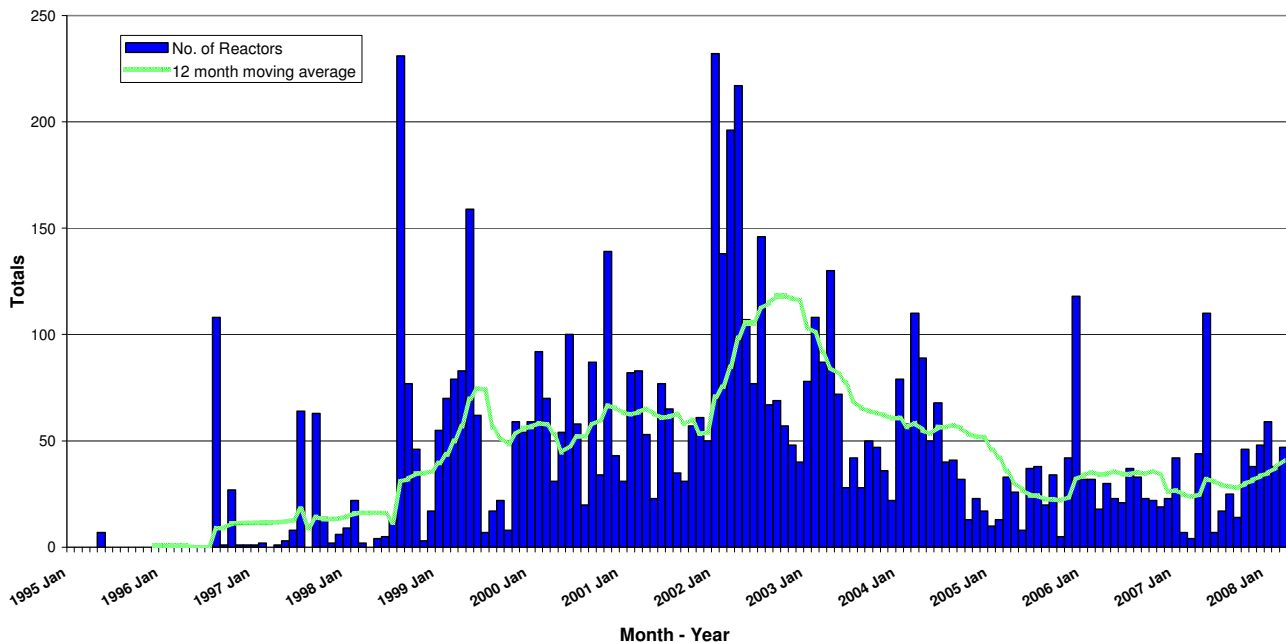


1.2 Reactor animals

There was a rise (60%) in the number of reactors and negative in contact animals during this quarter compared to the same quarter last year (2,160 cf. 1,351). The 12-month rolling average number of brucellosis reactors is currently 41 per month (cf. 24 brucellosis reactors in March 2007).

| | No. reactors | No. NICs | Total |
|----------------------------------|--------------|----------|-------|
| Current quarter | 144 | 2016 | 2160 |
| Matched quarter in previous year | 53 | 1298 | 1351 |
| % change | 171.7 | 55.3 | 59.9 |

BR Reactors: January 1995 to March 2008



1.3 Reactor removal times

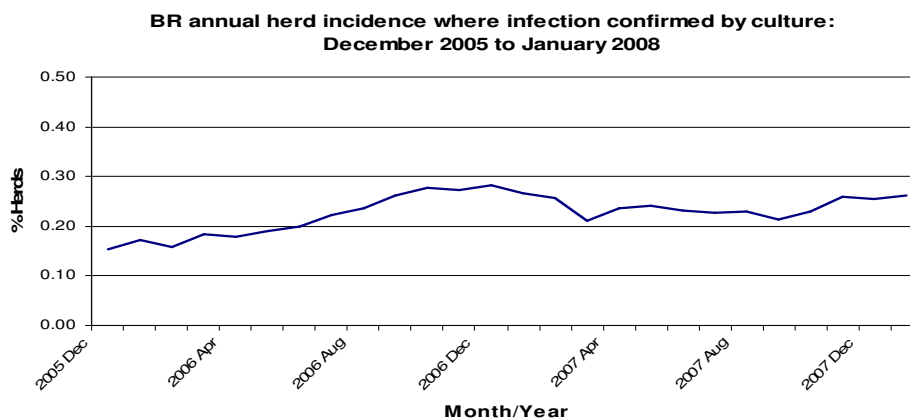
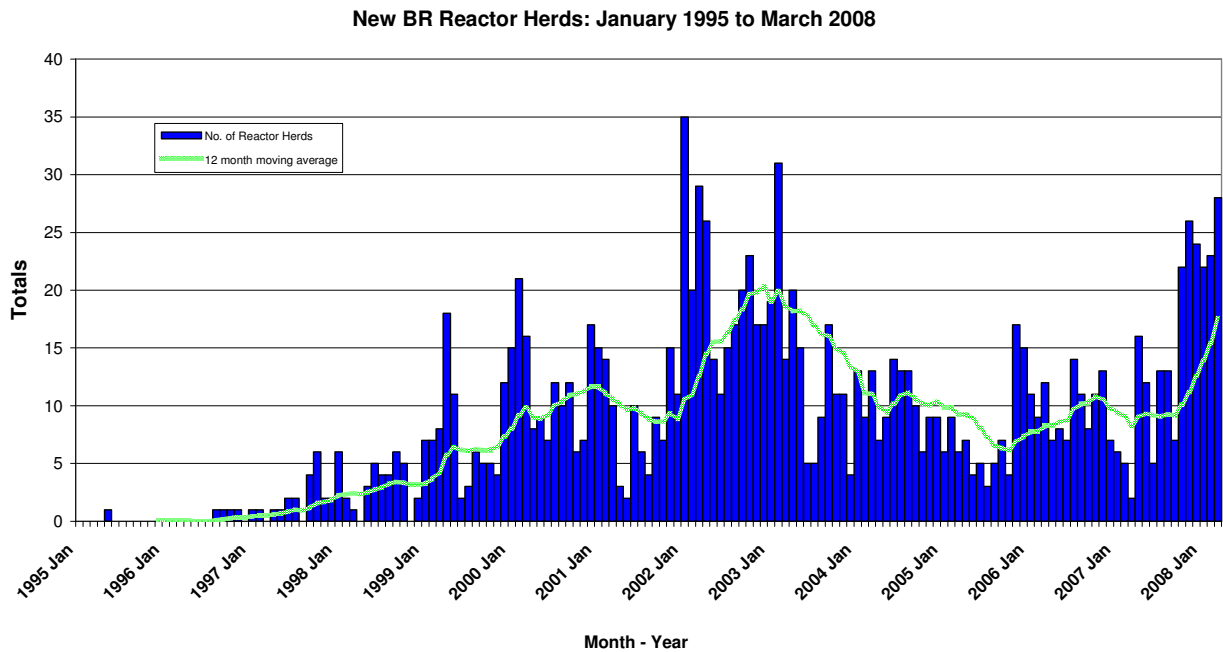
The median for reactor removal time was 12.3 working days for the calendar year 2007 (cf. 12.3 days for 2006) with 296 of the 399 BR reactors (74%) being removed within 15 working days.

