

# DARD Quarterly Disease Report

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

Quarterly Update: October-December 2007

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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 there was another rise in incidence. The **annual herd incidence is now 0.72%** while the **annual animal incidence is 0.041%**.

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 2.5% and 1.28%, respectively). Annual animal incidence fell in three DVOs with Armagh showing the largest fall (0.135% to 0.107%).

The number of **new BR herd breakdowns** during the current quarter was 72, which is a 132% increase over same number as occurred during the same period last year (n=31). The number of **BR reactor numbers also showed a substantial increase of 106%** (132 cf. 64) 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. The number of **BR negative-in-contact (NICs)** animals taken during the current quarter (2,176 animals) **showing a 211% increase** on the number removed during the same quarter in 2006 (700 animals). The median **BR reactor removal time** during the first ten months of 2007 was **11.6 working days** (cf. 12.3 days during 2006) with **78%** 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 **26 BR reactors** from **471,100 animal tests** with a further **3,445 inconclusive** BR reactors.

### Bovine Tuberculosis (TB)

The incidence of **TB has remained fairly static in recent months**. 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 nine of the ten Divisional Veterinary Offices (DVOs). Newtownards DVO has the highest current annual TB herd incidence of 8.8%.

The number of **TB reactor** animals taken during the current quarter (**2,100 animals**) has shown a **decrease (8%)** compared to the number removed during the same quarter in 2006 (2,298 reactors). The median **TB reactor removal time** has improved slightly (**12.3 working days** during the first ten months of 2007 compared to 13 days over 2006) with **79%** being removed within the 15 working day target (cf. 71% over 2006).

**New TB herd breakdowns increased by 5%** during the current quarter relative to the same quarter in 2006 with the 12-month moving average being 106 new breakdown herds per month (cf. 126 in December 2006).

**Almost half (45%) of the province's 1.64 million** cattle (held in 23,640 herds) were tested during this quarter.

#### Bovine Spongiform Encephalopathy (BSE)

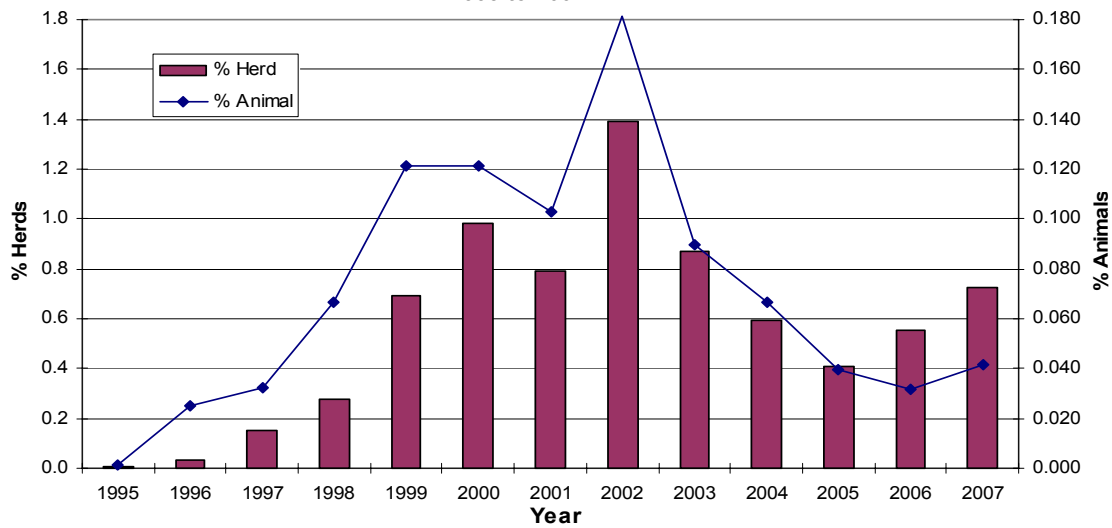
**The number of cases has declined to small number in recent years** but 2007 saw an increase in the number of cases (14 cases cf. 10 cases in 2006). The vast majority of cases are now found through the active surveillance programme, particularly in the over 24-month fallen animal surveillance. To date, there have been **2,179 confirmed cases** of BSE in the province with 14 cases recorded during 2007 (cf. 10 cases during the calendar year of 2006). None of the 11 clinical suspect cases during the year were confirmed as having BSE.

# 1. Bovine Brucellosis (BR)

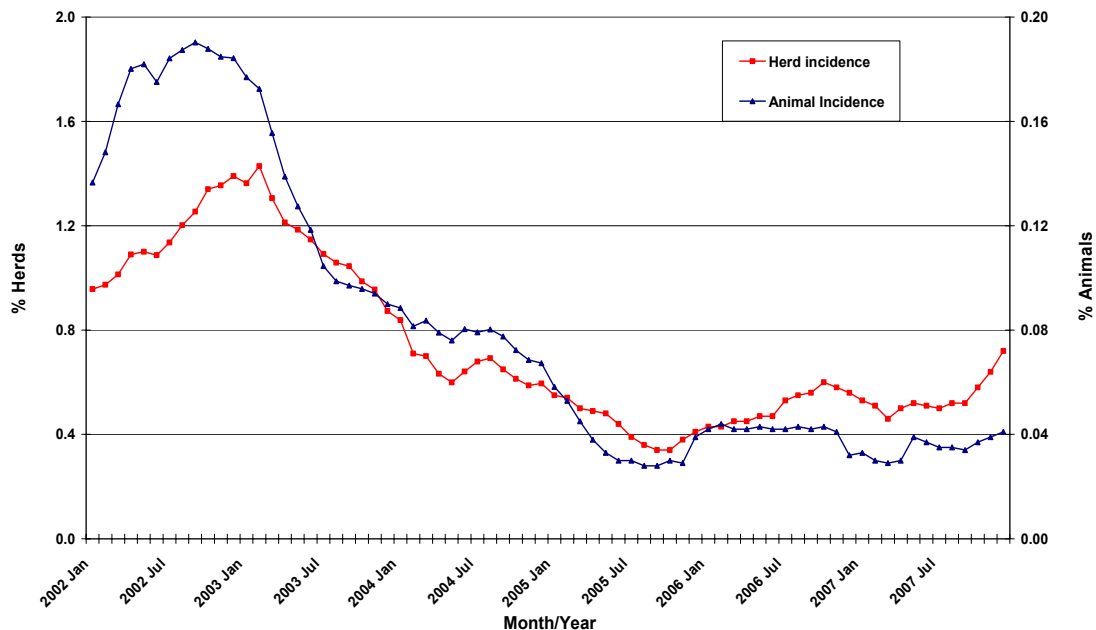
## 1.1 Disease trends

Of the 20,870 herds (973,500 cattle) within Northern Ireland that were actively monitored for Brucellosis by blood or bulk milk sampling, there were 151 new breakdown herds over the last 12 month period (402 Br reactor animals). This is 28% higher (118 new herd breakdowns) than in the previous 13-24 months. The current annual herd incidence was 0.72% with an animal incidence of 0.041%. For the last 13-24 months, annual herd incidence was 0.56% and animal incidence was 0.032%. Peak herd incidence (1.43%) occurred in early 2003.

