ANNEX A

Standard requirements for the submission of national programmes for the eradication, control and monitoring of the animal diseases or zoonoses referred to in Article 1(a)[1]

1. Identification of the programme

Member State: United Kingdom (Northern Ireland)

Disease(s)[2]: Bovine Tuberculosis

Request of Union co-financing for[3]: 2013

Reference of this document: Bovine Tuberculosis 2013

Contact (name, phone, fax, e-mail): Stephen Martin, 028 90524826, 028 90524340, stephen.martin@dardni.gov.uk

Date of submission to the Commission: 20 April 2012

2. Historical data on the epidemiological evolution of the disease(s) [4]:

In 1949, Northern Ireland (NI) introduced the Tuberculosis (Attested Herds) Scheme designed to encourage the establishment in NI of cattle herds officially certified as free of bovine tuberculosis. The objective then, as now, was the eradication of bovine TB from the NI herd. A voluntary register of attested herds was established. Two consecutive negative intradermal tests at two months interval were necessary to register.

By 1956, 1,209 herds were registered. Lists of attested herds were published to guide herdkeepers who wished to purchase such certified cattle.

Even with these limited measures, the incidence of bTB decreased steadily and the Voluntary Attested Herds Scheme was ended and eradication areas declared where compulsory testing would be carried out.

A transitional period between April and August 1959 saw an increase in uptake of voluntary testing. In April 1959 over 50% of NI herds were attested or supervised, by March 1960, 88% of cattle in NI were attested and on 25 November 1960, NI was declared an attested area.

Since the introduction of compulsory testing in 1959, bovine tuberculosis has been reduced to, and maintained at, a much lower level, but not eradicated. See Fig.1

---

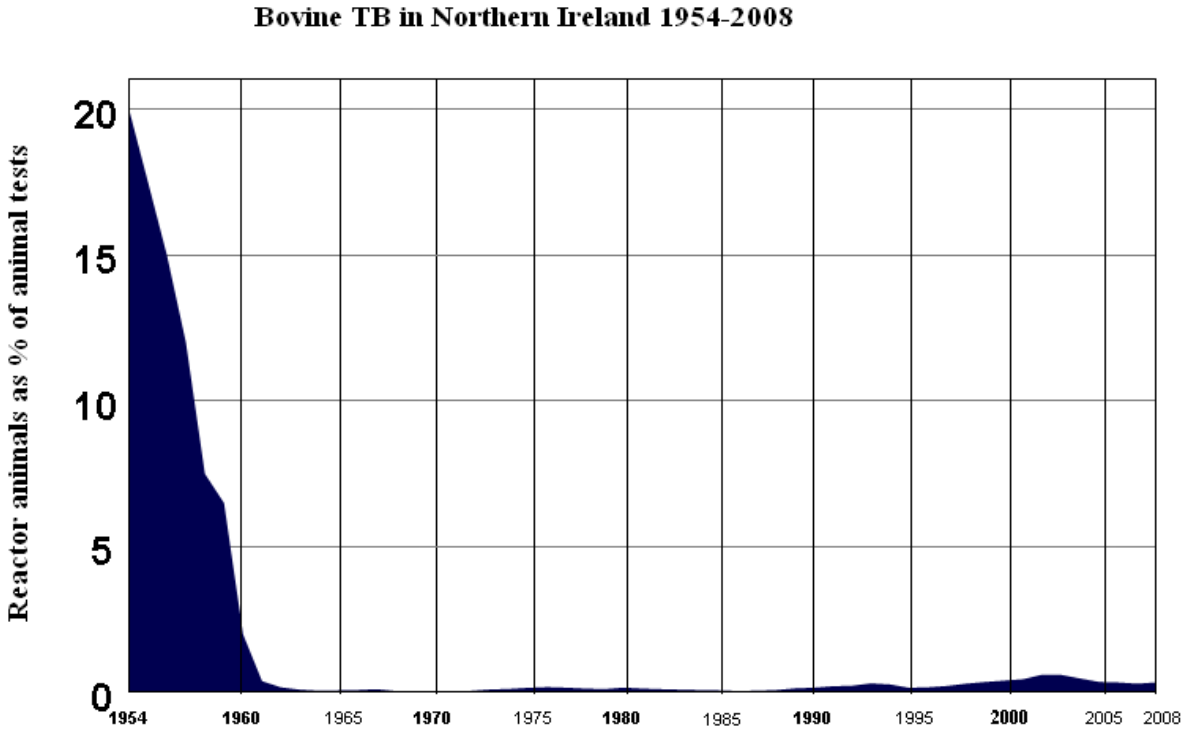
1 In the case of the second and subsequent years of a multi-annual programme that has already been approved by a Commission Decision, only section 1, section 7 and section 8 need to be completed.

2 One document per disease is used unless all measures of the programme on the target population are used for the monitoring, control and eradication of different diseases.

3 Indicate the year(s) for which co-financing is requested.

4 A concise description is given including target population (species, number of herds and animals present and under the programme), the main measures (sampling and testing regimes, eradication measures used, qualification of herds and animals, vaccination schemes) and the main results (incidence, prevalence, qualification of herds and animals). The information is given for distinct periods if the measures were substantially modified. The information is documented by relevant summary epidemiological tables (in point 6) complemented by graphs or maps (to be attached).

Fig. 1



Herd testing in NI has been subject to differing test intervals. It has, however, been applied uniformly throughout the country with no areas of reduced testing at any time. During the period of 1966 to 1976, levels of disease were low enough to warrant a reduction of intensity of the live animal surveillance programme. Later disease increase was responded to by reducing the inter-test interval. See Fig. 2

Note: that the full abattoir post-mortem examination (PME) surveillance remained unchanged throughout.

Note: that NI has been on annual testing entirely since 1983.

Fig 2 Herd testing intervals in NI 1959 - present

Year	Type of herd testing
1959-1965	Annual testing
1966-1971	Biennial testing
1972-1976	Triennial testing
1977-1982	Biennial testing
1983- To date	Annual testing

Current Demographics

There are currently 1.6 million cattle in NI, distributed among 20,500 farm businesses with cattle (June 2011). Dairy cows make up 18% of the national herd while beef cows account for 17%. Based on cattle TB tested in herds, the mean herd size has increased from 56 cattle in 1990 to 78 in 2011, an increase of 39%. However, the data are strongly skewed to the right and the median was 38 for all TB herd tests in 2011. Over half of the herds (58%) in NI have fewer than 50 cattle.

The cattle population increased by 50% in the forty years before 1989 and by approximately 6% thereafter. These increases preceded a significant rise in the incidence of bovine tuberculosis, suggesting an association with high stocking density.

The cattle agricultural industry in NI is largely grass based with feed conservation and winter housing as significant features.

Herd and cattle density is highest in the south and west, with the highest concentration, 6.6 herds per square kilometre in Counties Armagh and Down (Figures 3 and 4 (overleaf)– Method = Kernel Smoothing; bandwidth = 10km). Herds in the north and east tend to be larger than those in the south or west (median 20.4 and 15.2 eligible cattle respectively).

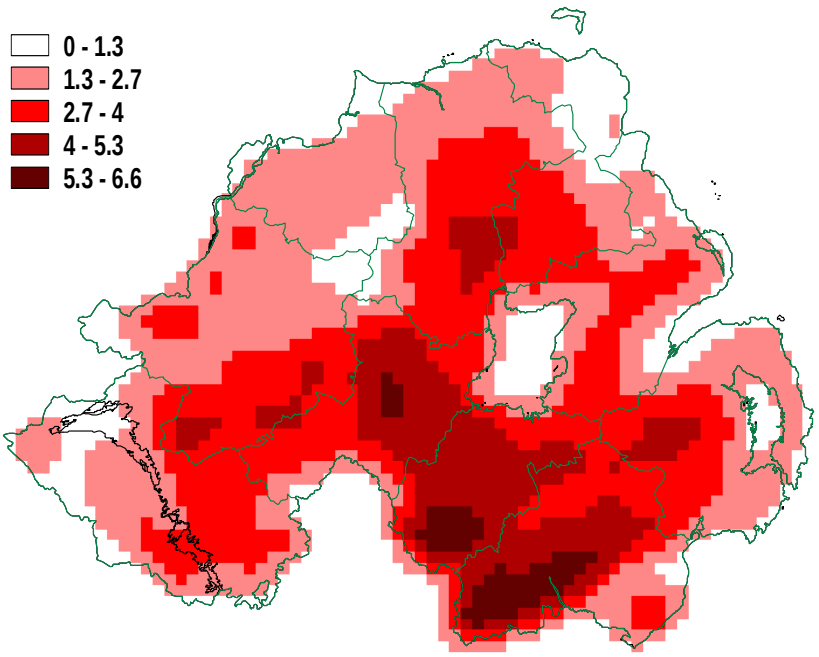


Figure 3 Herd Density: Herds Per Square Kilometre

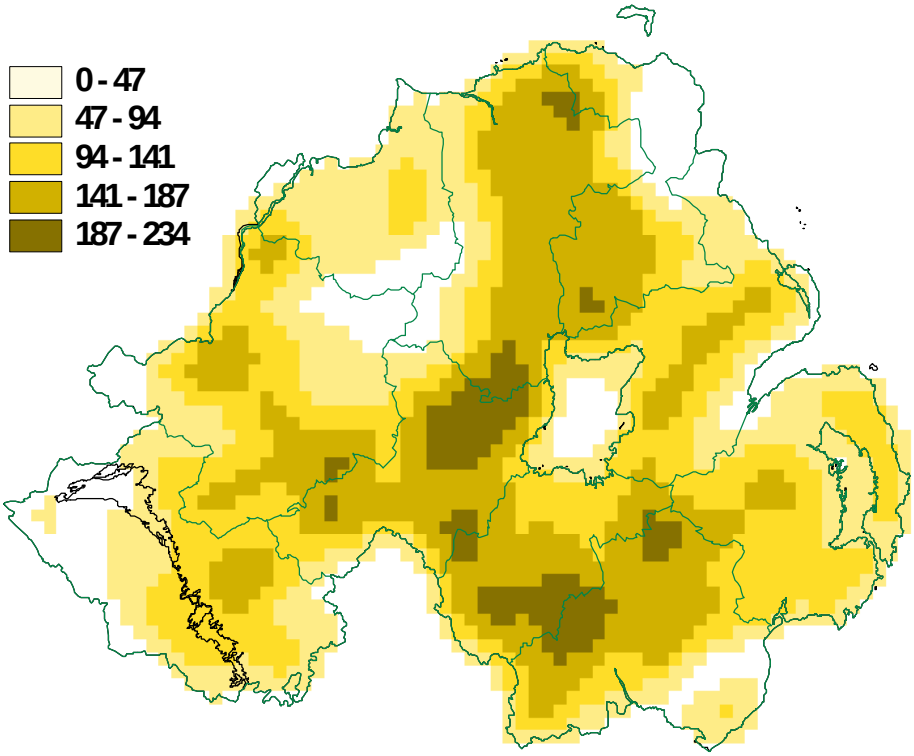


Figure 4 Cattle Density: number of Cattle Per Square Kilometre

Epidemiological Unit

A herd is described in domestic legislation as “a group of animals kept, managed, or housed together, on a holding in such a manner and under such conditions as will, in the opinion of a veterinary inspector, minimize the possibility of infection to any other animals whether kept on the same holding or another holding.” [Tuberculosis Control Order (NI) 1999 (as amended), Part 1 S2 (1)].

Due to the small median herd size and fragmentation of land parcels, disease control measures have been developed to accommodate these features of NI agriculture and minimise disease risk accordingly.

Several cattle groups with possibly different owners, may be maintained in such a manner that contact exists that will increase the risk of disease spread. These groupings may range from routine and permanent to the transitory. Each herd will have a unique herd number and identified keeper.

When cattle have such contact, the herds will be termed “associated” and recorded on APHIS (Animal and Public Health Information System, the DARD real-time computer database) and, significantly, will be subject to the same level of status, movement control and epidemiological investigation as the group with the lowest status. Any movement restriction and status will remain until all component parts of the herd have completed any required restriction, testing etc. regime and herds may not be disassociated until all have regained Officially Tuberculosis Free (OTF) status.

Disease statistics record each herd separately, therefore an epidemiological episode at one holding with several associated diseased herds will be recorded as several episodes.

Farm fragmentation is a considerable feature of cattle agriculture in NI, including the temporary leasing of land for summer grazing. Parcels of land remote from the home farm, no matter the distance or ownership, are regarded as part of the holding and are subject to identical restriction and epidemiological investigation as the rest of the holding.

1995- Present, Recent Disease Trends

The period of the late 1990s saw, as a trend, a steady increase in herd incidence, to a peak in 2002/2003. Since 2004 there was a steady trend in reducing herd and animal incidence until 2007. Since then the trend has remained reasonably level until late 2011, when there was an unanticipated upturn in incidence.