| YEAR | Median | Lower Quartile | Upper Quartile |
|------|--------|----------------|----------------|
| 2007 | 12.3 | 10.3 | 15.8 |
| 2006 | 12.3 | 10.3 | 15.1 |
| 2005 | 14.4 | 11.6 | 19.9 |
| 2004 | 14.4 | 11.0 | 19.2 |
| 2003 | 13.7 | 11.0 | 15.1 |

1.4 New herd breakdowns

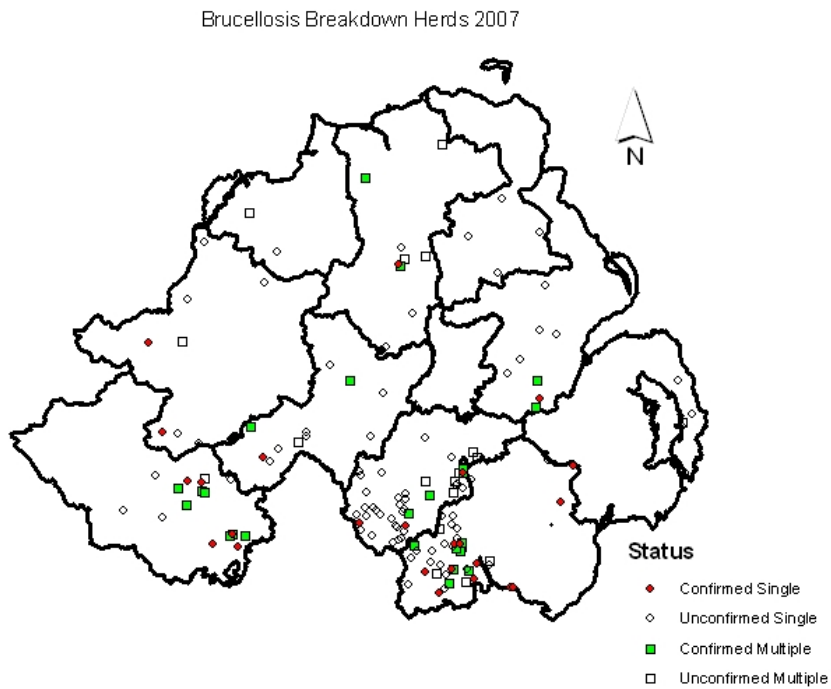
There was a large increase (460%) in the number of new herd breakdowns due to brucellosis during this quarter compared to the same quarter in 2007 (73 cf. 13). The 12-month moving average is currently 18 new breakdown herds per month (cf. 9 breakdown herds in March 2007). However, the culture confirmation rate for new herd breakdowns was low (19% cf. 37% during 2007 and 54% during 2006). Moreover, herd incidence where infection has been confirmed by culture has remained level since the autumn of 2006.

| | No. new herd breakdowns |
|----------------------------------|-------------------------|
| Current quarter | 73 |
| Matched quarter in previous year | 13 |
| % change | 461.5 |



1.5 BR herd breakdowns in 2007

The figure below shows the location of the new BR herd breakdowns recorded in Northern Ireland during 2007 and whether the breakdown was confirmed by culture. Multiple reactor breakdowns are also indicated as are the DVO boundaries. The figure highlights the fact that the vast majority of confirmed breakdowns occurred in the south Armagh and Newry area.