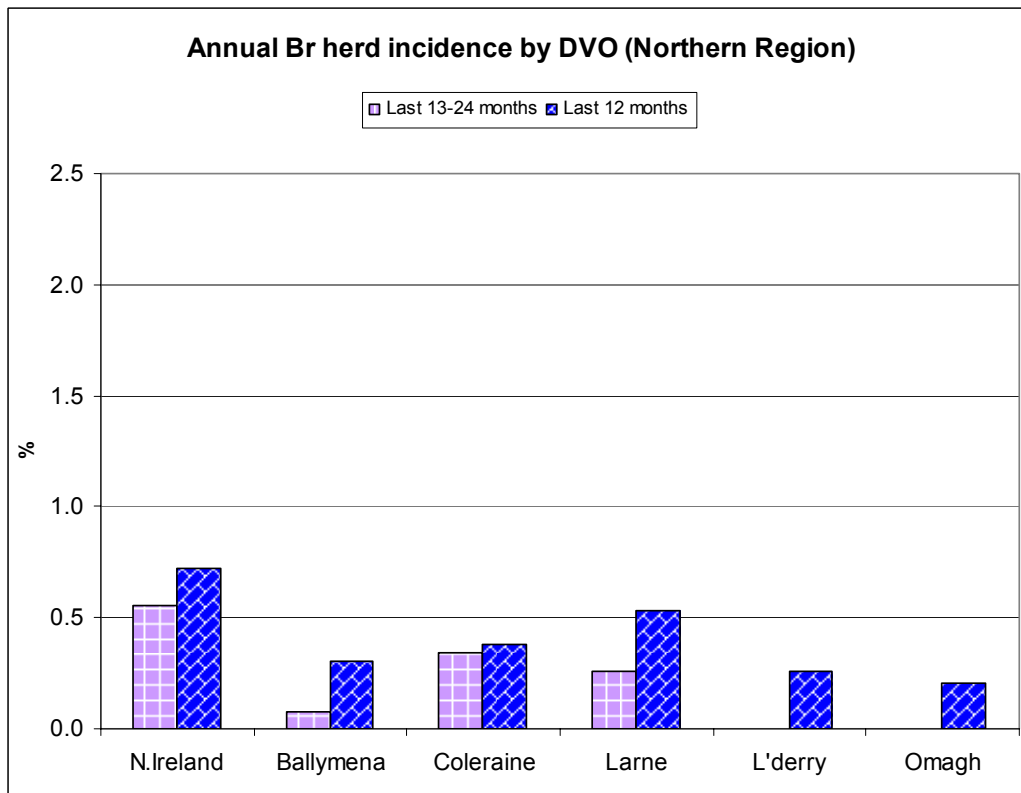
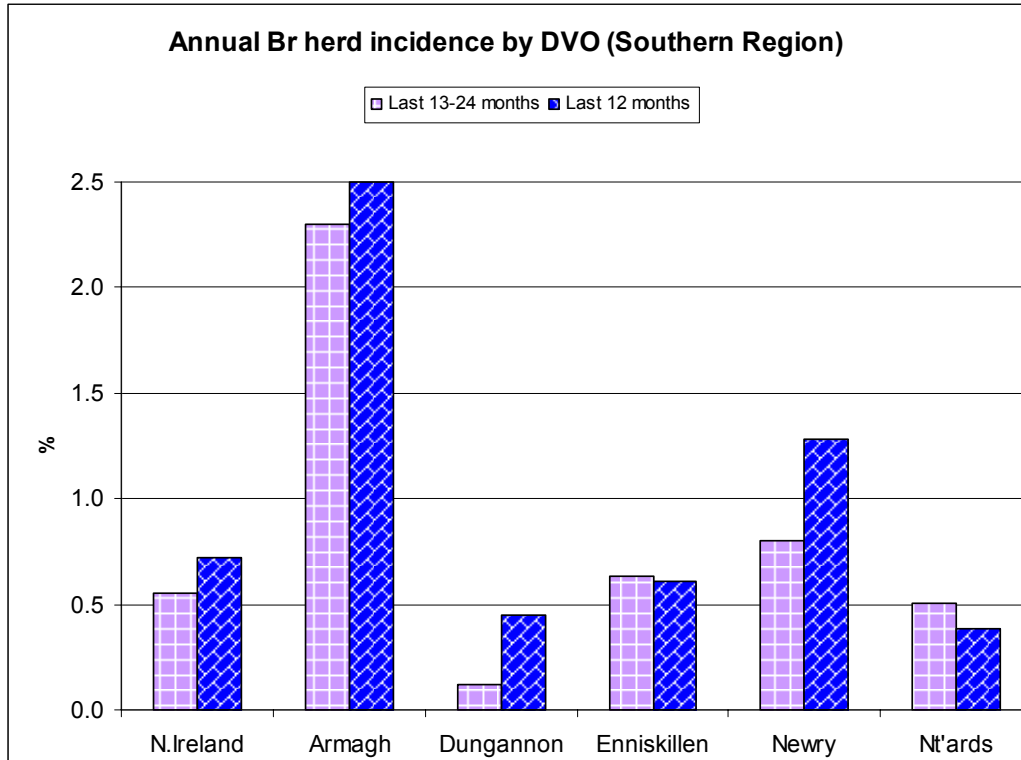
**BR annual herd and animal incidence:  
1995 to 2007**