Note that NI had an FMD episode during 2001 during which there was a suspension of both routine farming practices and routine tuberculin testing. See Figs 5& 6

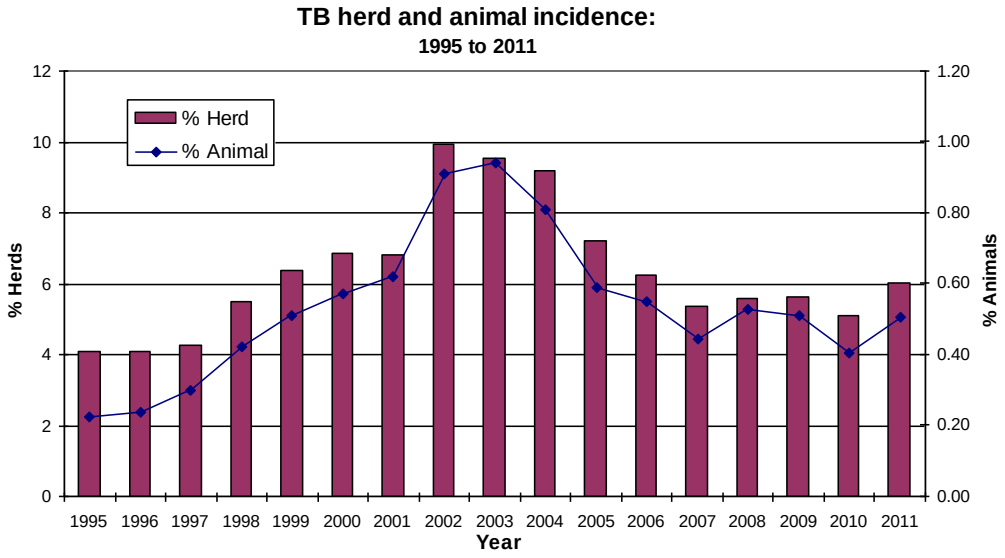


Fig. 5

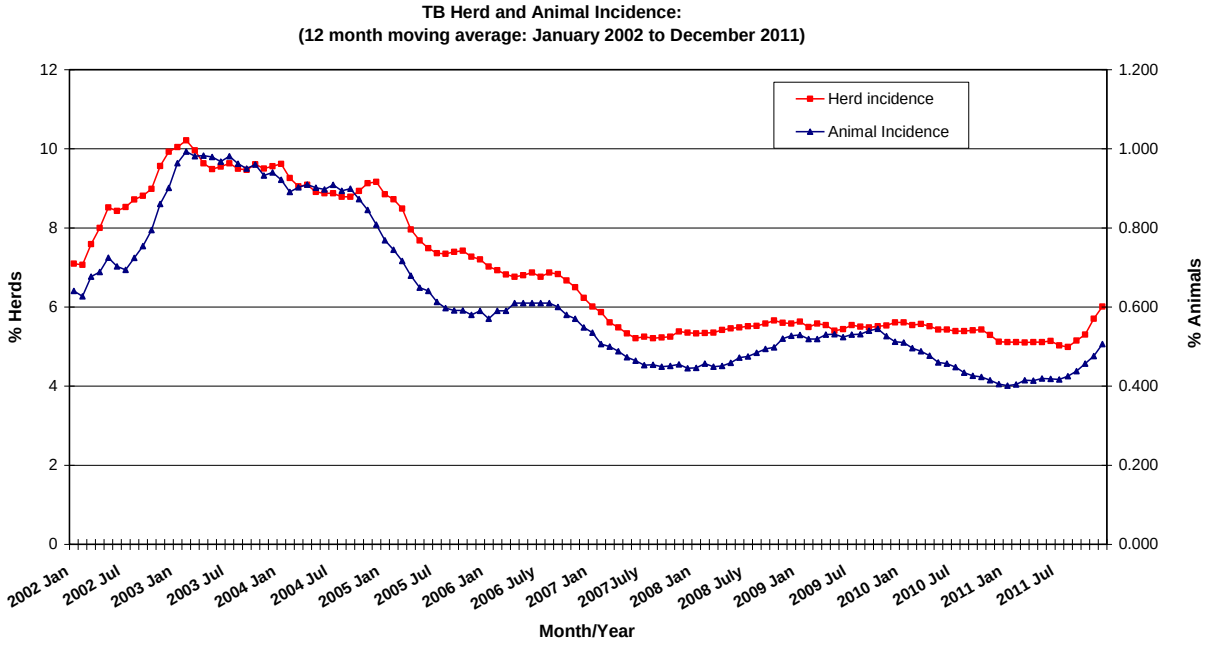
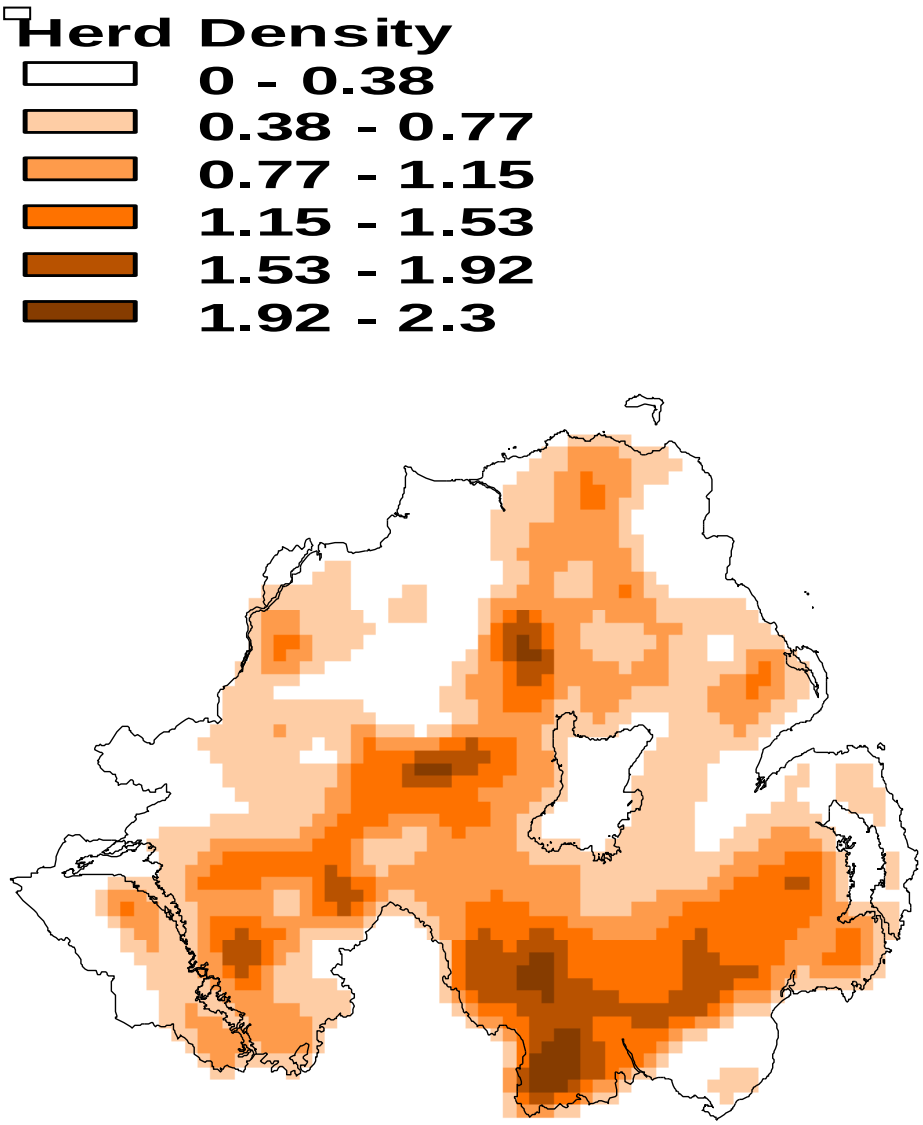


Fig 6

Although breakdowns are distributed throughout NI, traditionally the preponderance of infection has been in the southern parts of NI. Reasons for this are presently unclear: spatial analysis has demonstrated that the concentration of infection in the southern part is not entirely explained by the underlying distribution of herds and cattle. Fig. 7

Fig 7 Herd Density, based on TB-Positive Herds, Cumulative, 1995 to 2004, herds/km^2



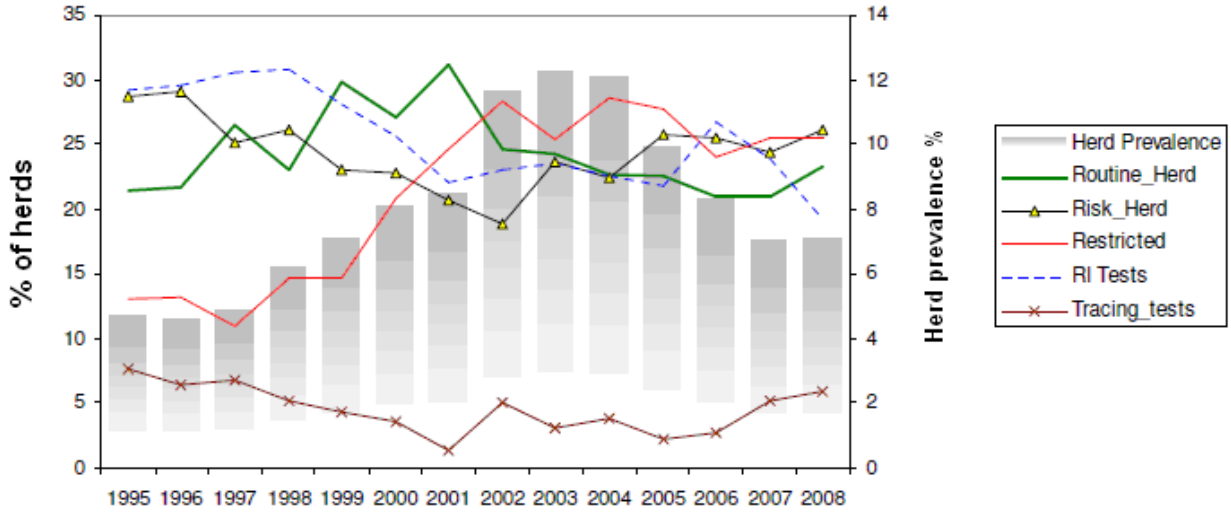
Approximately 80% of reactors are removed under standard interpretation of the Single Intradermal Comparative Cervical Test (SICCT), 14% under severe interpretation, while the remaining 6% are taken using epidemiological data and stricter interpretation criteria. All reactors are removed by government-contracted hauliers to one specific abattoir where they are examined for evidence of TB infection.

TB tests on the APHIS real-time computer database are labelled according to the reason for the test. There are specific test type categories for each type of test, allowing the data to be examined in different ways. One example is the division of tests into routine, restricted, or risk type. "Routine" tests are those conducted in Officially Tuberculosis Free herds where

there is no discernible risk of infection. “Restricted” tests apply to herds with infection, while “Risk” tests are those where cattle have some potential link to infection.

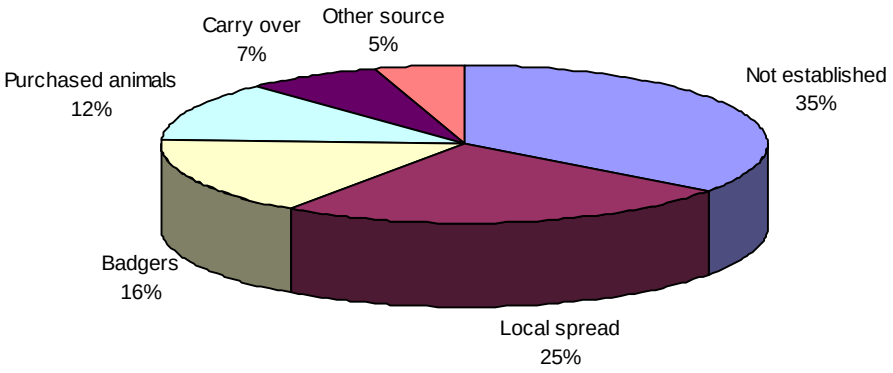
Fig. 8

Graph showing both % test positive herds by test type and % herd prevalence



Contiguous tests are undertaken in herds that are in close proximity to infected herds, usually neighbouring them, and the higher prevalence for both reactors and lesions confirms the importance of this type of testing. This is consistent with the results from epidemiological consideration undertaken by local Veterinary Officers who attribute 25% of breakdowns to “Local Spread” (Figure 9). This is not, however, prescriptive as to the source of the outbreak in that no investigation is undertaken of infection levels or the role of badgers in the outbreak. The badger (*Meles meles*) is a protected species in NI and no culling or disturbance of them, without licence, is permitted. Thus the term “local spread” merely refers to infection being disclosed in a herd that is in proximity to another diseased herd, with little certainty in most cases as to the means of spread.

Fig. 9 Putative Infection Sources Field Recorded (with >80% confidence) cumulative 2002-2010

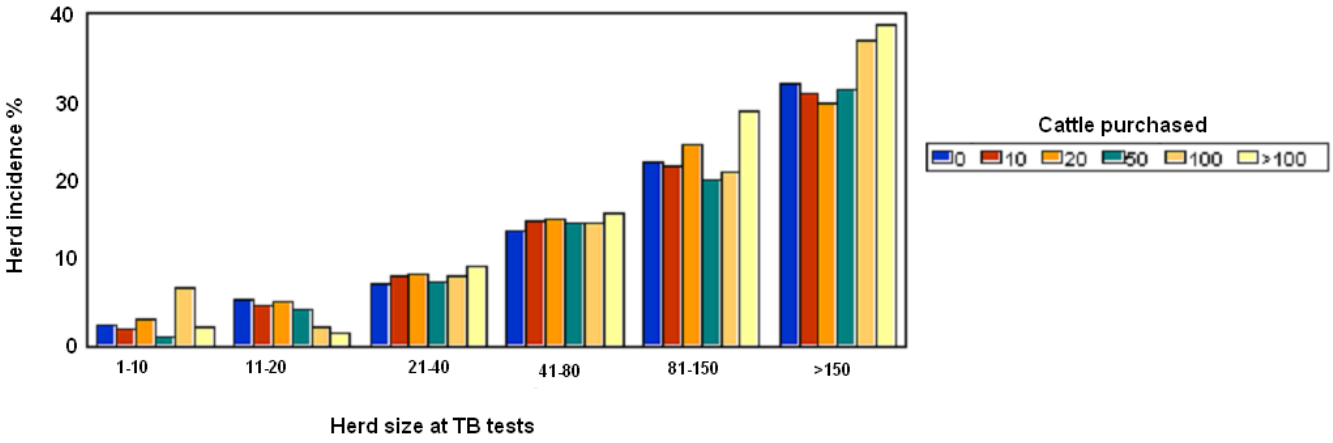


Various factors are thought to have contributed to the rise in disease incidence from 1990 to 2003. These include the following:

- The nature of farming in NI and recent changes therein;
- The role of wildlife, in particular, the Eurasian badger *Meles meles*; and
- Programme-related factors.

The farming industry in NI is traditionally characterised by high movement of cattle between and within herds; small, fragmented farms; and a high dependency on rented pasture ("conacre"). Between-herd movement is a marked feature of the cattle industry and is regulated. In 2000, 563,000 cattle, equivalent to 33% of the national herd, were recorded on the APHIS database as having moved between herds or to markets. Figure 10 shows the risk of a breakdown after adjusting for the confounding effect of herd size. There is a clear increase in risk associated with increased herd size, but the effect of purchases is equivocal in small to medium herds, which comprise the majority of herds in NI. The extent of cattle movement between premises used by a herd – so-called "within-herd" movement - has been the subject of a field study involving a year-long monitoring of all within-herd movements in a random sample of herds. The role of within-herd movement in TB epidemiology is unclear but it is likely that such movement, together with increased stocking densities and the poor economic status of farming in recent years, must play some role in disease maintenance and spread. It should be noted that all fragments of land used by a herd that becomes a breakdown are subject to the same disease control procedures, including those covering lateral risk.