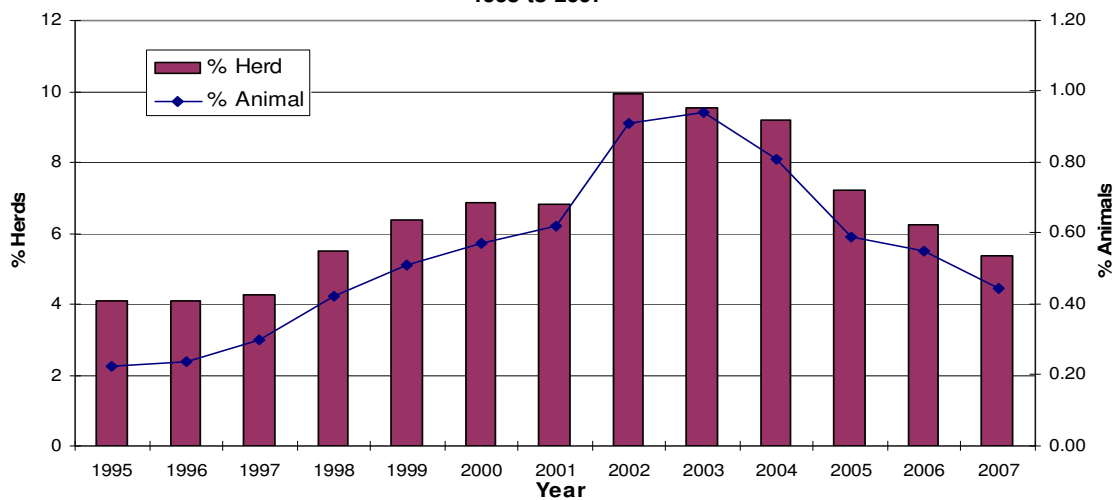


2. Bovine Tuberculosis (TB)

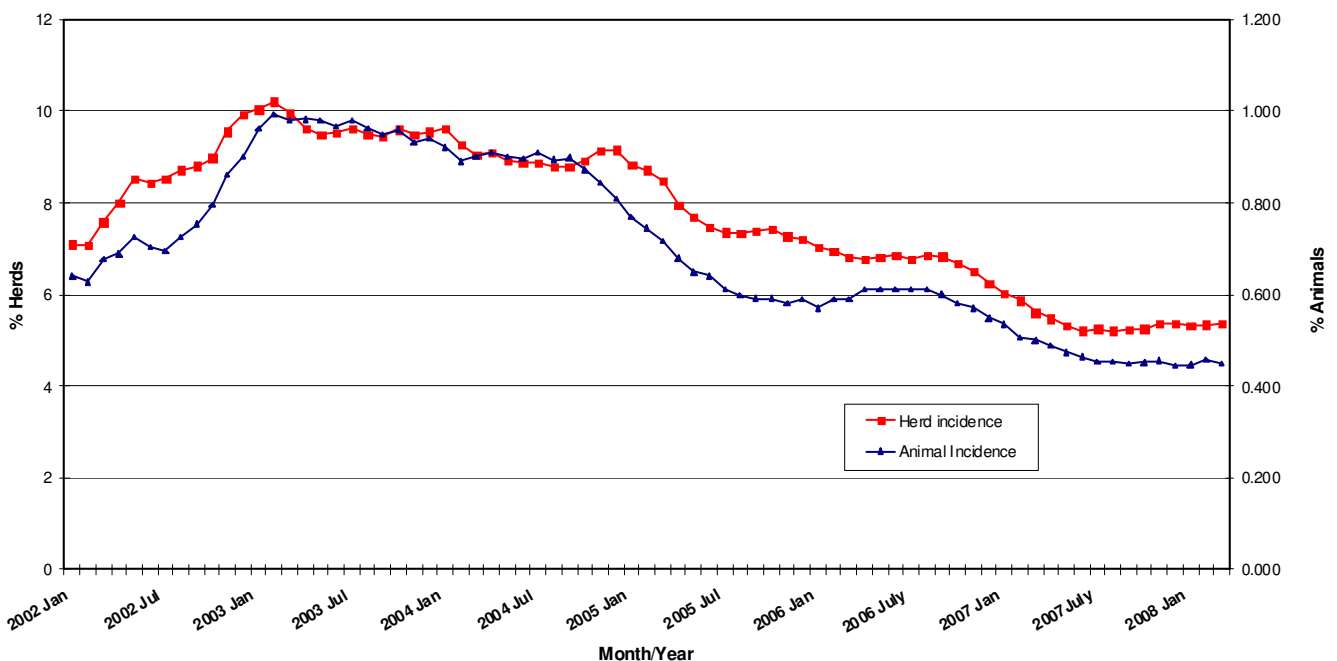
2.1 Disease trends

Approximately 23,500 herds were tuberculin tested over the last 12 months (1.63 million cattle). The herd and animal incidence of TB has shown a slight fall over the last year with the current levels running at 5.35% and 0.45%, respectively (previous 13-24 months, herd incidence = 5.6%, animal incidence = 0.50%). Both herd and animal incidence have stayed level over recent months. Peak incidence occurred during the spring of 2003 (herd incidence = 10.2%; animal incidence = 0.99%).