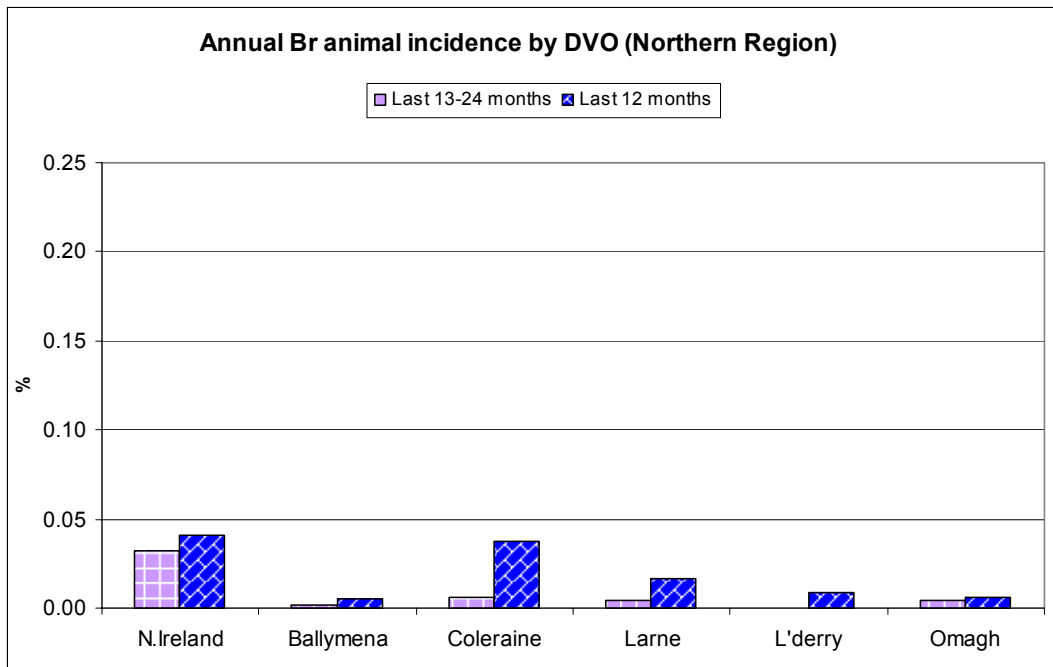
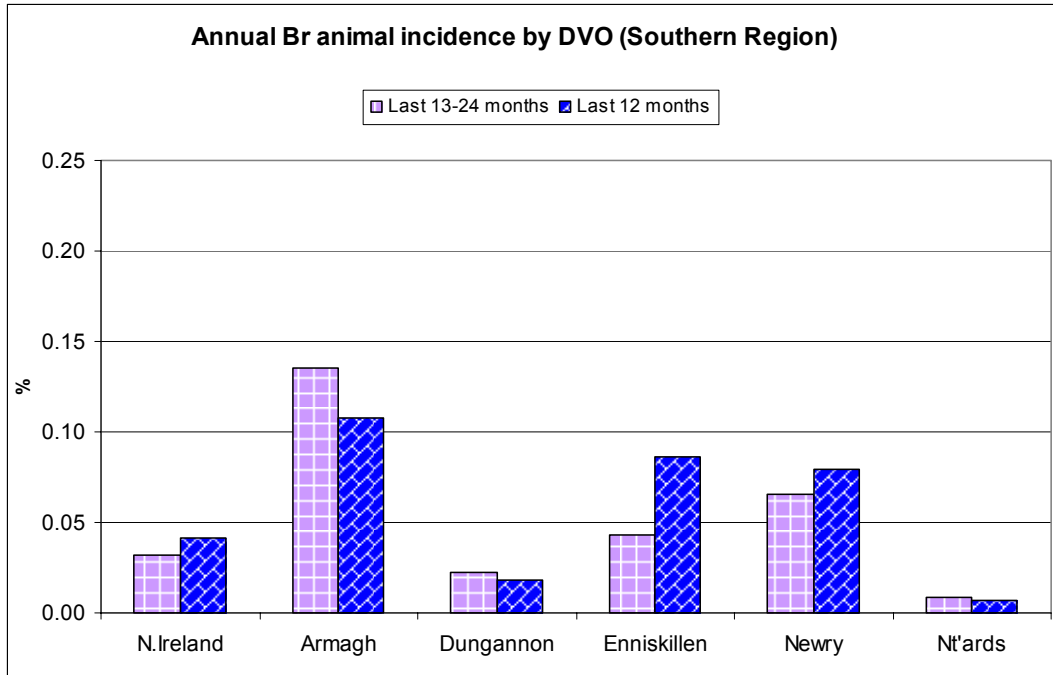
**BR Herd and Animal Incidence  
(12 month moving average: January 2002 to December 2007)**



The annual herd incidence fell in only two of the ten DVOs. Current annual herd incidence is 0.72% compared with 0.56% in the previous 13-24 month period. Two DVOs have a herd incidence of over 1% (Armagh DVO=2.5%; Newry DVO=1.28%).



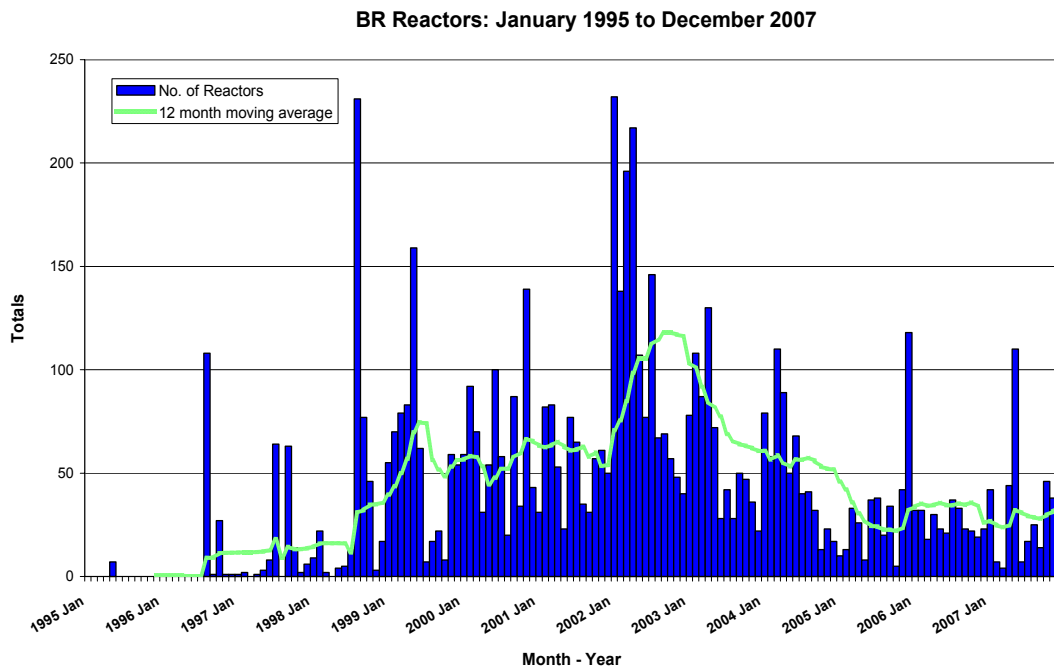
There was a fall in annual animal incidence within three DVOs. Current annual animal incidence is running at 0.041% which is higher than the rate observed in the previous 13-24 month period (0.032%). Armagh (0.107%), Enniskillen (0.086%) and Newry (0.080%) have contributed the majority of the reactors (74%).



## 1.2 Reactor animals

There was an large rise (202%) in the number of reactors and negative in contact animals during this quarter compared to the same quarter last year (2,308 cf. 764). The 12-month rolling average number of brucellosis reactors is currently 38 per month (cf. 26 brucellosis reactors in December 2006).

	No. reactors	No. NICs	Total
Current quarter	132	2176	2308
Matched quarter in previous year	64	700	764
% change	106.3	210.9	202.1



## 1.3 Reactor removal times

The median for reactor removal time was 11.6 working days for this year up until October (cf. 12.3 days for 2006) with 244 of the 314 BR reactors (78%) being removed within 15 working days.