Fig. 10 Risk of breakdown in the period January 2001-August 2002, stratified by the number of cattle purchased in the year 2000



Programme Development

Although the TB Programme has been in existence for many decades, it is not static. It develops strategically in response to disease levels, resource, epidemiological and novel scientific information. To ensure strategic direction is given to the programme a management structure is now in place, comprising of:-

- TB Steering Group – to oversee strategic direction.
- TB Policy Development Group – to develop proposals / manage specific projects.
- TB Programme Delivery Group – to ensure effective delivery of this programme and monitor key performance indicators

  This structure brings together key persons from policy, veterinary and scientific research to give coherence to TB policy development and delivery.

Enhanced management controls with the development of a regularly applied suite of management reports of key performance indicators and routine audits have been established.

These are supplemented by central audit of specific cases including the application of discretion allowed at field level.

A number of Programme critical control points have been recognised and developed into Key Performance Indicators. These are designed to identify if there are areas that need development or resourcing. Parameters are measured monthly and delivery achievement is illustrated in a matrix and overall format.

DARD has in place a robust formal field assessment of delivery of test performance by private veterinarians under the Programme. This monitoring has been extended to those veterinarians and registered technicians directly employed by the Department of Agriculture and Rural Development (DARD in NI).

To strengthen our ability to counter fraud and to establish if a cattle identity has been altered following disclosure of a reactor, DNA sampling for comparative examination may be used.

Routine DNA sampling of reactors is conducted by the application of a DNA identity ear tag at valuation. A tissue sample from the animal's ear is harvested in a tamper-proof container and stored in a freezer. This allows comparison with an animal bearing the same identity presented for slaughter under the Programme, should there be any subsequent query about the identity of an animal. Routine surveillance to cross-check the DNA from an animal at slaughter with DNA of an animal valued has been introduced.

Further extension of this process is underway allowing the harvesting of tissue sample at time of disclosure of test result.

Wildlife

Mycobacterium bovis has been isolated from deer and badgers in Northern Ireland. It has also been isolated from the otter (*Lutra lutra*).

Deer

There are 3 main species of wild or feral deer in Northern Ireland: *Dama dama* (fallow deer), *Cervus nippon* (sika deer) and *Cervus elaphus* (red deer). A proportion of the red deer are enclosed. A survey carried out in 1995, in which deer of the three species were sampled, demonstrated a prevalence of 5.8% (397 deer sampled). A small surveillance exercise carried out in 2009, in which fallow and sika deer were sampled, revealed a prevalence of 2% (146 deer sampled). The low number of deer (less than 3,500 estimated), their restricted range, limited contact with cattle, and the enteric nature of the infection, suggests that their role in the epidemiology of bovine TB is likely to be limited if not entirely insignificant.

Badger

DARD recognises that the involvement of wildlife, mainly badgers, must be addressed if eradication is to be achieved although the extent of the badger contribution to the incidence of disease has not been quantified.

A Badger Stakeholder Group was formed in 2004 in NI, which was tasked with assessing the available information and considering the potential need for a badger management strategy within NI.

Following consideration by the Badger Stakeholder Group of the evidence available from the completion of various extensive trials elsewhere (most notably the Randomised Badger Culling Trial in GB) and the adoption of lethal intervention as a policy to control bovine TB in cattle in another Member State (the Republic of Ireland (ROI)), it was concluded in their report, published February 2008, that no recommendation could be made on the way forward for NI without first undertaking work to gather information specific to the NI situation. The Badger Stakeholder Group agreed that this should include:-

i. a survey of the badger population in NI to determine the number and distribution of badgers,

ii. developing a proposal for a study of the prevalence of bTB infection in badgers,

iii. assessing the available evidence in relation to the role of badgers in bovine TB to inform an appropriate course of action in NI, including whether it is appropriate to run a badger culling pilot,

iv. considering participation in a vaccination trial, and

v. undertaking a cost benefit assessment of the future options for any proposed badger management strategy in NI, once the information arising from the above actions is available.

The assessment of available scientific evidence was conducted in 2008 and it was concluded that there is robust evidence that badgers are involved in the transmission of infection and contribute to the incidence of disease. However, there is little evidence upon which to base an estimate of the magnitude of the badgers' contribution to disease incidence. Evidence that intervention in badger populations is likely to achieve a cost effective overall reduction in disease incidence is weak. It was concluded that there was enough evidence to rule out a proactive cull of badgers as a cost effective means of reducing disease levels in cattle.

Following the completion of the work of the Badger Stakeholder Group, DARD established new arrangements for engaging with stakeholders on all aspects of TB policy. Since summer 2008, the Department has been working in partnership with leaders of key industry and veterinary organisations in the TB Core Stakeholder Working Group to identify more clearly what could be done to move further towards the eradication of TB in NI. Key wildlife interests have been engaged as part of this process. This has been a new partnership approach to this very complex and difficult disease problem. The work undertaken through these new stakeholder arrangements informed the Ministerial statement on the way forward on TB.

In December 2008 the then Minister of Agriculture and Rural Development made a statement outlining the way forward for TB. The long term goal is eradication and, as TB is a complex multifaceted disease, a holistic approach is to be adopted. There are 3 main strands that will be addressed in the strategy, including addressing the wildlife factor. From the wildlife perspective the priority for the first 5 year phase of the strategy will be to pursue the necessary information gathering actions and research to fill the critical knowledge gaps and build the evidence we need to make informed policy decisions about wildlife intervention in NI.

Among the information gathering actions in phase one of the Ministerial TB strategy, each of which will contribute to the evidence required are:-

- undertake a Badger Population Survey (see below, completed 2008)
- progress plans for a Badger Prevalence Survey (see below)
- progress plans for a TB Biosecurity Study to evaluate cattle and badger-related risk factors on both TB infected and clean farms in a TB high incidence area (see below)
- develop plans for a Badger Removal Trial
- support the development of vaccine for badgers (in communication with GB and ROI).

These actions will be subject to the agreement of the Minister for the Environment, where necessary, and to a business case and bids for the substantial additional funding that will be required.

Badger Population Survey

To date, two country-wide surveys have been completed to allow a fuller understanding of the number and distribution of the undisturbed badger population in NI.

The first survey was in 1994. The badger population in Northern Ireland was estimated in 1994 at 38,000 with a mean sett density of 3.51/km^2. It was found that a high preponderance of setts occurs in hedgerows and it was postulated that this increases the proximity of badgers to cattle, and therefore, the potential for inter-species transmission[5].

The second survey was in 2007/2008. The badger population in NI during 2007/2008 is estimated at 33,500 animals in 7,500 social groups giving a mean estimated density of such groups as 0.56 per square kilometre. It was observed that there was a positive association between areas of improved grassland and arable agriculture, and habitat cover. Density was correlated with land class, the highest densities found in drumlin farmland areas and marginal uplands. Due to the prevalence of favourable landscape features, Counties Down and Armagh had the highest density of badger social groups.

Badger Road Traffic Accident Survey

Badgers are a protected species in NI and culling for TB control purposes is not permitted. *Ad hoc* surveys, using badgers killed by cars, have been undertaken in the past but a province-wide survey has been ongoing since the mid 1990's. An interim report has been published which noted the following:

- The prevalence of *M. bovis* in badgers was 17%.
- TB infection is geographically widespread in badgers with no evidence of clustering and no apparent association, *at regional level*, with the distribution of infection in cattle.
- Herds immediately adjacent to infected badger carcases did not have a higher risk of infection compared to those adjacent to TB-negative animals. However, a higher proportion of herds within 3km of a positive carcase had TB compared to those within 3 km of a negative carcase and the difference was statistically significant.

The provisional conclusions arising from the survey was that there did appear to be a link between the distribution of infection in both species, although this did not indicate causality, i.e. direction of spread.

Badger Prevalence Survey

The main aims of this proposed survey are to provide baseline information on the level of *M. bovis* infection in badgers, against which the effectiveness of any possible future intervention (e.g. vaccination, removal, changes in biosecurity or a combination of these) may be measured and to establish the geographic distribution of bTB infection in the species. In addition it is also intended that the Survey will:-

- assess the extent of bias in the Road Traffic Accident survey;

[5] Feore S.M. (1994) The distribution and abundance of the Badger *Meles meles* in Northern Ireland. PhD thesis. Queens University of Belfast.

- assess the association between *M. bovis* strain types in badgers and cattle through strain typing;

- estimate the within-sett prevalence in badgers;

- assess the efficacy of diagnostic blood tests for TB in badgers;

- determine *M. bovis* lesion and infection distribution in badgers; and

- gather more information on the number and spatial distribution of badger setts across NI building upon work already undertaken.

While an Economic Appraisal for the Badger Prevalence Survey was approved by the Department of Finance and Personnel (DFP) in December 2009, this may have to be revisited as potential cost increases are likely. In addition, the outcome of legal challenges to proposed badger interventions elsewhere in the UK must be clarified before any decision is taken on how best to proceed in NI.

TB Biosecurity Study

A TB Biosecurity Study was conducted in a TB high incidence area in Co. Down. The Study is designed to compare farm characteristics in both herds that have recently had a TB breakdown and those that have had no recent history of a breakdown in this TB high incidence area. Consideration of selected cattle and wildlife risk factors are key elements of this research. As well as establishing relevant farm business information, a survey of on-farm buildings and a farm boundary survey was carried out. Radial badger sett survey work on and around the main farm buildings of participating farms was also undertaken. The findings of the Study should be available later in 2012. The conclusions will inform evidence-based biosecurity advice to be provided to livestock farmers and will inform policy decisions.

Other evidence gathering projects

DARD was successful in securing an additional £4million for TB Research and Wildlife Studies and some research projects have already been commissioned with other projects to follow. A fundamental analysis of DARD's use of the gamma-interferon (IFN-g) test in its TB Programme is already underway as is a Badger-Cattle Proximity Study using data loggers, GPS positioning technology and fixed location camera to assess badger-cattle and cattle-cattle interactions of (a) farm yards and feedstores, and (b) pasture in a TB high incidence area. The review of the gamma interferon blood test is to ensure that DARD is making the best use of it in the TB programme.

In addition, an International Vaccination Experts' Scientific Symposium is planned to take place in NI in May 2012 to consider the potential of vaccinating one species (badger) to effect a reduction of disease in another (cattle); how best to maximise the effectiveness of this tool etc. The objectives for this symposium are to identify and evaluate factors that may determine the effectiveness of a TB vaccination strategy in wildlife, particularly the Eurasian badger, which will result in a reduction in bTB incidence.

A review into the effect slurry spreading may have on transmission of TB will be conducted to establish 'the role of slurry in spreading TB and whether it should be treated or disinfected prior to spreading'.

Also a fundamental analysis of DARD's use of Variable Number Tandem Repeat (VNTR) strain typing of TB has been commissioned with the aim of informing how best the technology may be deployed to provide practical benefit to the TB Programme.

In addition, a project to investigate the risk factors for herds with persistent and/or chronic infection in order to further reduce disease in those herds will be undertaken.

DARD continues to develop collaborative links with work ongoing in England and ROI regarding the development and trialling of vaccines for bovine TB in badgers. Vaccines developed for badgers may be the most feasible solution in the long term. NI continues to learn from experiences in other regions of the UK. For example, NI is learning from Scotland as to how they attained official TB free status; from Wales as to their Intensive Action Area and badger vaccination proposals; from England as to their Badger Vaccine Deployment Project and from their commitment to develop affordable options for a carefully-managed and science-led policy of badger control in areas with high and persistent levels of bovine TB in cattle; and from the ROI as to their badger vaccine development and deployment. We are also interested to see how the Welsh and English badger control strategies evolve and are implemented and whether they successfully withstand legal challenge.

DARD continues to work in partnership with the NI Agri-Food and Biosciences Institute (AFBI) to establish critical knowledge gaps in relation to TB and to identify and explore further research and development options that would complement and assist current research. AFBI and DARD's Veterinary Epidemiology Unit (VEU) conducted a number of literature reviews to identify and fill our critical knowledge gaps in relation to bovine TB generally and also to wildlife in particular. The TB literature reviews being carried out by AFBI were: (i) cattle to cattle transmission; (ii) badger to cattle transmission; (iii) cattle bTB tests and effective deployment; and (iv) bTB tests in badgers. DARD's VEU conducted a literature review on badger vaccines.

Decisions will be made later in 2012 on which additional TB Research and Wildlife Studies will be commissioned over the next 3 years.

Wildlife Advice

Herdkeepers, both during a disease episode and as part of a broader biosecurity education programme, are given advice, both oral and written, on non-lethal biosecurity measures to adopt to reduce potential contact between infected wildlife and cattle. All herdkeepers are sent an advisory booklet on biosecurity including this advice (see web link below)

http://www.dardni.gov.uk/biosecurity-code-booklet

In conclusion, DARD is taking an evidence based approach to the wildlife strand of its TB strategy, the outcome of which will be informed policy decisions on wildlife intervention in NI.

Programme Related Factors

During the last 15 years, NI has experienced a Newcastle Disease epidemic (1997), Foot and Mouth Disease epidemic (2001) and BSE. All 3 diseases, but particularly BSE due to the long duration, have resulted in re-prioritisation and diversion of resources for varying periods. Although the effect of these diseases on TB prevalence is difficult to determine or define, they are likely to have had a negative impact.

3. Description of the submitted programme[6]:

The targets:

Ministerial Direction

- In 2008, the then Minister of Agriculture and Rural Development made a statement that confirmed that the aspiration of the policy remains the eradication of bovine TB, and recognised the necessity of taking a phased strategic approach. Fundamental to the achievement of this aspiration is the recognition that it is necessary to take a holistic view, seen as a three-stranded approach to (1) control cattle to cattle spread, (2) address any wildlife component, and (3) create a partnership with the agricultural industry in the delivery of the strategy. The first period of five years will, through partnership working with an established core group of stakeholders, lay the foundations for future phases. Early goals are to maintain compliance with EU legislative requirements and produce more effective and efficient ways to reduce transmission from both cattle and wildlife.