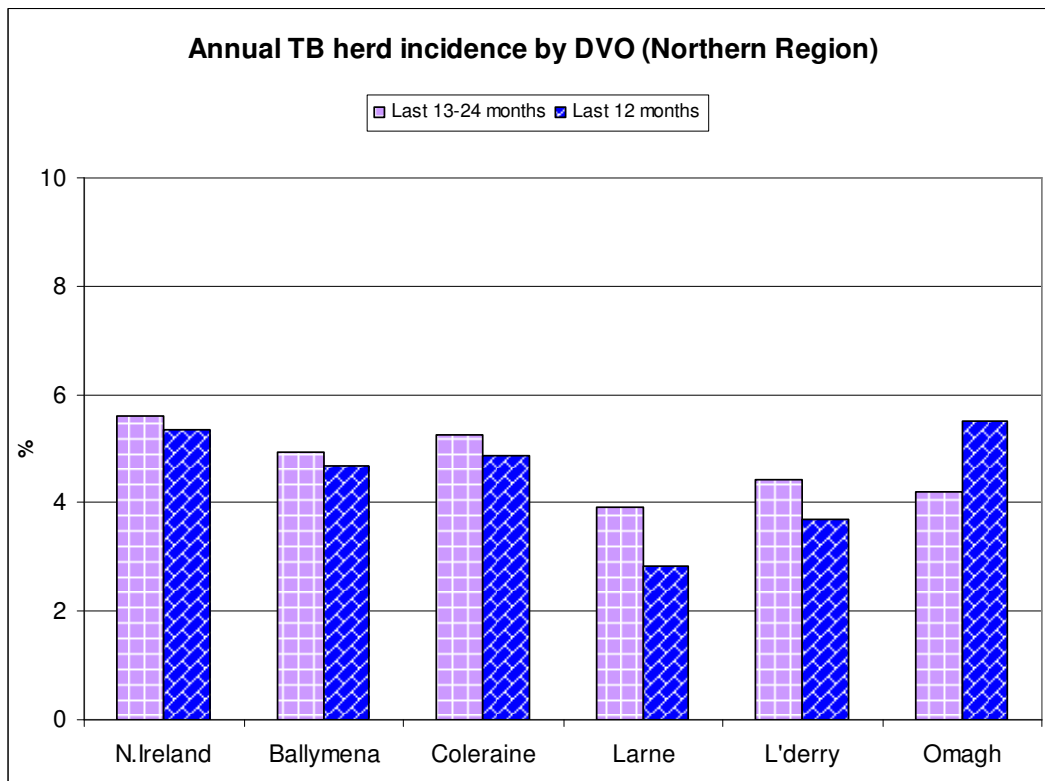
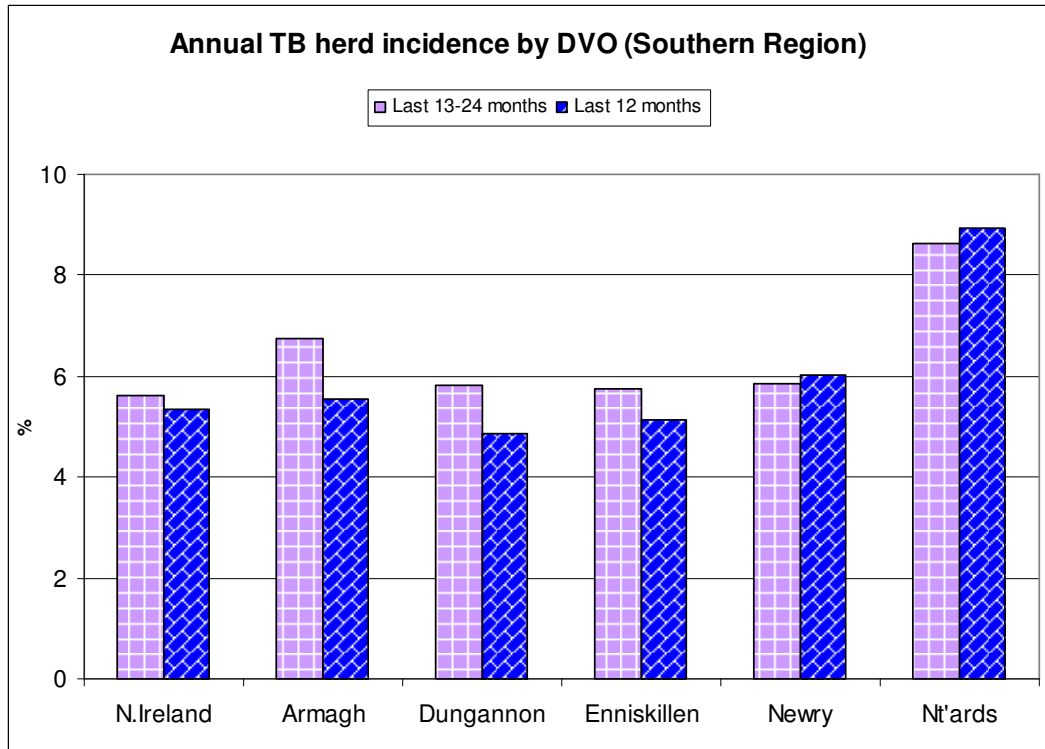
**TB herd and animal incidence:
1995 to 2007**