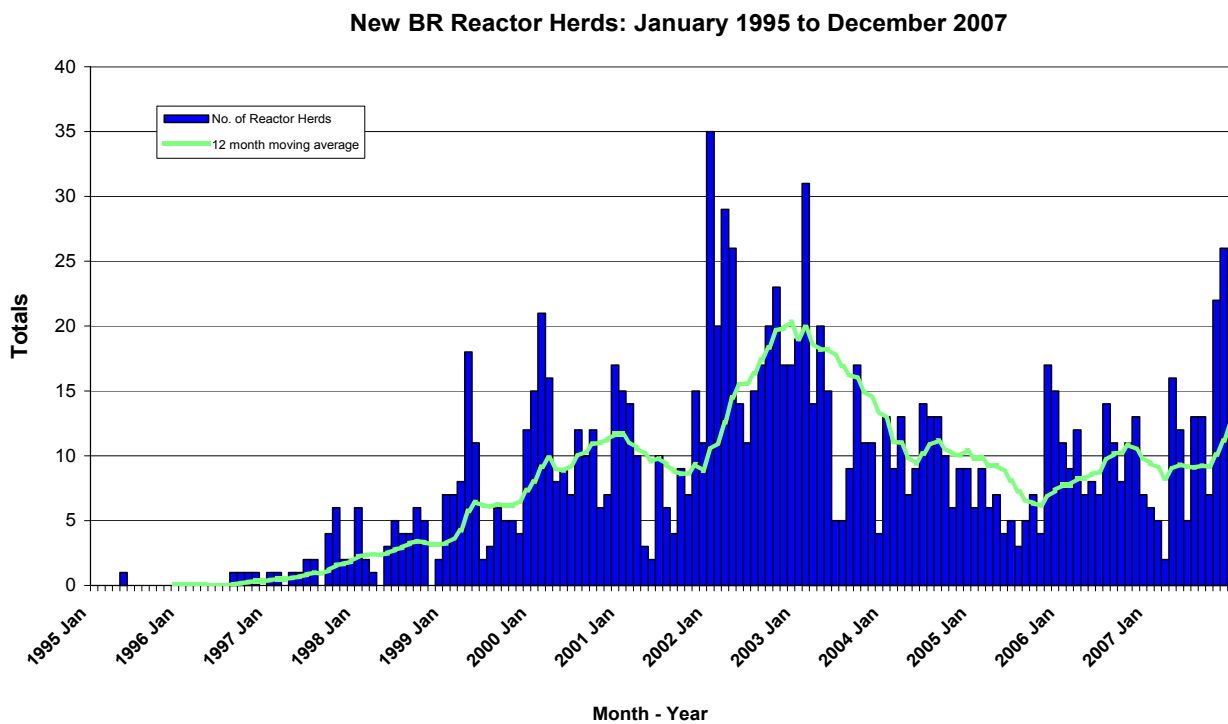
YEAR	Median	Lower Quartile	Upper Quartile
2007 <sup>^</sup>	11.6	9.6	15.1
2006	12.3	10.3	15.1
2005	14.4	11.6	19.9
2004	14.4	11.0	19.2
2003	13.7	11.0	15.1

<sup>^</sup> Period monitored was to October 2007

### 1.4 New herd breakdowns

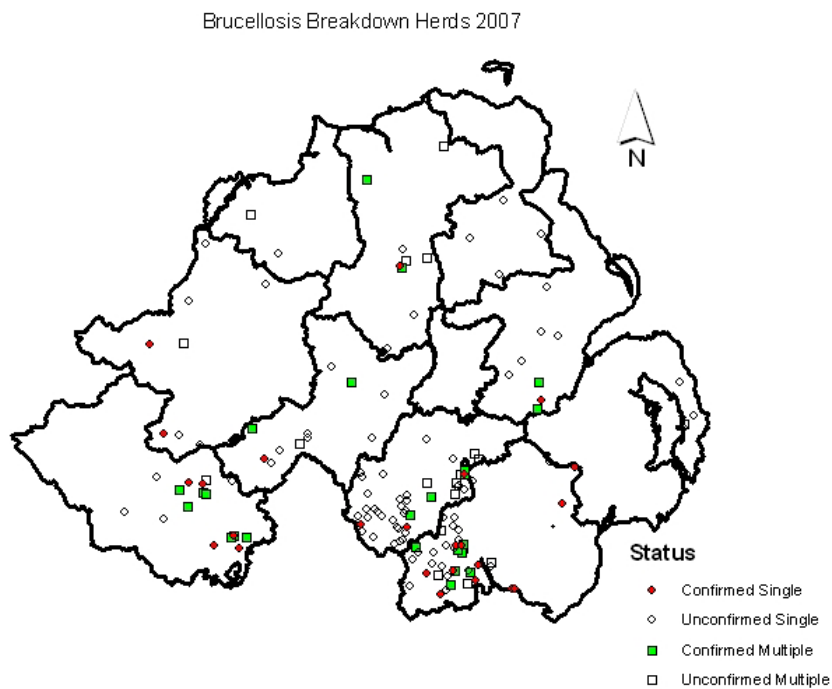
There was a large increase (132%) in the number of new herd breakdowns due to brucellosis during this quarter compared to the same quarter in 2006 (72 cf. 31). The 12-month moving average is currently 15 new breakdown herds per month (cf. 10 breakdown herds in December 2006).

	No. new herd breakdowns
Current quarter	72
Matched quarter in previous year	31
% change	132.3