DARD strategy and aim for bovine TB control in cattle in NI are contained within three published documents.

a) DARD Strategic Plan 2006-2011

Goal 3 : "to enhance animal, fish and plant health and welfare"

b) DARD Business Plan 2011-2012

2011-12 Targets

[6] A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence), the main measures (sampling and testing regimes, eradication measures to be applied , qualification of herds and animals, vaccination schemes), the target animal population and the area(s) of implementation and the definition of a positive case.

"achieve and maintain annual EU approval for the NI TB Eradication Programme"

b) DARD Veterinary Service Business Plan 2010/2011:

A key objective in this business plan, contributing to Goal three of the DARD Strategic Plan 2006-2011, is to

"Eradicate or considerably reduce the level of animal diseases that have public health or economic importance".

Plans for 2012 and beyond are due shortly. There will be no reduction in the commitment to address animal diseases.

Control Procedures

NI bTB presents a distinct epidemiological picture to that in GB and it has had a separate control programme since the inception of controls. It therefore has a distinct and stand-alone NI TB Eradication Plan 2013, presented under the auspices of the UK Plan.

Current Procedures

(a) DARD has a surveillance, compulsory removal and compensation programme. Surveillance is organised in two fully integrated approaches: PME; and live surveillance.

(b) All animals slaughtered for human consumption undergo Post Mortem Examination (PME) as required by Council Directive 64/433 EEC. All such PMEs are completed by DARD staff. Results are available on APHIS immediately. Full integration allows immediate action to be taken by field staff, such as suspension of trading status, movement controls applied and further epidemiological measures to be instigated. Further laboratory investigations pursuant to PME findings are also fully integrated, ensuring continuity of information and security of actions. Such further investigations are carried out by the Agri-Food and Biosciences Institute (AFBI) Veterinary Sciences Division (VSD) laboratory, with full integration of results on APHIS. This surveillance approach includes the population of animals at routine slaughter and the population of reactor animals removed under the programme. AFBI is a DARD sponsored non-departmental public body.

(c) Live animal surveillance is undertaken using three methods.

- Export certification uses the Single Intradermal Test and interpretation as required by CD 64/432 EEC. Results are recorded on APHIS.

- Herd and animal testing, outside export certification as above, uses the single comparative intradermal tuberculin test (SCITT) as described in CD 64/432 EEC. Results are recorded on APHIS. More severe interpretation of the SCITT results

is used where considered epidemiologically necessary, and in any case where disease is confirmed.

- Gamma interferon assay as described in CD 64/432 EEC (as amended by Regulation 1126/2002 EC) is used where considered epidemiologically necessary. It is always used as a supplementary test to the SCITT in these situations. Results are recorded on APHIS.

  All skin testing is carried out by DARD veterinarians, DARD registered technicians, DARD approved private veterinarians contracted to do so either by DARD in the case of surveillance or by the herd keeper for export certification.

  DARD registered technicians are personnel directly employed by DARD to under undertake tuberculin testing for disease control. A small number (3) have undergone extensive training, supervision and examination before registration.

  All herds in NI at all times are allocated an OT herd status, a herd status reason, and a next test type. The herd status may only be officially tuberculosis free (OTF), officially tuberculosis suspended (OTS), or officially tuberculosis withdrawn (OTW). These statuses are as defined in CD 64/432 EEC. In addition to CD 64/432 EEC requirements, where any herd in NI discloses more than five skin reactors without regard to confirmation, or where considered otherwise epidemiologically prudent, the herd is made OTW. The status reason describes the specific details of why the herd has the status allocated. The next test type describes the test that is set and best describes the test type requirement.

  Movement control from all herds, at all times, is controlled by a combination of the herd status and status reason applicable to the herd. As all movements must be recorded on APHIS, including those to market and abattoir, immediate movement control is applied.

(d) All herds in NI are tested annually as a minimum. All animals over 6 weeks of age must be presented for test in OTF herds. Failure to test results in the OTF status being suspended immediately in all cases. Therefore NI is fully compliant with CD 64/432EEC in that any herd that has not been subject to an annual test loses OTF status immediately. Further delay in testing will result in automatic increased movement sanctions and downgrading the herd status to OTW.

(g) Herds may also undergo increased frequency of testing. This is in accordance with CD 64/432 EEC where a herd is suspected of being diseased or had disease confirmed. In addition, herds may be subject to increased testing frequency where epidemiological investigations disclose an increased disease risk, such as tracing or contiguity. For example, some 26.8% of herds in NI had more than one TB test in 2011.

(h) Animals may not move out of a herd during performance of a test except, with the permission of the competent authority, directly to slaughter in NI.

(i) There are no exemptions to the above testing programme at either animal level or herd level.

4. Measures of the submitted programme

4.1. Summary of measures under the programme

Duration of the programme: A voluntary Tuberculosis (attested herd) scheme was introduced in 1949 and in 1959 compulsory Tuberculin Testing was introduced. This programme has been constantly applied and developed since.

The table below details the history of testing bovines for Tuberculosis in Northern Ireland.

Duration of the programme:

First year:	Last year:
□ **Control**	□ **Eradication**
□ **Testing**	□ **Testing**
□ **Slaughter of animals tested positive**	□ **Slaughter of animals tested positive**
□ **Killing of animals tested positive**	□ **Killing of animals tested positive**
□ Vaccination	□ **Extended slaughter or killing**
□ Treatment	□ **Disposal of products**
□ **Disposal of products**	
□ Eradication, control or monitoring.	□ **Other measures *(specify)*:**

All cattle in NI routinely slaughtered for human consumption receive a post-mortem inspection in EU approved establishments. All lesions suggestive of TB are sampled and forwarded to AFBI for appropriate laboratory analysis. All information obtained is passed to the field veterinarian responsible for the farm of origin of the slaughtered animal. This transfer of data is in realtime and fully integrated on APHIS.

4.2. Organisation, supervision and role of all stakeholders[7] involved in the programme:

The Veterinary Service of the Department of Agriculture and Rural Development (DARD in NI) is the designated Competent Authority for the control of bovine tuberculosis in NI under Council Directive 64/432/EC.

[7] Describe the authorities in charge of supervising and coordinating the departments responsible for implementing the programme and the different operators involved. Describe the responsibilities of all involved

Policy responsibility in DARD lies with the Animal Health and Welfare Policy Division which is part of the Central Policy Group. Delivery responsibility belongs to Veterinary Service, with Veterinary Service Headquarters managing compensation payments and contract management.

A TB HQ Team has a range of functions including monitoring of the programme, project management, change management and the provision of veterinary advice. Veterinary Service Field side is divided into 10 areas, called Divisions, which are further subdivided into patches. Each Patch has a nominated Veterinary Officer. Field staff involved in tuberculosis control are: administrative staff, Veterinary Officers, Animal Health and Welfare Inspectors and Valuation Officers.

A DARD Veterinary Epidemiology Unit, an Enforcement Unit, and other specialist advice is available as required in the programme.

PME surveillance and sampling is undertaken in abattoirs. All such examination and sampling is conducted by DARD staff. Reporting is direct and immediate through APHIS.

TB testing is undertaken only by DARD approved Veterinary Surgeons, using the Single Comparative Intradermal Tuberculin Test (SCITT) for internal control. Most testing is carried out by PVPs under contract to DARD but the Department also uses contract-based specialist veterinarians, VOs or registered technicians in specific instances.

Herdkeepers nominate a PVP for tests that are not directly completed by DARD. All PVPs must be DARD approved to TB test.

Approval of testing veterinarians requires the completion of field training, field practical examination and attendance at a training seminar. PVPs and directly employed TB testers are subject to routine audit of performance. This includes audit of technical application of the test under field conditions.

Laboratory testing for tuberculosis control is currently carried out at Veterinary Sciences Division, part of the Agri-Food and Biosciences Institute (AFBI).

Herdkeepers are legally obliged to notify suspicion of the disease and present all animals for testing as required. Any interference with testing or control measures is an offence.

4.3. Description and demarcation of the geographical and administrative areas in which the programme is to be implemented[8]*:*

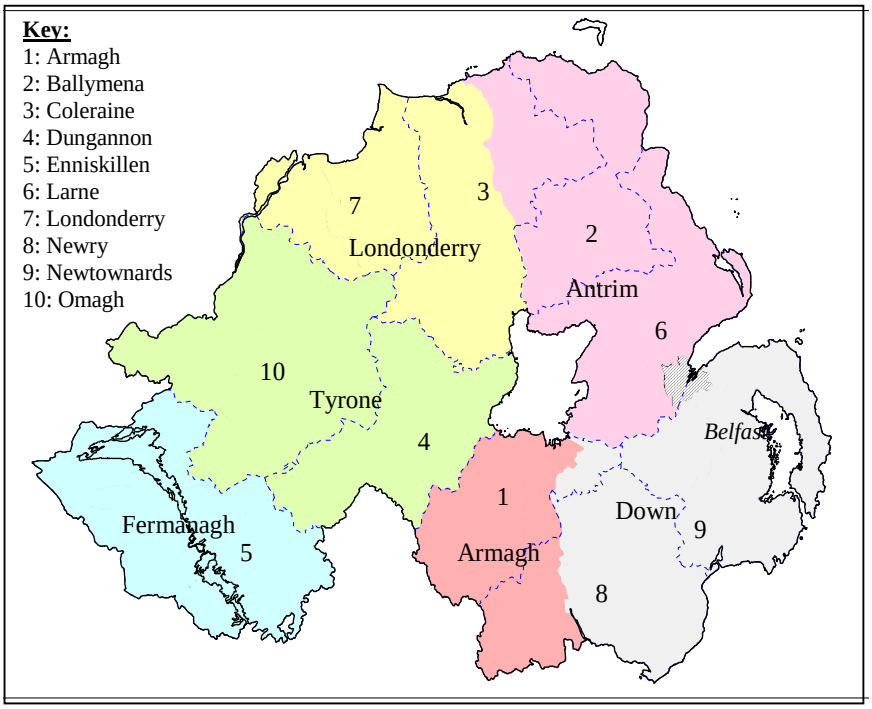
For DARD Veterinary Service purposes, NI is divided into 10 administrative regions, each with a Divisional Veterinary Office. The regions are sub-divided into "patches", each managed by a veterinary officer (VO) supported by a team of technical officers. All are subject to common direction from DARD Headquarters through staff instructions and IT development. A centralised live animal health database ("APHIS"), incorporating an animal movement and test management system, is used for all aspects of TB disease control. APHIS

[8] Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

capability is used to administer between-herd movement of cattle, captured using a movement notification system and permissible movement matrix, facilitated by input at markets, abattoirs and directly via the internet to herdkeepers. It facilitates management of herd-level and animal-level tests, with results recorded at animal level.

Entry of test results is virtually exclusively by direct link with the testing veterinarian via a web based system onto APHIS. Abattoir and laboratory results are similarly reported immediately on APHIS.

Fig 11: Illustration of Divisional Veterinary Office areas and Counties in Northern Ireland



4.4. Description of the measures of the programme[9]*:*

4.4.1. Notification of the disease:

Notification may arise from:

- Declaration of a suspect clinical case
- Disclosure at an abattoir of a suspect TB lesion at routine slaughter
- Disclosure of a non-negative skin test result

The herd is declared OTS until the results of confirmatory tests, PME, other epidemiologically relevant information, or more than 5 skin reactors, requires the herd to be declared OTW.

[9] A comprehensive description needs to be provided of all measures unless reference can be made to Union legislation. The national legislation in which the measures are laid down is also mentioned.

4.4.2. Target animals and animal population:

The programme extends to the entire region of NI. All animals except those that are less than 6 weeks old and retained in their natal herd are required to be routinely tested for TB in NI. All animals are required to be tested in restricted herds.

Current Demographics

There are currently 1.6 million cattle in NI, distributed among 20,500 farm businesses with cattle (June 2011). Dairy cows make up 18% of the national herd while beef cows account for 17%. Based on cattle TB tested in herds, the mean herd size has increased from 56 cattle in 1990 to 78 in 2011, an increase of 39%. However, the data are strongly skewed to the right and the median was 38 for all TB herd tests in 2011. Over half of herds (58%) in Northern Ireland have fewer than 50 cattle.

There are no exceptions to control measures for sporting or cultural animals.

4.4.3. Identification of animals and registration of holdings:

All cattle herds in NI are registered with the central authority and each has been allocated a unique herd number to facilitate tracing of animal movements. All registered premises are recorded on a central computer database (APHIS). Full details of the testing programme are maintained on the database.

Under Council Regulation (EC) No 1760/2000 cattle are identified by means of a unique identification number authorised by DARD. All cattle born after 1 January 1998 are identified with an ear tag in each ear bearing the same unique identification number, which will remain with the animal throughout its life. All cattle born after 1 January 2000 must be tagged using the new all numeric tags.

Each animal's test results and movement details are held and are readily accessed on a computer database (APHIS). Epidemiological investigation and full tracing procedures in compliance with Council Regulation 1760/2000 are instigated following the detection of a diseased animal.

4.4.4. Qualifications of animals and herds[10]:

All herds in NI at all times are allocated an OT herd status, a herd status reason, and a next test type. The herd status may only be officially tuberculosis free (OTF), officially tuberculosis suspended (OTS), or officially tuberculosis withdrawn (OTW). These statuses are as defined in CD 64/432 EEC. In addition to CD 64/432 EEC requirements, where any herd in NI discloses more than five skin reactors without regard to disease confirmation, or where considered otherwise epidemiologically prudent, the herd is made OTW. The status reason describes the specific details of why the herd has the status. The next test type describes the test that is set and best describes the test type requirement.

OTW status is applied to a herd where:

- Disease is confirmed by PME and/or laboratory procedures.

[10] To mention only if applicable.

- When disease has not been confirmed, OTW status is applied where a Veterinary Officer has considered it to be epidemiologically prudent, for example recent movement out of a herd of an animal that is disclosed as a reactor in another herd. This decision is at the discretion of the patch VO and will be based on their knowledge of the breakdown, the area, and any other relevant epidemiological evidence available to them.