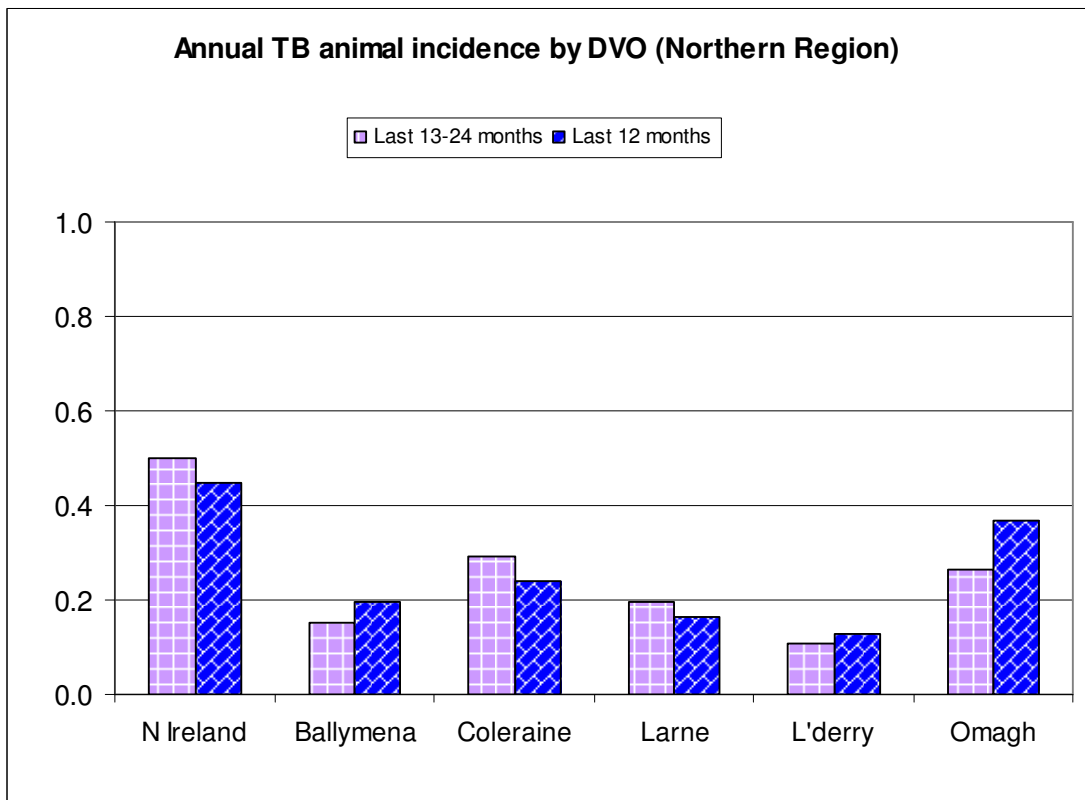
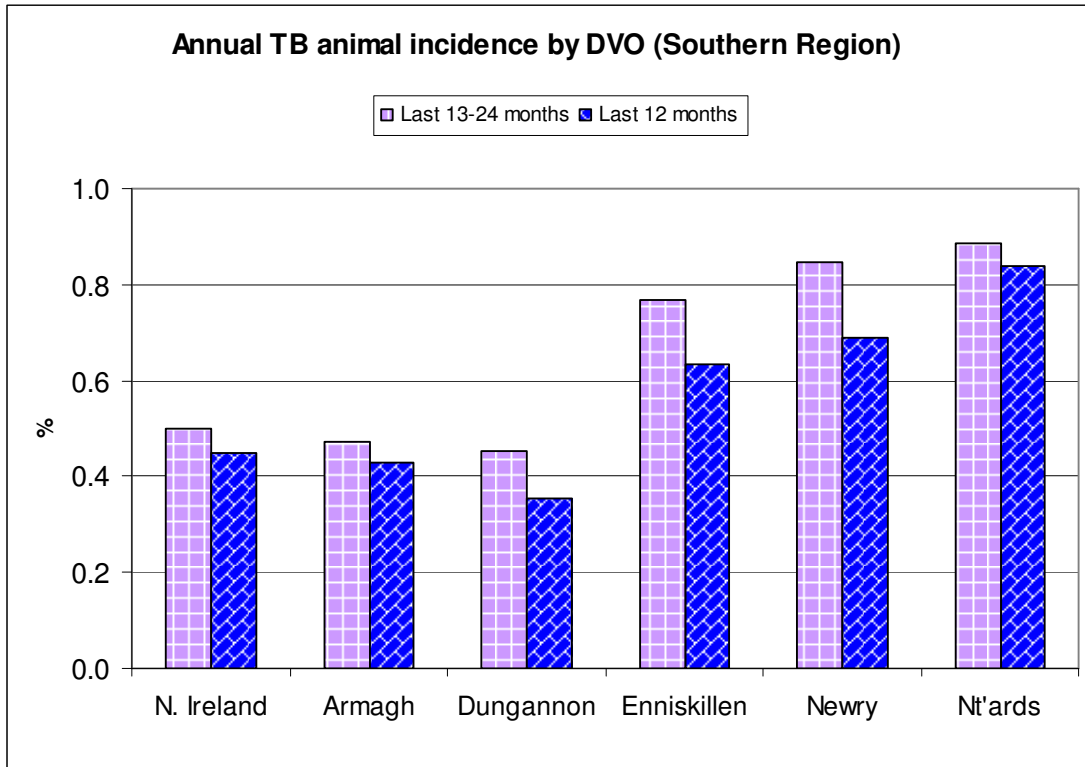
**TB Herd and Animal Incidence:
(12 month moving average: January 2002 to March 2008)**



Seven of the ten DVOs demonstrated a decrease in the current annual herd incidence compared to the previous 13-24 months. Newtownards DVO had the highest herd incidence (8.9%) with the national herd incidence currently running at 5.35% (cf. 5.6% in last 13-24 months). Lowest herd incidence was observed in Larne DVO (2.8%).



Seven DVOs have shown a decrease in the annual animal incidence compared to the previous 13-24 month period. Newtownards had the highest incidence (0.84%) while Londonderry had the lowest annual animal incidence at 0.13%. The national annual animal incidence is currently 0.45% (cf. 0.50% in last 13-24 months).