## 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.

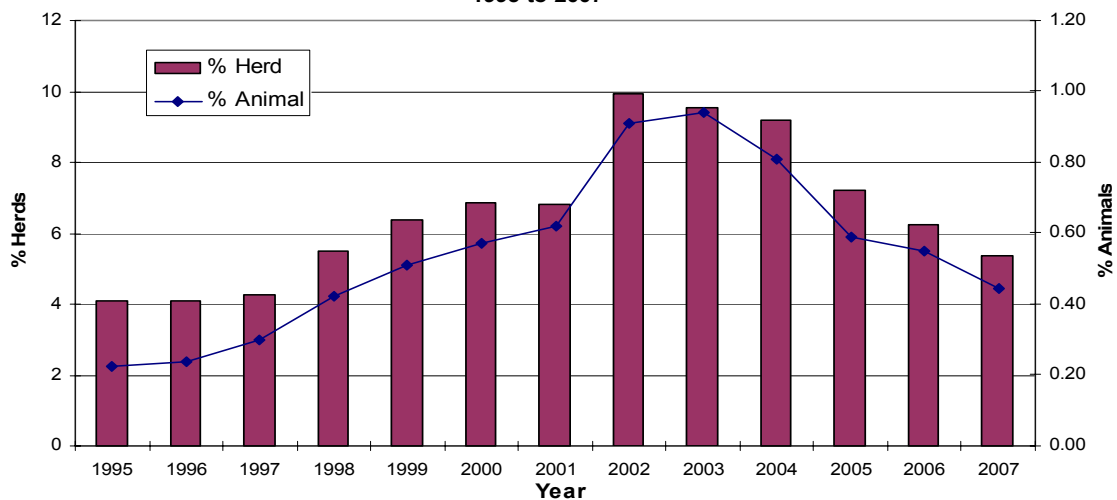


## 2. Bovine Tuberculosis (TB)

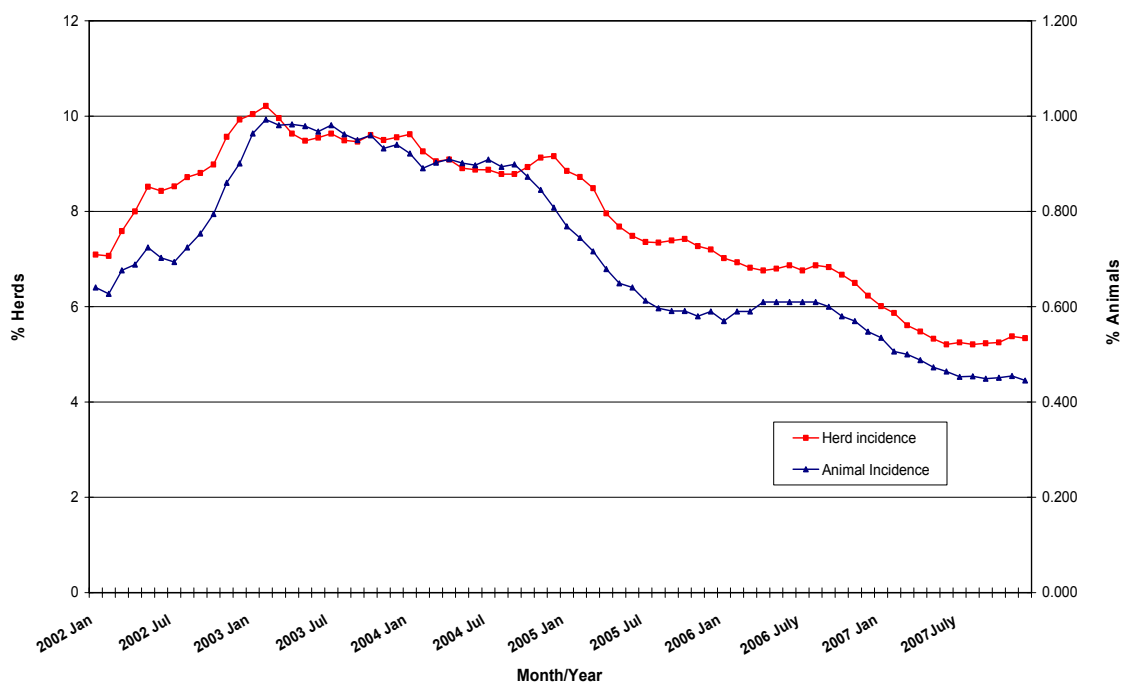
### 2.1 Disease trends

Approximately 23,640 herds were tuberculin tested over the last 12 months (1.64 million cattle). The herd and animal incidence of TB has shown a fall over the last year with the current levels running at 5.35% and 0.45%, respectively (previous 13-24 months, herd incidence = 6.2%, animal incidence = 0.55%). 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%).

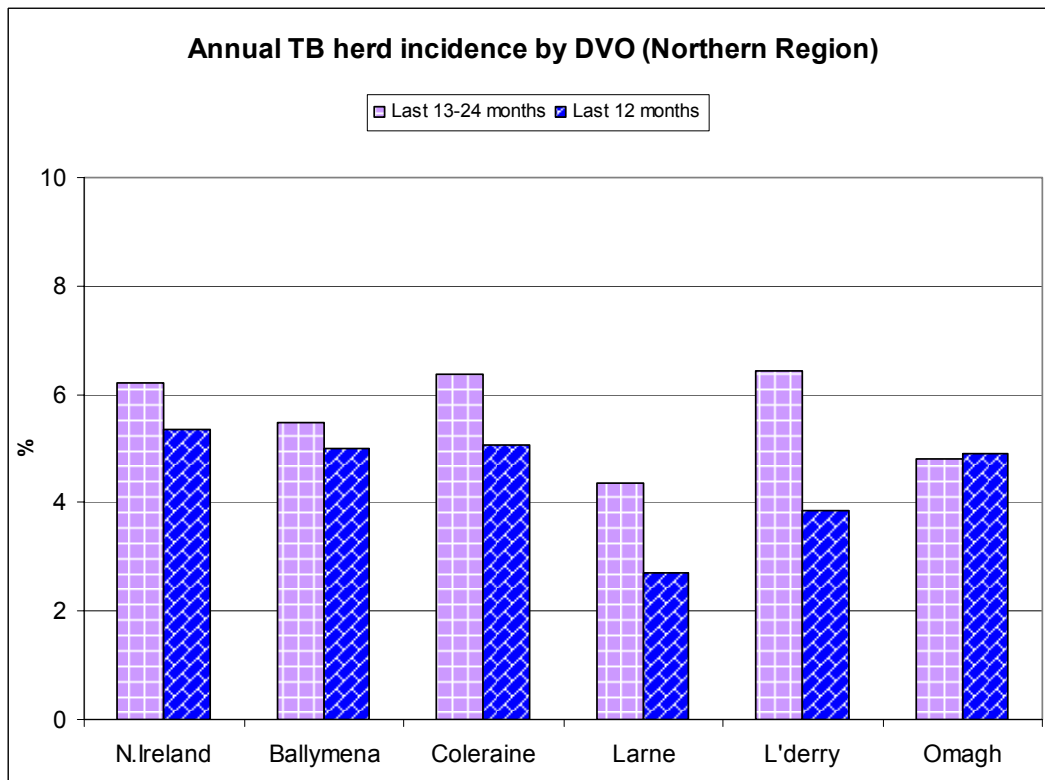
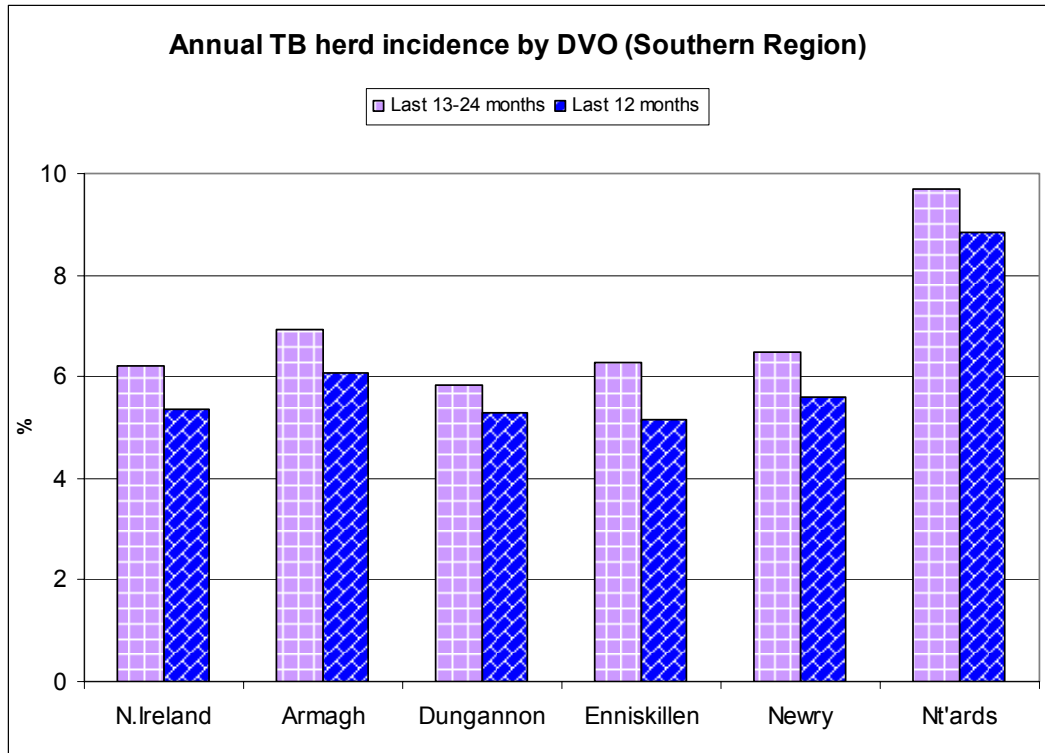
**TB herd and animal incidence:  
1995 to 2007**