- In any case, where there are more than five reactors disclosed at a skin test OTW status is routinely applied.

OTW status is removed from a herd where

- Two consecutive clear herd skin tests have been completed in accordance with CD 64/32 Annex A (3B), and

- Cleansing and disinfection procedures are completed as required. All OTW herds (due to disease) in NI are subject to DARD cleansing and disinfection inspection. No such herd will regain OTF status unless cleansing and disinfection is inspected and is approved.

OTS status is applied to a herd where:

- A suspect tuberculous lesion is disclosed at abattoir.

- Disclosure of an inconclusive reactor.

- A herd test is overdue.

- 5 or less reactors are disclosed at a test, with no PME or laboratory confirmation.

- And when, in the judgment of the patch VO, there is no over riding epidemiological reasons to apply OTW status (see OTW, above).

OTS status is removed from a herd where

- The Veterinary Officer is content that there are no epidemiological factors that indicate the herd status should be retained or made OTW (see OTW above)

- Testing is completed in accordance with CD 64/432 Annex A (3A)

  or, where applicable,

- The inconclusive animal is resolved by testing or slaughter with negative PME and laboratory results.

- Cleansing and disinfection procedures are completed as required. All OTS herds (due to disease) in NI are subject to DARD cleansing and disinfection inspection. No such herd will regain OTF status unless cleansing and disinfection is inspected and is approved.

4.4.5. Rules on the movement of animals:

In accordance with Council Regulation EC No 1760/2000 all calves born after 1 January 1998 must be identified with an ear tag in each ear within 20 days from the birth of the animal. All cattle identification numbers are authorised by DARD and recorded on the Animal and Public Health Information System (APHIS) computer database so that no duplication should be possible. The birth of a calf must be notified to the Department within 7 days of tagging, 27 days of birth and in any case before the animal leaves the holding of birth. All herd keepers must maintain a register of cattle born or moved into the herd. The register must show the identification number of the animal and details of replacement tags/retags. Herd keepers must also record in their register the colour, breed type, sex, date of birth and the dam's identification number (for animals born in their herd). Their register must also show the date and means of acquisition of stock, the date of movement off the holding, the address of premises to which the animal moved, or if it has died, the date and manner of disposal. These records must be retained for 10 years. From 1 January 2000 the movement permit system was replaced by movement control documents requiring a producer to notify the Department within 7 days of an animal either leaving or arriving on his/her farm. Markets are required to notify movements on and off to the Department by the end of the next working day. However, in the case of a restricted animal the producer is required to obtain a movement licence from the Department in advance of moving the animal out of his/her herd. All movements are recorded and can be traced on APHIS. All stock on farms are checked against official records at Cattle Identification Inspections, and Tuberculosis and Brucellosis herd tests which occur at least annually, and when presented at markets or slaughterhouses**.** Discrepancies between the description of the animal and the details recorded on APHIS are investigated. If the discrepancy is not satisfactorily resolved a status is placed against the animal on APHIS which restricts its movement. Where the identification and traceability of an animal cannot be established at point of slaughter, the carcase will be removed from the human food chain. In the field, where the disease status of an animal cannot be clearly established from the database, the animal will be isolated and tested.

Herds with either OTS and OTW status applied are both subject to movement restrictions immediately. This is controlled through APHIS.

NI does not permit movement out of OTS or OTW herds unless direct to slaughter within NI. NI does allow live movement within the MS from herds where OTS status is applied due to an unresolved inconclusive animal where no history of BTB within three years (as per derogation under CD 64/432 Annex A 3.A (d))

NI allows movement into OTS or OTW herds except where the official veterinarian considers it epidemiologically prudent to prohibit such movements and, in any case, if there is delay in testing.

A matrix of movement restrictions is applied that is relevant to the status and status reason applied to the herd.

OTW status movement

- No live animal movements out except directly to slaughter in NI.

- Note: the movement restrictions described above may, where considered epidemiologically necessary, be increased to prevent any movement off farm even to direct slaughter or cease movement onto farm.

OTS status movement

- No live movement out except directly to slaughter in NI.

- Note: OTS herds with the status reason "RI (inconclusive) but no TB confirmed within three years" are derogated under CD 64/432EEC Annex A 3.A(d) to allow local live movement within UK. However, animals from the herd or those that have originated in the herd since the last clear herd test are not allowed to be exported to another MS.

- Note: the movement restrictions described above may, where considered epidemiologically necessary, be increased to prevent any movement off farm even to direct slaughter or cease movement onto farm.

There are no herds of unknown status in NI as all herds have a testing history. New herds may only purchase from OTF herds and as a result the status of the animals added to a new herd is known.

Overdue Tests:

Where a test becomes overdue, increasingly stringent movement controls are applied routinely as below:

- Immediately overdue, no live moves to market, export, or other holdings.

- 1 month overdue, no live moves to market, export, other holdings or slaughter. No moves in are allowed except one breeding bull on exceptional licence.

4.4.6. Tests used and sampling schemes:

- The DARD programme comprises surveillance, compulsory removal and compensation for compulsorily removed animals. The surveillance is organised in two fully integrated sections, PME and live surveillance.

- All animals slaughtered for human consumption undergo PME as required by CD 64/433 EEC. All such PMEs are completed by DARD staff. Results of PME are available on APHIS immediately. Full integration allows immediate action to be taken by field staff, such as suspension of trading status, movement controls applied and further epidemiological measures to be instigated. Further laboratory investigations pursuant to PME findings are also fully integrated, ensuring continuity of information and security of actions. Such further investigations are carried out by AFBI, (a DARD sponsored non-departmental public body) with full integration of results on APHIS. This surveillance includes both animals at routine slaughter and reactor animals removed under the programme.

Live animal surveillance is undertaken using three methods.

- Export certification uses the SIT test and interpretation as required by CD 64/432 EEC and may only be performed with the express permission of DARD. Results are recorded on APHIS.

- Herd and animal testing outside export certification uses the SCITT as described in EC 64/432 EEC. Results are recorded on APHIS. More severe interpretations of the SCITT results are used where considered epidemiologically necessary at the discretion of the patch VO, and in any case where disease is confirmed.

- Gamma interferon testing as described in CD 64/432 EEC is used where considered epidemiologically necessary. It is always used as a supplementary test to the SCITT in these situations. Results are recorded on APHIS.

Inconclusive SCITT Results:

In NI, animals are allowed one skin test with an inconclusive result without compulsory removal.

A non-negative result at a second consecutive test results in mandatory removal as a reactor animal.

Herdkeepers may be advised to slaughter the animal at any time during this period.

At a restricted herd test, where standard and/or severe interpretation may be used for disease control, any animal with an immediate previous inconclusive result is removed as a reactor if the next test result is not negative.

Pre-movement Testing

NI is fully compliant with the current requirements of pre-movement testing under CD 64/432 EEC.

All animals over 42 days are subject to the single intradermal test and interpretation within 30 days of export as required. Otherwise NI avails of the derogation available in CD 64/432EEC Annex A 1.1(c) for intra-MS movements where animals from an OTF herd are not required to be pre-movement tested.

In addition to CD 64/432 EEC requirements, in NI any animal that has not undergone a test outwith a period of 15 months must undergo a pre-movement test before live movement except directly to slaughter in NI.

Supplementary Testing

CD 64/432 EEC at Annex B Art 3 allows supplementary testing.

In NI these are

- 6 monthly test post regaining OTF status following all OTS or OTW status for disease reasons.
- Lateral check tests of contiguous herds.
- Area testing where considered epidemiologically appropriate.
- Gamma interferon testing.
- Strain typing of isolates.

Gamma Interferon Testing in NI

NI has conducted significant IFNg testing in advance of EU approval of supplementary tests. In 1990s approximately 100,000 cattle were IFNg tested in NI. Review of the results of this extensive trialling concluded that the test was best employed as a supplementary test to the skin test.

At present IFNg testing is available to herds throughout NI where it is considered by DARD that the supplementary test will remove diseased animals more rapidly in the disease process and thereby increase the speed of resolution.

Herds currently selected are those with recent confirmed disease or confirmed lesion at slaughter following a recent negative skin test. Herd keepers with IFNg positive animals that are skin negative are offered compensation. Participation with the IFNg test programme element is voluntary.

Research continues to allow further development of the assay under field conditions and the test application is kept under review.

Strain Typing of Isolates

Since 2003 VNTR (Variable Number Tandem Repeat) has been used to strain type each breakdown episode, with all cultured reactors strain typed since mid 2009. This information is available to VOs to facilitate epidemiological decisions.

Atypical, or Possibly Fraudulent, Results

- Where DARD considers the result of a test to be atypical, or possibly fraudulent, it may conduct further investigations and may, as a result, consider the result of the test null and void.

- Such results may be suggested, inter alia, by test history, veterinary observation or epidemiological information.

4.4.7. Vaccines used and vaccination schemes:

The TB Control Order (Northern Ireland) 1999 prohibits vaccination of cattle against bovine tuberculosis in NI.

4.4.8. Information and assessment on bio-security measures management and infrastructure) in place in the holdings involved:

All herd owners in Northern Ireland have been issued with the DARD production "Biosecurity Code for Northern Ireland farmers and guidance for official visitors to farm properties and recreational users of farmland." This book describes the reasons for having a code, legal requirements, notifiable disease and reducing risks of allowing disease on to premises.

Veterinary Service officials advise herdkeepers on movements and segregation of cattle in breakdown premises, particularly in relation to preventing spread of disease to contiguous herds. Movements of personnel and equipment that have the potential to carry disease are investigated and appropriate biosecurity advice given. Herds contiguous to breakdowns also receive biosecurity advice.

4.4.9. Measures in case of a positive result[11]:

Immediately a notification of suspect TB is made to a local DVO, the herd OTF status is removed.

This notification may arise from:

- Declaration of a suspect clinical case.
- Disclosure at an abattoir of a suspect TB lesion at routine slaughter.
- Disclosure of a non-negative skin test result.

The herd is declared OTS until the results of confirmatory tests, PME, other epidemiologically relevant information, or more than 5 skin reactors, requires the herd to be declared OTW.

OTS and OTW herds are both subject to movement restrictions immediately. This is controlled through APHIS.

A matrix of movement restrictions is applied that is relevant to the status and status reason applied to the herd.

NI does not permit movement out of OTS or OTW herds except directly to slaughter in NI. However, where a herd has OTS status due to an unresolved inconclusive with no history of bTB within three years, NI avails of the derogation in CD 64/432 Annex A 3.A (d), where intra MS movements are allowed.

Relevant laboratory tests are established and reported via APHIS.

The test regime is modified on APHIS.

The test, if applicable, is interpreted by the patch VO who may remove test negative animals considered at epidemiologically increased risk. This may include full herd depopulation if considered necessary.

Removal procedures are immediately instigated, including the legal requirement to immediately isolate the diseased animal(s). Isolation advice specific to the circumstances is given by the official veterinarian and enforced by legal notice. Compliance breaches may lead to enforcement action.

All reactors are removed by DARD subcontracted hauliers for immediate slaughter to a designated slaughter house.

[11] A description is provided of the measures as regards positive animals (description of the slaughter policy, destination of carcasses, use or treatment of animal products, the destruction of all products which could transmit the disease or the treatment of such products to avoid any possible contamination, a procedure for the disinfection of infected holdings, the therapeutic or preventive treatment chosen, a procedure for the restocking with healthy animals of holdings which have been depopulated by slaughter and the creation of a surveillance zone around the infected holding,).

Where the welfare of the animals precludes live removal, it may be euthanized on farm. PME is available where confirmation of disease in the episode has not yet been established or where otherwise considered epidemiologically necessary by the patch VO.

Following a confirmed TB breakdown (OTW) adjoining at risk herdkeepers are alerted and their herds are allocated a contiguous herd test (Lateral Check Test, LCT), where considered appropriate following a veterinary risk assessment. If the test is not completed on time, these herds are downgraded to OTS and movement restricted. They are further tested at regular 4 monthly intervals until the infected herd has been cleared or until no further risk of lateral spread.

Tracing forward of animals that carry a disease risk is carried out. If it is not possible to test the traced animal then a herd level test may be set (Forward Check Test, FCT). Tracing parameters such as putative exposure windows are at VO discretion.

Note: where the traced animal has been exported live, DARD informs DEFRA (UK MS Competent Authority) of the relevant details.

Where VO discretion considers it relevant, the herds from which a TB reactor has originated or moved through are tested. These backward traced herds are downgraded to OTS or OTW until testing is completed.

A notice requiring cleansing and disinfection as the patch VO considers necessary is served and, on completion, the herdkeeper is required to notify the Divisional Veterinary Office. Advice on cleansing and disinfection is given by the VO at a farm visit and in writing, including a list of Approved Disinfectants. Completion of cleansing and inspection is inspected by DARD staff. No such herd will regain OTF status unless cleansing and disinfection is inspected and is approved.

Specific advice on the breakdown epidemiology, public health and improvement of biosecurity is given directly by the patch VO to the herdkeeper. In addition, written advice is provided.

Case conferences may be held to avail of specialist knowledge, such as advice from the Veterinary Epidemiology Unit or AFBI, where the patch VO considers it necessary.

The option exists to depopulate either fully or partially any herd when it is considered epidemiologically necessary by the DARD field veterinarians.

In the case of total herd depopulations the following action is taken:

- No animals are allowed to move into the premises for 60 days following the depopulation.
- A full Cleansing and Disinfection is required after depopulation.
- The herdkeeper is advised of the control of risk from slurry.
- Two months after re-stocking a TB test is required. If this test occurs within a year of the breakdown it is classed as reactor (RH1) test. If the RH1 is clear the restriction is removed and then a post restriction test (CHT) is set for six months later and an Annual Herd Test set twelve months after the completion of the post–restriction test. If

a farm premises is depopulated for more that 12 months then the restriction is removed at 12 months and the test following the purchase of animals is classed as an Annual Herd Test.

4.4.10. Compensation scheme for owners of slaughtered and killed animals:

Reactor animals and any relevant in contact animals are valued by DARD Valuation Unit on farm prior to slaughter.

Compensation is made at 100% of market valuation directly to the herdkeeper for all classes of animals removed.