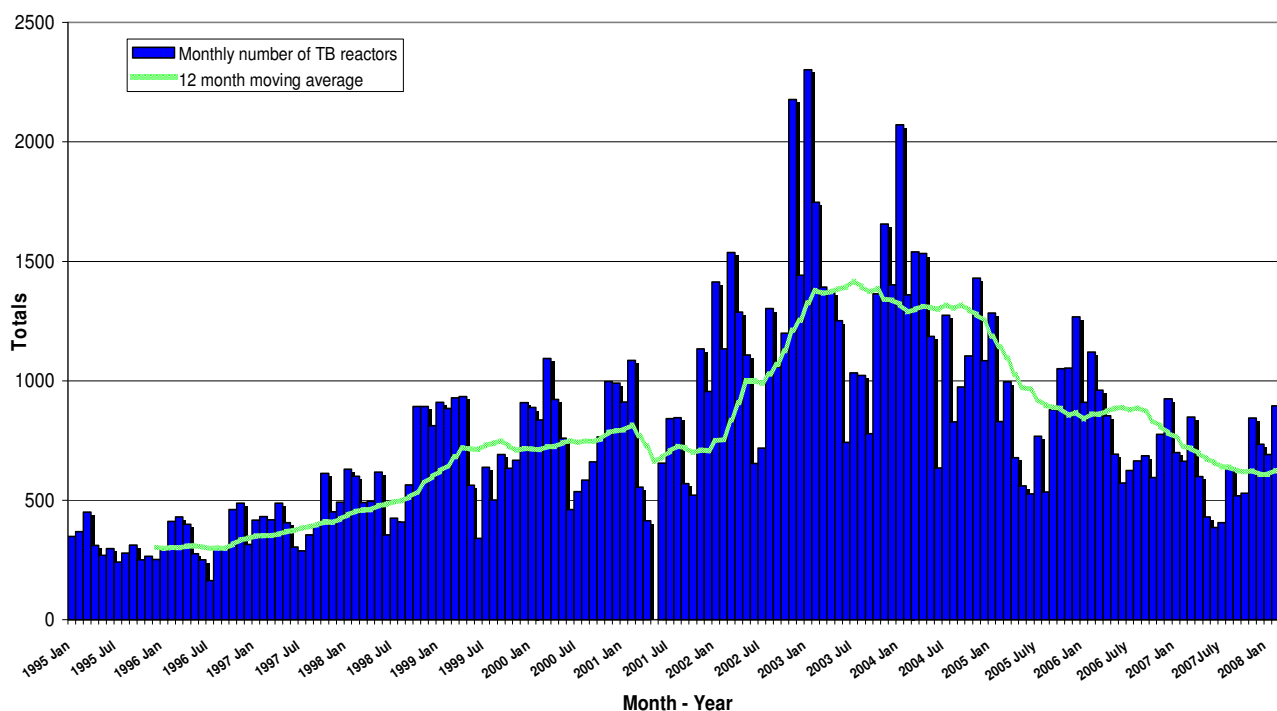


2.2 Reactor animals

During the current quarter, there has been little change in the number of TB reactors (2,204 TB reactors cf. 2,210 during the same period in 2007). The 12-month moving average for TB reactors is currently 608 per month (cf. 717 in March 2007).

| | No. reactors | No. NICs | Total |
|----------------------------------|--------------|----------|-------|
| Current quarter | 2204 | 238 | 2442 |
| Matched quarter in previous year | 2210 | 109 | 2319 |
| % change | -0.3 | 118.3 | 5.3 |

TB Reactors: January 1995 to March 2008



2.3 Reactor removal times

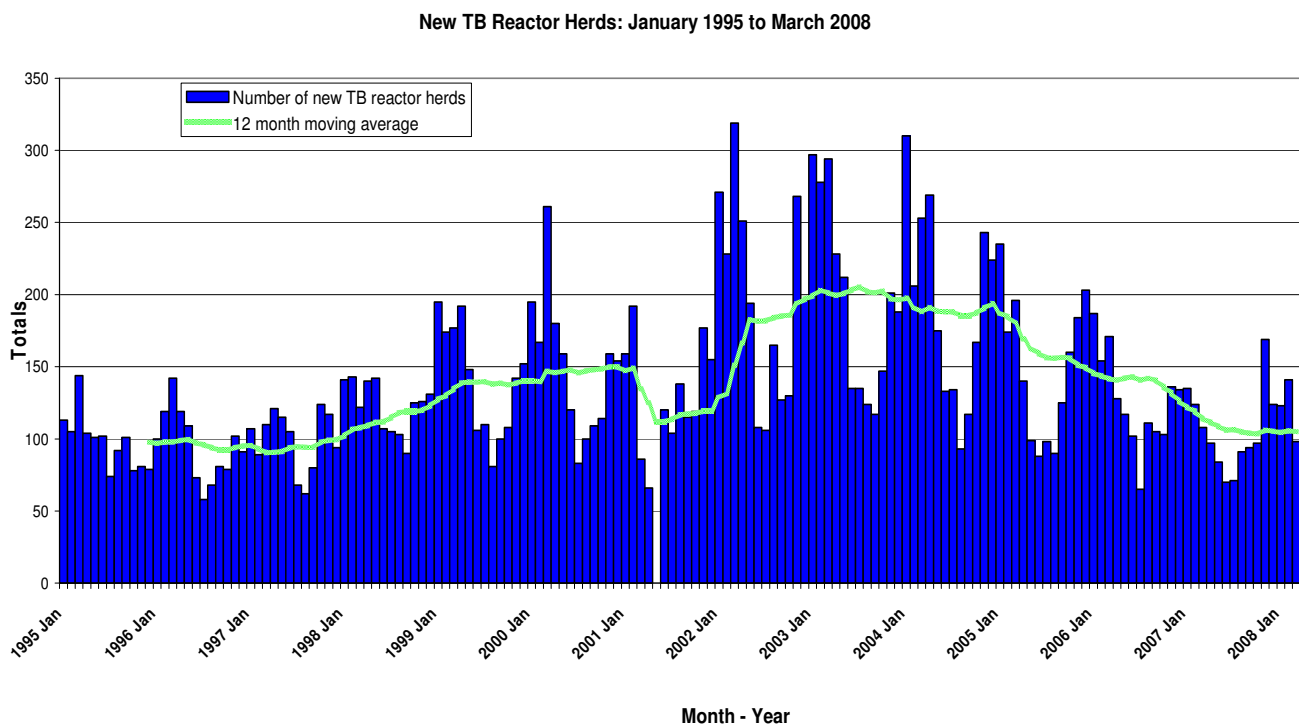
The median for reactor removal time was 12.3 working days for the calendar year 2007 (cf. 13 days for 2006) with 5,790 of the 7,297 TB reactors (79%) being removed within 15 working days.

| YEAR | Median | Lower Quartile | Upper Quartile |
|------|--------|----------------|----------------|
| 2007 | 12.3 | 8.9 | 14.4 |
| 2006 | 13.0 | 9.6 | 17.1 |
| 2005 | 13.0 | 8.9 | 16.4 |
| 2004 | 16.4 | 12.3 | 21.9 |
| 2003 | 17.8 | 13 | 26.7 |