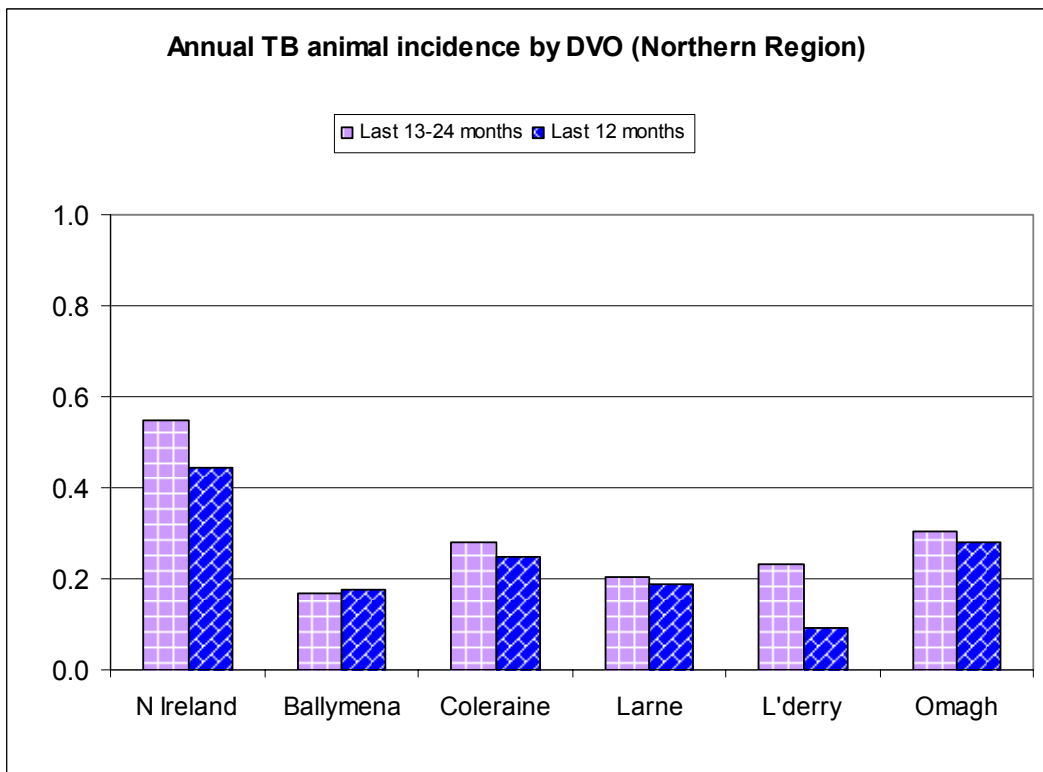
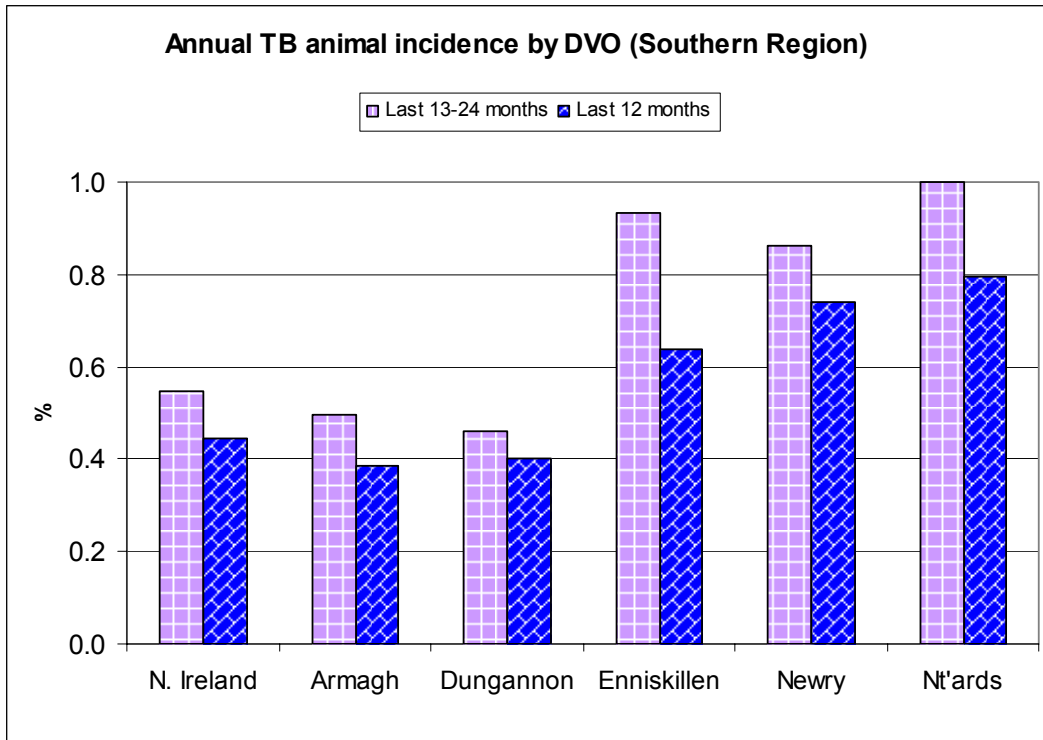
**TB Herd and Animal Incidence:  
(12 month moving average: January 2002 to December 2007)**



Nine 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 (8.8%) with the national herd incidence currently running at 5.35% (cf. 6.2% in last 13-24 months). Lowest herd incidence was observed in Larne DVO (2.7%).



All ten DVOs have shown a decrease in the annual animal incidence compared to the previous 13-24 month period. Newtownards had the highest incidence (0.8%) while Londonderry had the lowest annual animal incidence at 0.09%. The national annual animal incidence is currently 0.45% (cf. 0.55% in last 13-24 months).