Where a herd keeper disputes a valuation, they may seek an independent valuation by an independent valuer from a DARD approved list of valuers.

This independent valuation is not final and binding, and so the herdkeeper or DARD may appeal a valuation to an independent valuation appeal panel.

In any case the animal is removed without delay.

Salvage value is paid to the competent authority.

No consequential loss compensation is made.

4.4.11. Control on the implementation of the programme and reporting[12]:

The Bovine TB Control Scheme in Northern Ireland is run as a programme by the Veterinary Service of DARD. This is led by a Senior Principal Veterinary Officer supported by a dedicated team at HQ. This is supplemented with input from the in-house Veterinary Epidemiology Team and other sources as required. Implementation is primarily in-house at Divisional Veterinary Office level with extensive testing contracted to private veterinary practitioners (PVP).

One of the roles of the Programme team is to improve the delivery of the Programme. This includes Key Programme Performance indicators that monitors, on a monthly basis, progress against targets in the Veterinary Service Business Plan. Audit of decision making by the field staff and case audits of breakdown herds are also conducted.

A further central role is to conduct audit of work carried out by PVPs, assessing the work contracted for against required delivery targets. Some of the monitoring may be done remotely using the APHIS. For example, reactor removal times are closely monitored to ensure meeting of the in-house target that is set at less than EU requirement, and notification times for test results. Further, specialist teams of audit Veterinary Officers conduct field test

[12] Describe the process and control that will be carried out in order to ensure the proper monitoring of the implementation of the programme.

audits. This includes audit of the test procedure in the field. Failure to comply fully with contractual requirements will attract sanctions as described in a formal protocol.

Detailed disease statistics are published monthly at http://www.dardni.gov.uk/index/dard-statistics/animal-disease-statistics.htm

5. Benefits of the programme[13]:

The main benefits of the TB programme are indicated below.

The overall benefit to the NI farming and processing sectors is that the TB programme has been successful in reducing TB in cattle and in supporting trade in live cattle and products. The export trade in cattle, beef, milk and by-products, which was worth £1,269.4m here in 2010, is dependent on the effective implementation of the programme.

This figure is made up as follows:

live cattle exports	- £17.0m (including to GB)
animal by-products other animals	- £18.6m (including to GB) cannot separate cattle data from
beef and sheep meat	- £696.7m (including to GB) cannot separate data
milk and milk products	- £537.1m (including to GB)

The vast majority of herds in NI are able to participate fully in export trade because of the programme. In the absence of an effective programme, access to export markets would not be possible. Maintenance of a programme continues to be essential to provide the guarantees necessary to enable NI cattle and their products to access EU and third country markets.

Trade in live animals is governed by Directive 64/432. Bovine animals for export to another MS must originate from an OTF herd and have been submitted to a pre-movement test for TB.

Trade in milk is governed by Council Directive 2004/41/EC and by Regulation 2004/853/EC which establish that milk originating from herds that do not have OTF status must be heat-treated and that milk from animals showing a positive reaction must not be used for human consumption.

Trade in animal products for human consumption is governed by Directive 2004/41/EC and Regulations 2004/853 and 2004/854. Meat from animals with generalized TB must not be declared fit for human consumption. In cases where lesions are confined to the lymph nodes or only one organ or only one part of the carcase, only the affected part need be declared unfit for human consumption.

[13] A description is provided of the benefits for farmers and society in general from the public and animal health and economical point of view.

Maintaining access to third country markets depends on NI continuing to comply with the relevant requirements of the OIE and such conditions as may be imposed bilaterally by our trading partners.

Human Health

In terms of human health, control of TB was one of the great public health success stories of the twentieth century. In the late 19th century TB caused 1 in 5 of deaths in the UK and even as late as the pre and post World War II period there were 50,000 TB notifications in England and Wales. Before WWII, 2,000 children died in the UK every year due to bTB. The implementation of BCG vaccines, pasteurisation of milk, and the reduction of the incidence of the disease in the cattle population contributed to the effective elimination of the disease as a major health issue in the developed countries. There were 12 cases of bTB in humans in NI from 2000-2005 and a further 7 in the period 2006-2009.

Were there to be a return to past levels of infection, the risk to the general public would be limited because of the use of BCG and pasteurisation of milk. For farm families who might consume unpasteurised milk or contract the disease through direct transmission, the risks could be significant.

However the National Institute for Health and Clinical Excellence (NICE) concluded that the overwhelming majority of the UK population was at negligible risk of *M. bovis* infection.

Animal Welfare

If the disease were to re-emerge there could be significant animal welfare problems. It is not likely that these would be acceptable to a population increasingly seeking high welfare standards.

This analysis of programme benefits suggests that although precise estimates cannot be made there are a number of significant benefits relative to a "no control situation".

6. Data on the epidemiological evolution during the last five years[14]

6.1. Evolution of the disease[15]

6.1.1. Data on herds[(a)] (one table per year)

Year: 2011

Region[(b)]	Animal species	Total number of herds[(c)]	Total number of herds under the programme	Number of herds checked[(d)]	Number of positive herds[(e)]	Number of new positive herds[(f)]	Number of herds depopulated	% positive herds depopulated	INDICATORS		
									% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd incidence
1	2	3	4	5	6	7	8	9 = (/)x100	10= (5/4)x100	11 = (6/5)x100	12 = (7/5)x100
N.Ireland	Bovine	25,677	25,677	23,917	1,655	1,386	7	0.4	90	6.92	6.01
Total		25,677	25,677	23,917	1,655	1,386	7	0.4	90	6.92	6.01

(a) Herds or flocks or holdings as appropriate.
(b) Region as defined in the programme of the Member State.
(c) Total number of herds existing in the region including eligible herds and non-eligible herds for the programme.
(d) Check means to perform a herd level test under the programme for the respective disease with the purpose of maintaining or upgrading, the health status of the herd. In this column a herd must not be counted twice even if has been checked more than once.
(e) Herds with at least one positive animal during the period independent of the number of times the herd has been checked.
(f) Herds which status in the previous period was *Unknown*, *Not free-negative*, *Free*, *Officially Free* or *Suspended* and have at least one animal tested positive in this period.

14 The data on the evolution of the disease are provided according to the tables below where appropriate.
15 No data to provide in case of rabies.

6.1.1. Data on herds[(a)] (one table per year)

Year: 2010

Region[(b)]	Animal species	Total number of herds[(c)]	Total number of herds under the programme	Number of herds checked[(d)]	Number of positive herds[(e)]	Number of new positive herds[(f)]	Number of herds depopulated	% positive herds depopulated	INDICATORS		
									% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd incidence
1	2	3	4	5	6	7	8	9 = (/)x100	10= (5/4)x100	11 = (6/5)x100	12 = (7/5)x100
N.Ireland	Bovine	25,933	25,933	23,595	1,484	1,150	16	1.1	91	6.55	5.07
Total		25,933	25,933	23,595	1,484	1,150	16	1.1	91	6.55	5.07

(a) Herds or flocks or holdings as appropriate.
(b) Region as defined in the programme of the Member State.
(c) Total number of herds existing in the region including eligible herds and non-eligible herds for the programme.
(d) Check means to perform a herd level test under the programme for the respective disease with the purpose of maintaining or upgrading, the health status of the herd. In this column a herd must not be counted twice even if has been checked more than once.
(e) Herds with at least one positive animal during the period independent of the number of times the herd has been checked.
(f) Herds which status in the previous period was *Unknown*, *Not free-negative*, *Free*, *Officially Free* or *Suspended* and have at least one animal tested positive in this period.

6.1.1. Data on herds[(a)] (one table per year)

Year: 2009

Region[(b)]	Animal species	Total number of herds[(c)]	Total number of herds under the programme	Number of herds checked[(d)]	Number of positive herds[(e)]	Number of new positive herds[(f)]	Number of herds depopulated	% positive herds depopulated	INDICATORS		
									% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd incidence
1	2	3	4	5	6	7	8	9 = (/)x100	10= (5/4)x100	11 = (6/5)x100	12 = (7/5)x100
N.Ireland	Bovine	26,287	26,287	24,023	1,608	1,293	12	0.7	91.4	7.0	5.61
Total		26,287	26,287	24,023	1,608	1,293	12	0.7	91.4	7.0	5.61

(a) Herds or flocks or holdings as appropriate.
(b) Region as defined in the programme of the Member State.
(c) Total number of herds existing in the region including eligible herds and non-eligible herds for the programme.
(d) Check means to perform a herd level test under the programme for the respective disease with the purpose of maintaining or upgrading, the health status of the herd. In this column a herd must not be counted twice even if has been checked more than once.
(e) Herds with at least one positive animal during the period independent of the number of times the herd has been checked.
(f) Herds which status in the previous period was *Unknown*, *Not free-negative*, *Free*, *Officially Free* or *Suspended* and have at least one animal tested positive in this period.

6.1.1. Data on herds[(a)] (one table per year)

Year: 2008

Region[(b)]	Animal species	Total number of herds[(c)]	Total number of herds under the programme	Number of herds checked[(d)]	Number of positive herds[(e)]	Number of new positive herds[(f)]	Number of herds depopulated	% positive herds depopulated	INDICATORS		
									% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd incidence
1	2	3	4	5	6	7	8	9 = (/)x100	10= (5/4)x100	11 = (6/5)x100	12 = (7/5)x100
N.Ireland	Bovine	26,780	26,780	23,922	1,598	1,273	10	0.6	89.1	7.0	5.57
Total		26,780	26,780	23,922	1,598	1,273	10	0.6	89.1	7.0	5.57

(a) Herds or flocks or holdings as appropriate.
(b) Region as defined in the programme of the Member State.
(c) Total number of herds existing in the region including eligible herds and non-eligible herds for the programme.
(d) Check means to perform a herd level test under the programme for the respective disease with the purpose of maintaining or upgrading, the health status of the herd. In this column a herd must not be counted twice even if has been checked more than once.
(e) Herds with at least one positive animal during the period independent of the number of times the herd has been checked.
(f) Herds which status in the previous period was *Unknown*, *Not free-negative*, *Free*, *Officially Free* or *Suspended* and have at least one animal tested positive in this period.

6.1.1. Data on herds[(a)] (one table per year)

Year: 2007

Region[(b)]	Animal species	Total number of herds[(c)]	Total number of herds under the programme	Number of herds checked[(d)]	Number of positive herds[(e)]	Number of new positive herds[(f)]	Number of herds depopulated	% positive herds depopulated	INDICATORS		
									% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd incidence
1	2	3	4	5	6	7	8	9 = (/)x100	10= (5/4)x100	11 = (6/5)x100	12 = (7/5)x100
N.Ireland	Bovine	26,915	26,915	24,280	1,633	1,264	5	0.3	89.3	6.9	5.35
Total		26,915	26,915	24,280	1,633	1,264	5	0.3	89.3	6.9	5.35

(a) Herds or flocks or holdings as appropriate.
(b) Region as defined in the programme of the Member State.
(c) Total number of herds existing in the region including eligible herds and non-eligible herds for the programme.
(d) Check means to perform a herd level test under the programme for the respective disease with the purpose of maintaining or upgrading, the health status of the herd. In this column a herd must not be counted twice even if has been checked more than once.
(e) Herds with at least one positive animal during the period independent of the number of times the herd has been checked.
(f) Herds which status in the previous period was *Unknown*, *Not free-negative*, *Free*, *Officially Free* or *Suspended* and have at least one animal tested positive in this period.

6.1.2. Data on animals (one table per year and per disease/species)

Year: 2011

Region[(a)]	Animal species	Total number of animals[(b)]	Number of animals[(d)] to be tested under the programme	Number of animals[(c)] tested	Number of animals tested individually [(d)]	Number of positive animals	Slaughtering		INDICATORS	
							Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(e)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9	10=(5/4)x100	11=(7/5)x100
N.Ireland	Bovine	1,590,452	1,565,646	1,607,358	1,607,358	8,136	8,136	8,620	100.0	0.506
Total		1,590,452	1,565,646	1,607,358	1,607,358	8,136	8,136	8,620	100.0	0.506

(a) Region as defined in the programme of the Member State.
(b) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(c) Includes animals tested individually or under bulk level scheme.
(d) Include only animals tested individually, do not include animals tested by bulk level samples (for instance: milk bulk tank tests).
(e) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

6.1.2. Data on animals (one table per year and per disease/species)

Year: 2010

Region[(a)]	Animal species	Total number of animals[(b)]	Number of animals[(d)] to be tested under the programme	Number of animals[(c)] tested	Number of animals tested individually [(d)]	Number of positive animals	Slaughtering		INDICATORS	
							Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(e)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9	10=(5/4)x100	11=(7/5)x100
N.Ireland	Bovine	1,604,356	1,583,229	1,582,878	1,582,878	6,404	6,404	7,144	100.0	0.405
Total		1,604,356	1,583,229	1,582,878	1,582,878	6,404	6,404	7,144	100.0	0.405

(a) Region as defined in the programme of the Member State.
(b) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(c) Includes animals tested individually or under bulk level scheme.
(d) Include only animals tested individually, do not include animals tested by bulk level samples (for instance: milk bulk tank tests).
(e) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

6.1.2. Data on animals (one table per year and per disease/species)

Year: 2009

Region[(a)]	Animal species	Total number of animals[(b)]	Number of animals[(d)] to be tested under the programme	Number of animals[(c)] tested	Number of animals tested individually [(d)]	Number of positive animals	Slaughtering		INDICATORS	
							Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(e)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9	10=(5/4)x100	11=(7/5)x100
N.Ireland	Bovine	1,612,813	1,599,025	1,601,500	1,601,500	8,198	8,198	8,905	100.2	0.512
Total		1,612,813	1,599,025	1,601,500	1,601,500	8,198	8,198	8,905	100.2	0.512

(a) Region as defined in the programme of the Member State.
(b) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(c) Includes animals tested individually or under bulk level scheme.
(d) Include only animals tested individually, do not include animals tested by bulk level samples (for instance: milk bulk tank tests).
(e) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

6.1.2. Data on animals (one table per year and per disease/species)

Year: 2008

Region[(a)]	Animal species	Total number of animals[(b)]	Number of animals[(d)] to be tested under the programme	Number of animals[(c)] tested	Number of animals tested individually [(d)]	Number of positive animals	Slaughtering		INDICATORS	
							Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(e)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9	10=(5/4)x100	11=(7/5)x100
N.Ireland	Bovine	1,622,541	1,647,300	1,592,213	1,592,213	8,390	8,390	9,001	96.7	0.53
Total		1,622,541	1,647,300	1,592,213	1,592,213	8,390	8,390	9,001	96.7	0.53

(a) Region as defined in the programme of the Member State.
(b) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(c) Includes animals tested individually or under bulk level scheme.
(d) Include only animals tested individually, do not include animals tested by bulk level samples (for instance: milk bulk tank tests).
(e) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

6.1.2. Data on animals (one table per year and per disease/species)

Year: 2007

Region[(a)]	Animal species	Total number of animals[(b)]	Number of animals[(d)] to be tested under the programme	Number of animals[(c)] tested	Number of animals tested individually [(d)]	Number of positive animals	Slaughtering		INDICATORS	
							Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(e)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9	10=(5/4)x100	11=(7/5)x100
N.Ireland	Bovine	1,643,458	1,464,025	1,640,552	1,640,552	7,299	7,299	7,888	112.1	0.45
Total		1,643,458	1,464,025	1,640,552	1,640,552	7,299	7,299	7,888	112.1	0.45

(a) Region as defined in the programme of the Member State.
(b) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(c) Includes animals tested individually or under bulk level scheme.
(d) Include only animals tested individually, do not include animals tested by bulk level samples (for instance: milk bulk tank tests).
(e) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

6.2. Stratified data on surveillance and laboratory tests

6.2.1. Stratified data on surveillance and laboratory tests

Year: 2011

Region[(a)]	Animal species/ category	Test type[(b)]	Description of test	Number of samples tested	Number of positive samples
N.Ireland	Bovine	Serological	Gamma interferon assay	17,123	854
	Bovine	Microbiological	Lowenstein – Jensen and Stonebrinks solid culture media and Bactec MGIT 960 liquid culture system. Molecular confirmation of culture by spoligotype	2,700	642
Total				19,823	1,496

(a) Region as defined in the programme of the Member State.
(b) Indicate whether the test is serological, virological etc.
.