2.4 New herd breakdowns

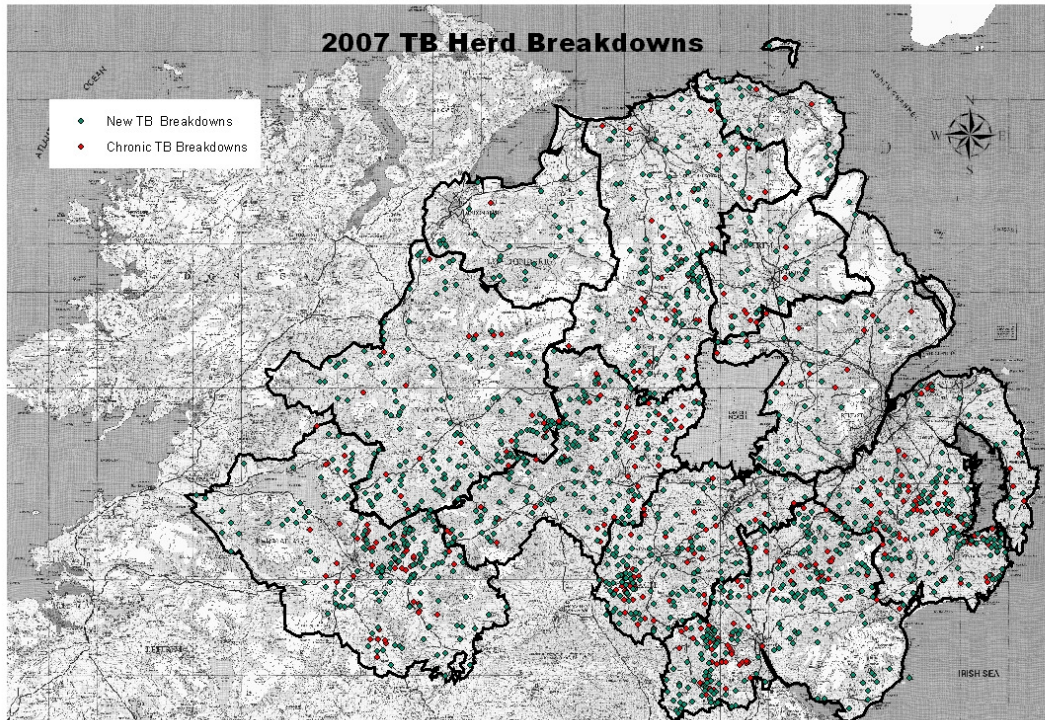
The number of new TB herd breakdowns was 2% lower during the current quarter (360 cf. 367). The 12-month moving average for new TB herd breakdowns is currently 105 herds per month (cf. 114 in March 2007).

| | No. new reactor herds |
|----------------------------------|-----------------------|
| Current quarter | 360 |
| Matched quarter in previous year | 367 |
| % change | -1.9 |



2.5 TB herd breakdowns in 2007

The figure below shows the location of TB herd breakdowns recorded during 2007. New TB herd breakdowns are herds with at least one reactor animal where the herd had no other reactor animals during the previous 12 months. Chronic herds are all other herds that have had at least one other TB reactor during 2007.



3. Bovine Spongiform Encephalopathy (BSE)

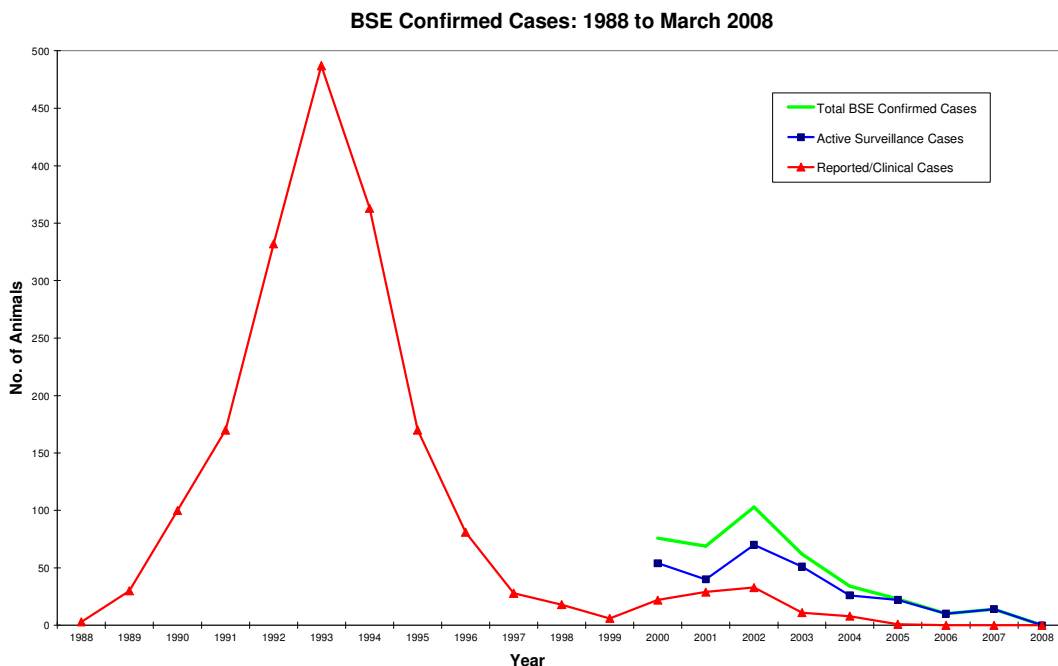
(supplied by TSE Branch)