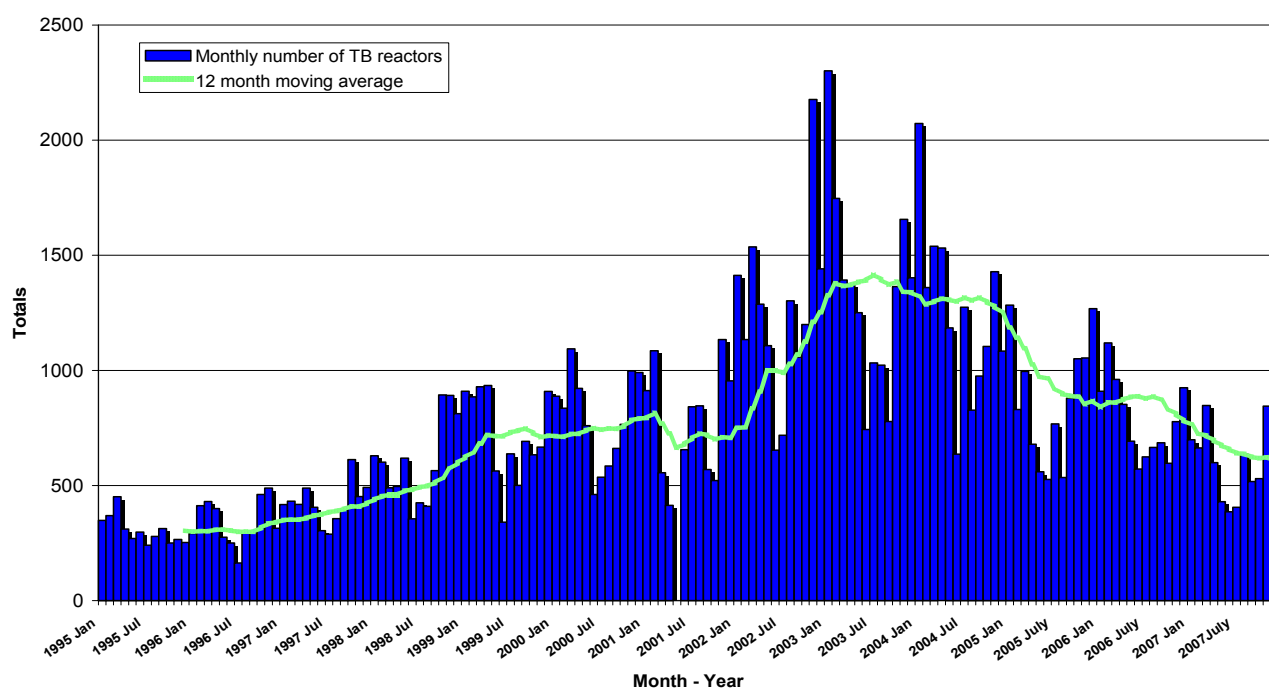


## 2.2 Reactor animals

During the current quarter, there has been a 8% decrease in the number of TB reactors (2,110 TB reactors cf. 2,298 during the same period in 2006). The 12-month moving average for TB reactors is currently 608 per month (cf. 782 in December 2006).

	No. reactors	No. NICs	Total
Current quarter	2110	137	2247
Matched quarter in previous year	2298	131	2429
% change	-8.2	4.6	-7.5

TB Reactors: January 1995 to December 2007



## 2.3 Reactor removal times

The median for reactor removal time was 12.3 working days for the year up to October (cf. 13 days for 2006) with 4,515 of the 5,718 TB reactors (79%) being removed within 15 working days.

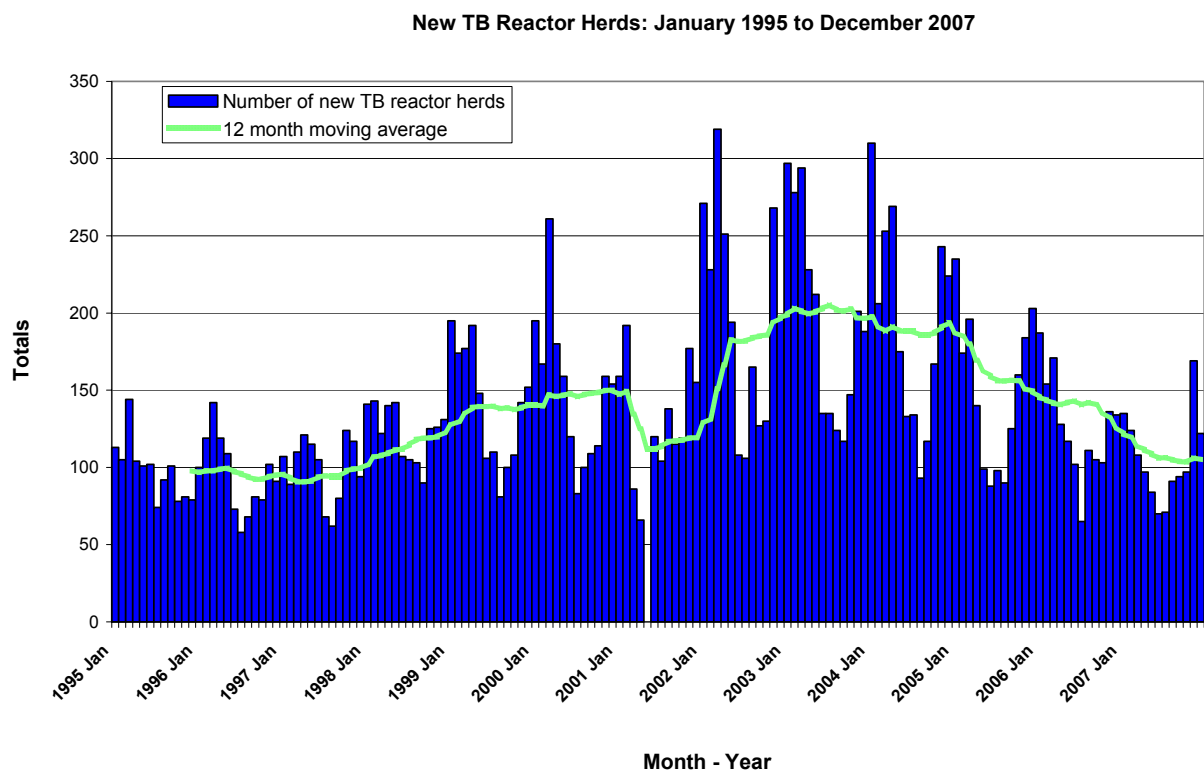
YEAR	Median	Lower Quartile	Upper Quartile
2007 <sup>^</sup>	12.3	8.2	14.4
2006	13.0	9.6	17.1
2005	13.0	8.9	16.4
2004	16.4	12.3	21.9
2003	17.8	13	26.7