6.2.1. Stratified data on surveillance and laboratory tests

Year: 2010

Region[(a)]	Animal species/ category	Test type[(b)]	Description of test	Number of samples tested	Number of positive samples
N.Ireland	Bovine	Serological	Gamma interferon assay	13,520	661
	Bovine	Microbiological	Lowenstein – Jensen and Stonebrinks solid culture media and Bactec MGIT 960 liquid culture system. Molecular confirmation of culture by spoligotype	3,887	751
	Bovine	Other	VNTR	781	742
Total				18,188	2,154

(a) Region as defined in the programme of the Member State.
(b) Indicate whether the test is serological, virological etc.
.

6.2.1. Stratified data on surveillance and laboratory tests

Year: 2009

Region[(a)]	Animal species/ category	Test type[(b)]	Description of test	Number of samples tested	Number of positive samples
N.Ireland	Bovine	Serological	Gamma interferon assay	14,657	1,279
	Bovine	Microbiological	Lowenstein – Jensen and Stonebrinks solid culture media and Bactec MGIT 960 liquid culture system. Molecular confirmation of culture by spoligotype	6,234	992
	Bovine	Other	VNTR	992	977
Total				21,883	3,248

(a) Region as defined in the programme of the Member State.
(b) Indicate whether the test is serological, virological etc.
.

6.2.1. Stratified data on surveillance and laboratory tests

Year: 2008

Region[(a)]	Animal species/ category	Test type[(b)]	Description of test	Number of samples tested	Number of positive samples
N.Ireland	Bovine	Serological	Gamma interferon assay	13,956	805
	Bovine	Microbiological	Lowenstein – Jensen and Stonebrinks solid culture media and Bactec MGIT 960 liquid culture system. Molecular confirmation of culture by spoligotype	3,286	928
	Bovine	Other	VNTR	2,780	2,752
	Bovine	Other	Histology	3,132	2,635
Total				23,154	7,120

(a) Region as defined in the programme of the Member State.
(b) Indicate whether the test is serological, virological etc.
.

6.2.1. Stratified data on surveillance and laboratory tests

Year: 2007

Region[(a)]	Animal species/ category	Test type[(b)]	Description of test	Number of samples tested	Number of positive samples
N.Ireland	Bovine	Serological	Gamma interferon assay	8,513	653
	Bovine	Microbiological	Lowenstein – Jensen and Stonebrinks solid culture media and Bactec MGIT 960 liquid culture system. Molecular confirmation of culture by spoligotype	2,953	946
	Bovine	Other	VNTR	2,624	2,598
	Bovine	Other	Histology	2,896	2,539
Total				16,986	6,736

(a) Region as defined in the programme of the Member State.
(b) Indicate whether the test is serological, virological etc.
.

6.3. Data on infection (one table per year)

Year: 2011

Region[(a)]	Animal species	Number of herds infected[(b)]	Number of animals infected
N.Ireland	Bovine	1,390	4,425
Total		1,390	4,425

(a) Region as defined in the programme of the Member State.
(b) Herds or flocks or holdings as appropriate.

6.3. Data on infection (one table per year)

Year: 2010

Region[(a)]	Animal species	Number of herds infected[(b)]	Number of animals infected
N.Ireland	Bovine	1,229	3,393
Total		1,229	3,393

(a) Region as defined in the programme of the Member State.
(b) Herds or flocks or holdings as appropriate.

6.3. Data on infection (one table per year)

Year: 2009

Region[(a)]	Animal species	Number of herds infected[(b)]	Number of animals infected
N.Ireland	Bovine	1,346	3,972
Total		1,346	3,972

(a) Region as defined in the programme of the Member State.
(b) Herds or flocks or holdings as appropriate.

6.3. Data on infection (one table per year)

Year: 2008

Region[(a)]	Animal species	Number of herds infected[(b)]	Number of animals infected
N.Ireland	Bovine	1,866	3,936
Total		1,866	3,936

(a) Region as defined in the programme of the Member State.
(b) Herds or flocks or holdings as appropriate.

6.3. Data on infection (one table per year)

Year: 2007

Region[(a)]	Animal species	Number of herds infected[(b)]	Number of animals infected
N.Ireland	Bovine	1,990	3,899
Total		1,990	3,899

(a) Region as defined in the programme of the Member State.
(b) Herds or flocks or holdings as appropriate.

6.4. Data on the status of herds at the end of each year[16]

Year: 2011

Region[(a)]	Animal species	Status of herds and animals under the programme[(b)]													
		Total number of herds and animals under the programme		Unknown[(c)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(f)]		Free from disease[(g)]		Officially free from disease [(h)]	
						Last check positive[(d)]		Last check negative[(e)]							
		Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]
N.Ireland	Bovine	25,677	1,565,646	0	0	509	88,022	838	89,656	1,573	133,706	n/a	n/a	22,757	1,254,262
Total		25,677	1,565,646	0	0	509	88,022	838	89,656	1,573	133,706	n/a	n/a	22,757	1,254,262

(a) Region as defined in the programme of the Member State
(b) At the end of the year
(c) Unknown: No previous checking results available
(d) Not free and last check positive: Herd checked with at least one positive result in the latest check
(e) Not free and last check negative: Herd checked with negative results in the latest check but not being *Free* or *Officially Free*
(f) Suspended as defined in Union or national legislation for the respective disease at the end of the reporting period.
(g) Free herd as defined in Union or national legislation for the respective disease.
(h) Officially free herd as defined in Union or national legislation for the respective disease .
(i) Include animals under the programme in the herds with the referred status (left column).

16 Only data to provide for bovine tuberculosis, bovine brucellosis, ovine and caprine brucellosis (B. melitensis).

6.4. Data on the status of herds at the end of each year[17]

Year: 2010

Region[(a)]	Animal species	Status of herds and animals under the programme[(b)]													
		Total number of herds and animals under the programme		Unknown[(c)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(f)]		Free from disease[(g)]		Officially free from disease [(h)]	
						Last check positive[(d)]		Last check negative[(e)]							
		Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]
N.Ireland	Bovine	25,933	1,583,229	0	0	245	59,274	741	90,811	1,872	148,740	n/a	n/a	23,075	1,284,404
Total		25,933	1,583,229	0	0	245	59,274	741	90,811	1,872	148,740	n/a	n/a	23,075	1,284,404

(a) Region as defined in the programme of the Member State
(b) At the end of the year
(c) Unknown: No previous checking results available
(d) Not free and last check positive: Herd checked with at least one positive result in the latest check
(e) Not free and last check negative: Herd checked with negative results in the latest check but not being *Free* or *Officially Free*
(f) Suspended as defined in Union or national legislation for the respective disease at the end of the reporting period.
(g) Free herd as defined in Union or national legislation for the respective disease.
(h) Officially free herd as defined in Union or national legislation for the respective disease .
(i) Include animals under the programme in the herds with the referred status (left column).

[17] Only data to provide for bovine tuberculosis, bovine brucellosis, ovine and caprine brucellosis (B. melitensis).

6.4. Data on the status of herds at the end of each year[18]

Year: 2009

Region[(a)]	Animal species	Status of herds and animals under the programme[(b)]													
		Total number of herds and animals under the programme		Unknown[(c)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(f)]		Free from disease[(g)]		Officially free from disease [(h)]	
						Last check positive[(d)]		Last check negative[(e)]							
		Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]
N.Ireland	Bovine	26,287	1,599,025	0	0	412	78,238	673	76,759	1,985	174,685	n/a	n/a	23,201	1,269,343
Total		26,287	1,599,025	0	0	412	78,238	673	76,759	1,985	174,685	n/a	n/a	23,201	1,269,343

(a) Region as defined in the programme of the Member State
(b) At the end of the year
(c) Unknown: No previous checking results available
(d) Not free and last check positive: Herd checked with at least one positive result in the latest check
(e) Not free and last check negative: Herd checked with negative results in the latest check but not being *Free* or *Officially Free*
(f) Suspended as defined in Union or national legislation for the respective disease at the end of the reporting period.
(g) Free herd as defined in Union or national legislation for the respective disease.
(h) Officially free herd as defined in Union or national legislation for the respective disease .
(i) Include animals under the programme in the herds with the referred status (left column).

[18] Only data to provide for bovine tuberculosis, bovine brucellosis, ovine and caprine brucellosis (B. melitensis).

6.4. Data on the status of herds at the end of each year[19]

Year: 2008

Region[(a)]	Animal species	Status of herds and animals under the programme[(b)]													
		Total number of herds and animals under the programme		Unknown[(c)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(f)]		Free from disease[(g)]		Officially free from disease [(h)]	
						Last check positive[(d)]		Last check negative[(e)]							
		Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]
N.Ireland	Bovine	26,780	1,647,300	0	0	344	60,193	771	86,570	2,087	167,387	n/a	n/a	23,578	1,333,150
Total		26,780	1,647,300	0	0	344	60,193	771	86,570	2,087	167,387	n/a	n/a	23,578	1,333,150

(a) Region as defined in the programme of the Member State
(b) At the end of the year
(c) Unknown: No previous checking results available
(d) Not free and last check positive: Herd checked with at least one positive result in the latest check
(e) Not free and last check negative: Herd checked with negative results in the latest check but not being *Free* or *Officially Free*
(f) Suspended as defined in Union or national legislation for the respective disease at the end of the reporting period.
(g) Free herd as defined in Union or national legislation for the respective disease.
(h) Officially free herd as defined in Union or national legislation for the respective disease .
(i) Include animals under the programme in the herds with the referred status (left column).

19 Only data to provide for bovine tuberculosis, bovine brucellosis, ovine and caprine brucellosis (B. melitensis).

6.4. Data on the status of herds at the end of each year[20]

Year: 2007

Region[(a)]	Animal species	Status of herds and animals under the programme[(b)]													
		Total number of herds and animals under the programme		Unknown[(c)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(f)]		Free from disease[(g)]		Officially free from disease [(h)]	
						Last check positive[(d)]		Last check negative[(e)]							
		Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]	Herds	Animals[(i)]
N.Ireland	Bovine	26,915	1,464,025	0	0	356	54,722	811	87,801	1,932	158,622	n/a	n/a	23,816	1,163,580
Total		26,915	1,464,025	0	0	356	54,722	811	87,801	1,932	158,622	n/a	n/a	23,816	1,163,580

(a) Region as defined in the programme of the Member State
(b) At the end of the year
(c) Unknown: No previous checking results available
(d) Not free and last check positive: Herd checked with at least one positive result in the latest check
(e) Not free and last check negative: Herd checked with negative results in the latest check but not being *Free* or *Officially Free*
(f) Suspended as defined in Union or national legislation for the respective disease at the end of the reporting period.
(g) Free herd as defined in Union or national legislation for the respective disease.
(h) Officially free herd as defined in Union or national legislation for the respective disease .
(i) Include animals under the programme in the herds with the referred status (left column).

[20] Only data to provide for bovine tuberculosis, bovine brucellosis, ovine and caprine brucellosis (B. melitensis).

6.5. Data on vaccination or treatment programmes[21] NOT APPLICABLE

Year:

Region[(a)]	Animal species	Total number of herds[(b)]	Total number of animals	Information on vaccination or treatment programme					
				Number of herds[(c)] in vaccination or treatment programme	Number of herds[(c)] vaccinated or treated	Number of animals vaccinated or treated	Number of doses of vaccine or treatment administered	Number of adults vaccinated	Number of young animals vaccinated
Total									

(a) Region as defined in the programme of the Member State
(b) Herds or flocks or holdings as appropriate

21 Data to provide only if vaccination has been carried out.

6.6. Data on wildlife[22]

6.6.1. Estimation of wildlife population

Year: 2005-2009

Regions[(a)]	Animal species	Method of estimation	Estimated population
N.Ireland	Badger *Meles meles*	Scientific field survey and analysis 07/08	33,500 (95%CI 26-41.2k)
Total			

(a) Region as defined in the programme of the Member State

22 Data only to provide in case the programme comprises measures as regards wildlife or if the data are epidemiologically relevant for the disease.