3.1 Disease trends

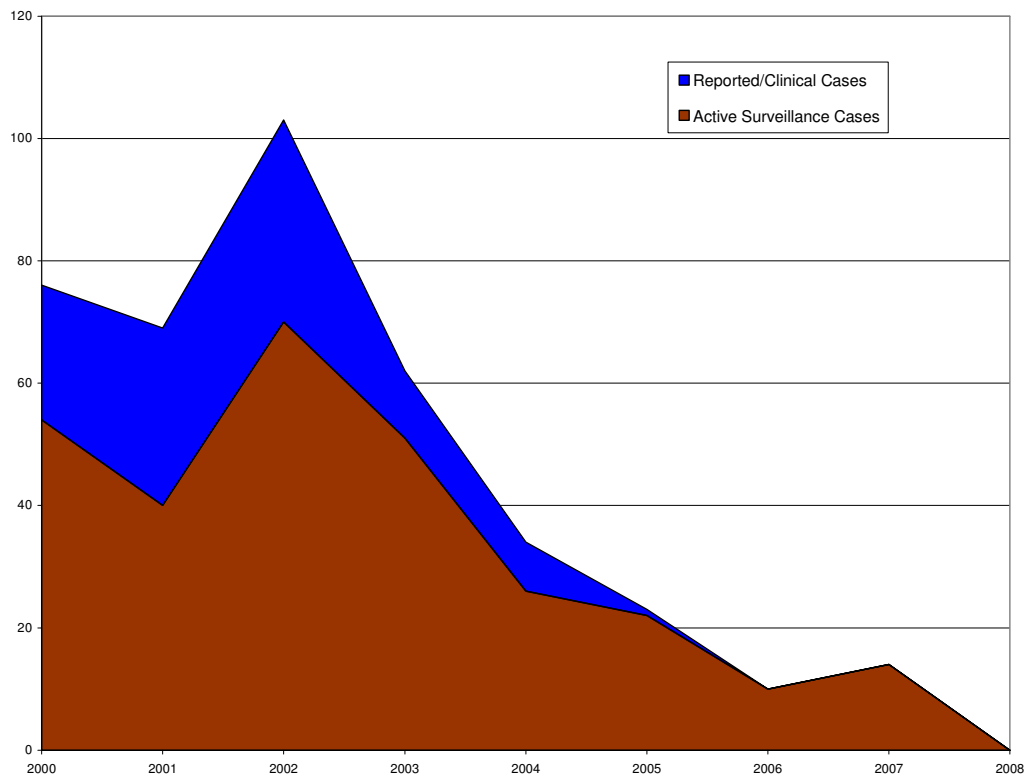
Since the first cases of BSE were reported in Northern Ireland during 1988, there have been a total of 2,179 cases in the province from 1,508 farms. The peak incidence year was 1993 with 487 cases. 54% of all cases occurred during the years 1992-1994, inclusive.

The proportion of clinical suspect cases that were confirmed as having BSE has steadily fallen to 6% in 2005 compared to a confirmation rate of 77% in 1995. None of the 20 suspect cases in 2006, 11 suspect cases in 2007 or 3 case in 2008 have had BSE confirmed. There has also been a steady increase in the age profile of cases since 1999 with only 10% of cases in 2003 being in cattle under six years of age and only 6% confirmed in 2004. Two of the 23 cases (8.7%) confirmed in 2005 were less than six years of age. None of the 10 confirmed cases in 2006 were under six years old. However, 2 of the 14 confirmed cases in 2007 were under six years old (14.3%). There has been a reduction in the number of confirmed cases during the current quarter compared to the same quarter of 2007 (0 cf. 9).

Active surveillance of over 24 month fallen animals is now the main source of confirmed cases (64.3% of cases in 2007 and 70% of cases in 2006). In previous years, active surveillance through over thirty months casualty slaughter has been the main source (69% of cases in 2003; 62% of cases during 2004; 65% of cases in 2005). This shift is due to the changes in the criteria required for a casualty animal to be accepted into the Older Cattle Disposal Scheme.



BSE Confirmed cases: January 2000 to March 2008



3.2 Cases by category

Confirmed cases of BSE: 2003 – 2008

| Type | Category | 2003 Cases | 2004 Cases | 2005 Cases | 2006 Cases | 2007 Cases | 2008 Cases (Jan-Mar) |
|----------------------|---|------------|------------|------------|------------|------------|----------------------|
| Passive Surveillance | On farm suspects | 8 | 8 | 1 | 0 | 0 | 0 |
| | Abattoir suspects | 3 | 0 | 0 | 0 | 0 | 0 |
| Active Surveillance | Fallen animals | 4 | 1 | 5 | 7 | 9 | 0 |
| | OTM Casualty animals | 43 | 21 | 15 | 3 | 3 | 0 |
| | OTM Random animals | 2 | 1 | 0 | 0 | - | - |
| | OTM Ante-Mortem Failure animals | 2 | 2 | 0 | 0 | 1 | 0 |
| | Over 42/30 months survey (including 1996/97 cohort) | 0 | 1 | 0 | 0 | - | - |
| | Cohorts of BSE Cases | 0 | 0 | 2 | 0 | 0 | 0 |
| | OTM Human Consumption | 0 | 0 | 0 | 0 | 1 | 0 |
| Total | | 62 | 34 | 23 | 10 | 14 | 0 |

4. Definitions

| Term | Definition |
|-----------------------|--|
| Animal incidence | Number of reactors divided by the number of animals tested over a specified period of time expressed as a percentage (i.e. one animal with multiple tests is only counted once) |
| BR | Bovine brucellosis |
| BSE | Bovine spongiform encephalopathy |
| Coverage | Number of tests completed during the quarter divided by the number of due tests expressed as a percentage |
| Herd incidence | Number of new herd breakdowns divided by the number of herds with a herd level test over a specified period of time expressed as a percentage (i.e. one herd with multiple tests is only counted once) |
| Lower quartile | The value of the observation which splits the number of observations into a $\frac{1}{4}$ part and a $\frac{3}{4}$ part when they are ranked in order of value e.g. if there were 99 observations then the value of the 25 th observation equals the lower quartile |
| Median | The value of the observation which splits the number of observations into two equal parts when they are ranked in order of value e.g. if there were 99 observations then the value of the 50 th observation equals the median |
| New herd breakdown | A herd with at least one reactor animal where the herd had no other reactor animals during the previous 12 months. NB – within TB, herds with confirmed TB from lesions found at routine slaughter are not currently included. |
| OTM | Over thirty months disposal scheme |
| PVPs | Private Veterinary Practitioners |
| Reactor removal times | Number of working days between the test revealing the reactor animal and the death of that animal. Figures given are median values for working days estimated from calendar days (calendar days multiplied by 0.685). |
| Total tests due | Number of tests which had a test due during the quarter or which had a test due prior to the quarter that had not been completed prior to the commencement of the quarter. |
| TB | Bovine tuberculosis |
| TSE | Transmissible spongiform encephalopathy |
| Upper quartile | The value of the observation which splits the number of observations into a $\frac{3}{4}$ part and a $\frac{1}{4}$ part when they are ranked in order of value e.g. if there were 99 observations then the value of the 75 th observation equals the upper quartile |