<sup>^</sup> Period monitored was to October 2007

## 2.4 New herd breakdowns

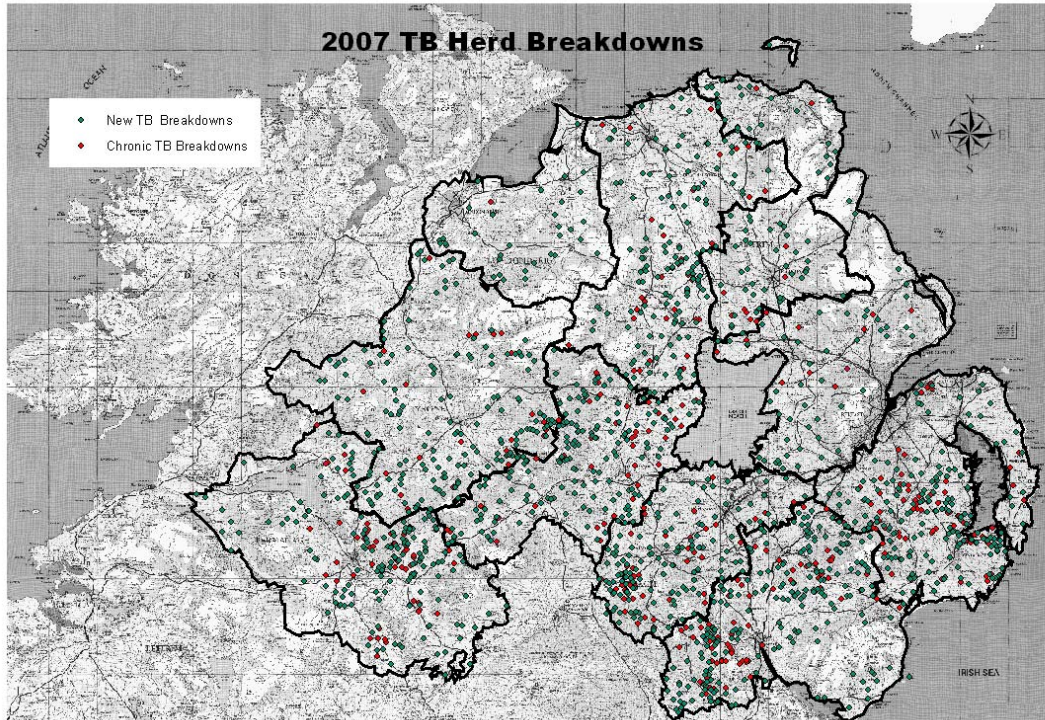
The number of new TB herd breakdowns was 5% higher during the current quarter (390 cf. 373). The 12-month moving average for new TB herd breakdowns is currently 106 herds per month (cf. 126 in September 2006).

	No. new reactor herds
Current quarter	390
Matched quarter in previous year	373
% change	4.6



## 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)

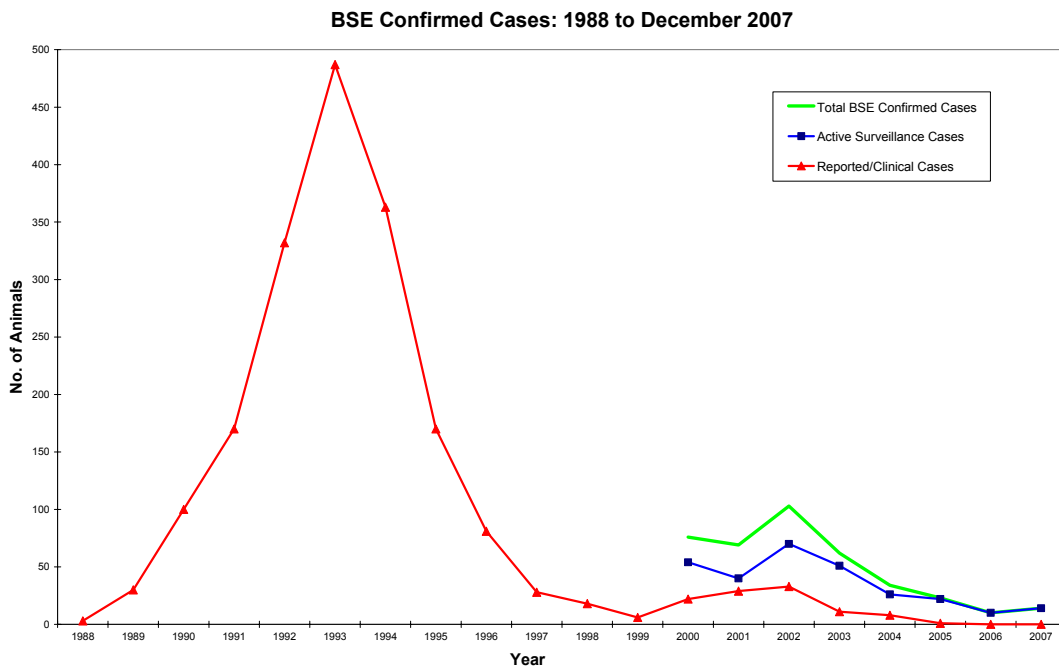
(supplied by TSE Branch)

#### 3.1 Disease trends

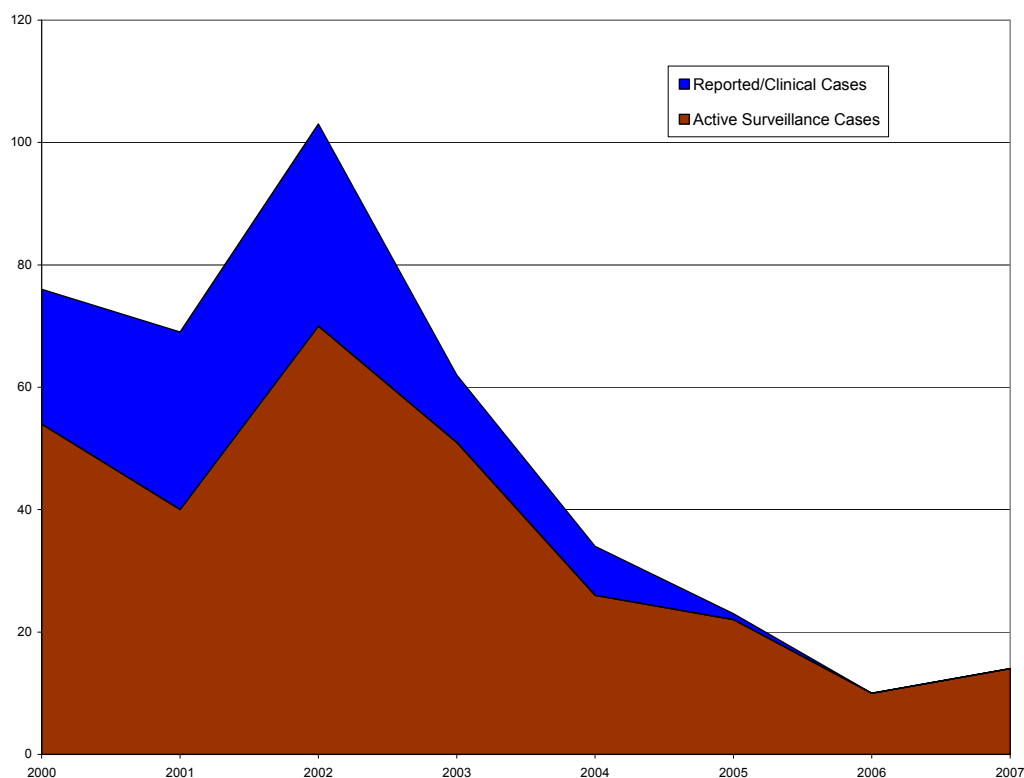
Since the first cases of BSE were reported in Northern Ireland during 1988, there have been a total of 2,179 cases in the province from 1,508 farms. The peak incidence year was 1993 with 487 cases. 54% of all cases occurred during the years 1992-1994, inclusive.

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 or the 11 suspect cases in 2007 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 no change in the number of confirmed cases during the current quarter compared to the same quarter of 2006 (2 cf. 2). However, there have been 14 cases during 2007 (cf. 10 in 2006).

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 December 2007



### 3.2 Cases by category

#### Confirmed cases of BSE: 2003 – 2007

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

## 4. Definitions

<b>Term</b>	<b>Definition</b>
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 <sup>th</sup> 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 <sup>th</sup> 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 <sup>th</sup> observation equals the upper quartile