6.6.2. Disease surveillance and other tests in wildlife (one table per year)

Year: 2011

Region[(a)]	Animal Species	Test type[(b)]	Test description	Number of samples tested	Number of positive samples
N. Ireland	Badger *Meles meles*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	728	44
	Badger *Meles meles*	Other	Histology	41	11
	Badger *Meles meles*	Other	Post mortem	148	19
	Wild Deer	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	0	0
	Wild Deer	Other	Histology	0	0
	Wild Deer	Other	Spoligo typing	0	0
	Otter *Lutra lutra*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	0	0
	Otter *Lutra lutra*	Other	VNTR	0	0
Total				917	74

(a) Region as defined in the programme of the Member State

(b) Indicate whether the test is serological, virological, biomarker detection etc.

6.6.2. Disease surveillance and other tests in wildlife (one table per year)

Year: 2010

Region[(a)]	Animal Species	Test type[(b)]	Test description	Number of samples tested	Number of positive samples
N. Ireland	Badger *Meles meles*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	501	19
	Badger *Meles meles*	Other	Histology	17	0
	Badger *Meles meles*	Other	Spoligo typing	35	19
	Badger *Meles meles*	Other	Post mortem	101	10
	Wild Deer	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	2	0
	Wild Deer	Other	Histology	0	0
	Wild Deer	Other	Spoligo typing	0	0
	Otter *Lutra lutra*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	2	0
	Otter *Lutra lutra*	Other	VNTR	0	0

Total			658	48

(a) Region as defined in the programme of the Member State
(b) Indicate whether the test is serological, virological, biomarker detection etc.

6.6.2. Disease surveillance and other tests in wildlife (one table per year)

Year: 2009

Region[(a)]	Animal Species	Test type[(b)]	Test description	Number of samples tested	Number of positive samples
N. Ireland	Badger *Meles meles*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	530	13
	Badger *Meles meles*	Other	Histology	11	0
	Badger *Meles meles*	Other	Spoligo typing	13	11
	Badger *Meles meles*	Other	Post mortem	102	0
	Wild Deer	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	451	5
	Wild Deer	Other	Histology	5	3
	Wild Deer	Other	Spoligo typing	5	4
	Otter *Lutra lutra*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	0	0
	Otter *Lutra lutra*	Other	VNTR	0	0

Total			1,117	36

(a) Region as defined in the programme of the Member State
(b) Indicate whether the test is serological, virological, biomarker detection etc.

6.6.2. Disease surveillance and other tests in wildlife (one table per year)

Year: 2008

Region[(a)]	Animal Species	Test type[(b)]	Test description	Number of samples tested	Number of positive samples
N. Ireland	Badger *Meles meles*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	540	31
	Badger *Meles meles*	Other	Histology	4	2
	Badger *Meles meles*	Other	Spoligo typing	31	31
	Badger *Meles meles*	Other	Post mortem	100	14
	Wild Deer	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	0	0
	Wild Deer	Other	Histology	0	0
	Wild Deer	Other	Spoligo typing	0	0
	Otter *Lutra lutra*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	4	2
	Otter *Lutra lutra*	Other	VNTR	2	2

Total			681	82

(a) Region as defined in the programme of the Member State
(b) Indicate whether the test is serological, virological, biomarker detection etc.

6.6.2. Disease surveillance and other tests in wildlife (one table per year)

Year: 2007

Region[(a)]	Animal Species	Test type[(b)]	Test description	Number of samples tested	Number of positive samples
N. Ireland	Badger *Meles meles*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	363	12
	Badger *Meles meles*	Other	Histology	0	0
	Badger *Meles meles*	Other	Spoligo typing	10	10
	Badger *Meles meles*	Other	Post mortem	70	10
	Wild Deer	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	0	0
	Wild Deer	Other	Histology	0	0
	Wild Deer	Other	Spoligo typing	0	0
	Otter *Lutra lutra*	Microbiological	Lowenstein – Jensen culture media and Bactec MGIT 960 system. Molecular confirmation of culture positive samples	0	0
	Otter *Lutra lutra*	Other	VNTR	0	0

Total			443	32

(a) Region as defined in the programme of the Member State
(b) Indicate whether the test is serological, virological, biomarker detection etc.

*6.6.3. Data on vaccination or treatment of wildlife **NOT APPLICABLE***

Year:

Region[(a)]	Square km	Vaccination or treatment programme		
		Number of doses of vaccine or treatment to be administered	Number of campaigns	Total number of doses of vaccine or treatment administered
Total				

(a) Region as defined in the programme of the Member State

7. Targets

7.1. Targets related to testing (one table for each year of implementation[23])

7.1.1. Targets on diagnostic tests

Region[(a)]	Type of the test[(b)]	Target population [(c)]	Type of sample[(d)]	Objective [(e)]	Number of planned tests
N.Ireland	Tuberculin skin test	All bovines		Surveillance	2,365,000
	Gamma Interferon Assay	Bovines	Heparinised blood	Surveillance	18,000
	Bacteriological	Herds where disease not confirmed	Tissue	Surveillance	4,749
	Histopathology	Herds where disease not confirmed	Tissue	Surveillance	3,535
Total					2,391,284

(a) Region as defined in the programme of the Member State
(b) Description of the test (for instance SN-test, AB-Elisa, RBT,)
(c) Specification of the targeted species and the categories of targeted animals (for instance sex, age, breeding animal, slaughter animal, …).
(d) Description of the sample (for instance blood, serum, milk,)
(e) Description of the objective (for instance qualification, surveillance, confirmation of suspected cases, monitoring of campaigns, seroconversion, control on deleted vaccines, testing of vaccine, control of vaccination,)

[23] For subsequent years of approved multiannual programmes only one table for the relevant year should be filled in.

7.1.2. Targets on testing herds and animals[24]

7.1.2.1 Targets on the testing of herds[(a)]

Region[(b)]	Animal species	Total number of herds[(c)]	Total number of herds under the programme	Number of herds expected to be checked[(d)]	Number of expected positive herds[(e)]	Number of expected new positive herds[(f)]	Number of herds expected to be depopulated	% positive herds expected to be depopulated	TARGET INDICATORS		
									Expected % herd coverage	% positive herds Expected period herd prevalence	% new positive herds Expected herd incidence
1	2	3	4	5	6	7	8	9 = (8/6)x100	10 = (5/4)x100	11 = (6/5)x100	12 = (7/5)x100
N.Ireland	Bovine	25,500	25,500	23,595	1903	1593	15	0.8	91	8.0	6.75
Total		25,500	25,500	23,595	1903	1593	15	0.8	91	8.0	6.75

(a) Herds or flocks, or holdings as appropriate.
(b) Region as defined in the programme of the Member State.
(c) Total number of herds existing in the region including eligible herds and non-eligible herds for the programme.
(d) Check means to perform a herd level test under the programme for the respective disease with the purpose of maintaining, upgrading, etc., the health status of the herd. In this column a herd must not be counted twice even if it has been checked more than once.
(e) Herds with at least one positive animal during the period independent of the number of times the herd has been checked.
(f) Herds which status in the previous period was *Unknown*, *Not free-negative*, *Free*, *Officially Free* or *Suspended* and have at least one positive animal in this period.

[24] Data not to provide in case of rabies.

7.1.2.2. Targets on the testing of animals

Region[(a)]	Animal species	Total number of animals[(b)]	Number of animals[(c)] under the programme	Number of animals[(c)] expected to be tested	Number of animals to be tested individually [(d)]	Number of expected positive animals	Slaughtering		TARGET INDICATORS	
							Number of animals with positive result expected to be slaughtered or culled	Total number of animals expected to be slaughtered[(e)]	Expected % coverage at animal level	% positive animals (Expected animal prevalence)
1	2	3	4	5	6	7	8	9	10=(5/4)x100	11=(7/5)x100
N.Ireland	Bovine	1,600,000	1,585,000	1,585,000	1,585,000	9,356	9,356	9,856	100	0.59
		1,600,000	1,585,000	1,585,000	1,585,000	9,356	9,356	9,856	100	0.59

(a) Region as defined in the programme of the Member State.
(b) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(c) Includes animals tested individually or under bulk level scheme.
(d) Include only animals tested individually, do not include animals tested by bulk level samples (for instance milk bulk tank tests).
(e) Include all positive animals slaughtered and also the negative animals slaughtered under the programme.

7.2. Targets on qualification of herds and animals (one table for each year of implementation)

Region[a]	Animal species	Total number of herds and animals under the programme		Targets on the status of herds and animals under the programme[b]											
				Expected unknown[c]		Expected not free or not officially free from disease				Expected free or officially free from disease status suspended[f]		Expected free from disease[g]		Expected officially free from disease [h]	
						Last check positive[d]		Last check negative[e]							
		Herds	Animals[i]	Herds	Animals[i]	Herds	Animals[i]	Herds	Animals[i]	Herds	Animals[i]	Herds	Animals[i]	Herds	Animals[i]
N.Ireland	Bovine	25,500	1,600,000	0	0	364	22,204	936	57,096	1,300	79,300	23,400	1,441,400	23,400	1,441,400
Total		25,500	1,600,000	0	0	364	22,204	936	57,096	1,300	79,300	23,400	1,441,400	23,400	1,441,400

(a) Region as defined in the programme of the Member State
(b) At the end of the year
(c) Unknown: No previous checking results available
(d) Not free and last check positive: Herd checked with at least one positive result in the latest check
(e) Not free and last check negative: Herd checked with negative results in the latest check but not being *Free* or *Officially Free*
(f) Suspended as defined for the respective disease in Union or national legislation where appropriate or according national legislation.
(g) Free herd as defined for the respective disease where appropriate in Union or national legislation where appropriate or according national legislation
(h) Officially free herd as defined for the respective disease where appropriate in Union or national legislation where appropriate or according national legislation
(i) Include animals under the programme in the herds with the referred status (left column)

7.3. Targets on vaccination or treatment (one table for each year of implementation) NOT APPLICABLE

7.3.1. Targets on vaccination or treatment[25]

Region[(a)]	Animal species	Total number of herds[(b)] in vaccination or treatment programme	Total number of animals in vaccination or treatment programme	Targets on vaccination or treatment programme					
				Number of herds[(b)] in vaccination or treatment programme	Number of herds[(b)] expected to be vaccinated or treated	Number of animals expected to be vaccinated or treated	Number of doses of vaccine or treatment expected to be administered	Number of adults[(c)] expected to be vaccinated	Number of young[(c)] animals expected to be vaccinated
Total									

(a) Region as defined in the programme of the Member State
(b) Herds or flocks or holdings as appropriate
(c) Only for Bovine brucellosis and Ovine, Caprine brucellosis (B. melitensis) as defined in the programme

[25] Data to provide only if appropriate .

*7.3.2. Targets on vaccination or treatment[26] of wildlife **NOT APPLICABLE***

Region[(a)]	Animal species	Square km	Targets on the vaccination or treatment programme		
			Number of doses of vaccine or treatments expected to be administered in the campaign	Expected number of campaigns	Total number of doses of vaccine or treatment expected to be administered
Total					

(a) Region as defined in the programme of the Member State

[26] Data to provide only if appropriate.

8. Detailed analysis of the cost of the programme (one table per year of implementation[27])

Costs related to	Specification/Unit	Unit[28]	Number of units	Unitary cost in €	Total amount in €	*Union funding requested (yes/no)*
1. Testing						
1.1. Cost of sampling						
	Domestic animals					
	Wild animals					
1.2 Cost of the analysis						
- Brucellosis and Tuberculosis programmes	**Rose Bengal test**					
	SAT					
	Complement fixation test					
	ELISA test					
	Tuberculin test (by Private Veterinary Practitioner)	**Test**	**1,850,000**	**£3.57**	**£6,604,500**	***Yes***
	Tuberculin test (by Government staff –	**Test**	**515,000**	**£2.86**	**£1,472,900**	***Yes***

27 For subsequent years of approved multiannual programmes only one table for the relevant year should be filled in.

28 Specify the unit to which the data in the following two columns is referring to (e.g. sample, test, animal sampled etc).

	TVO/VOT)					
	Gamma-interferon test	**Test**	**18,000**	**£19.37**	**£348,660**	***Yes***
	Bacteriological test	**Test**	**4,749**	**£144**	**£683,856**	***Yes***
	Other (please specify)					
	Histopathology	**Test**	**3,535**	**£20**	**£70,700**	***No***
- ASF, CSF, SVD & Bluetongue programmes	**ELISA test**					
	PCR test					
	Virological test					
	Seroneutralisation test (only for SVD)					
	Entomological surveillance test (only for Bluetongue)					
	Other (please specify)					
- Rabies programmes	**Serological test**					
	Detection of Tetracycline in bone test					
	Fluorescent antibody test					

	Other (please specify)					

1.3. Other costs						
	Purchase of traps (for Bluetongue)					
	Other (please specify)					
2. Vaccination or treatment						
2.1. Purchase of vaccine/treatment						
- Brucellosis programmes	**Domestic animal vaccinated**					
- Bluetongue programmes	**Domestic animal vaccinated**					
- Rabies programmes	**Oral vaccine dose + bait**					
	Parenteral vaccine dose					
- Classical swine fever programmes	**Oral vaccine dose + bait**					

2.2. Administering/Distribution costs						
Administering in domestic animals						
- Distribution for wild animals (please specify the type of distribution)						
2.3. Control costs						
2.4. Others (please specify)						
3. Slaughter and destruction						
3.1. Compensation of animals		**Compensation for animals valued and slaughtered**	**9,856**	**£1,365**	**£13,453,440**	***Yes***
3.2. Transport costs		**Animals transported to slaughter**	**9,856**	**£8.50**	**£83,776**	***No***
3.3. Destruction costs						
3.4. Loss in case of slaughtering						

3.5 Costs from treatment of products (milk, or others –please specify)						
4. Cleaning and disinfection						

5. Salaries (staff contracted for the programme only)		**Staff**	**Not applicable**	**Not applicable**	**£4,700,000**	***No***
6. Consumables and specific equipment						
Tuberculin		**Litres of tuberculin (300 litres avian + 300 litres bovine)**	**600**	**£934.57**	**£560,742**	***Yes***
7. Other costs						
Salvage		**Payment for animal carcases**	**9,856**	**-£142**	**-£1,399,552**	***Yes***
DARD Funded Research		**Research**	**Not applicable**	**Not applicable**	**£327,681**	***No***
	TOTAL				**£26,906,703**	