EUROPEAN COMMISSION
HEALTH & CONSUMERS DIRECTORATE-GENERAL

Unit G5 - Veterinary Programmes

SANCO/10852/2012

Programmes for the eradication, control and monitoring of certain animal diseases and zoonoses

Eradication programme for Bovine Brucellosis

Approved* for 2012 by Commission Decision 2011/807/EU

United Kingdom

* in accordance with Council Decision 2009/470/EC

ANNEX II

Standard requirements for the submission of programmes of monitoring, eradication and control of animal diseases co-financed by the Community

1. Identification of the programme

Member State: *United Kingdom (Northern Ireland)*

Disease(s)[1]: *Bovine Brucellosis*

Request of Community co-financing for 2012

Reference of this document: *BR Submission 2012*

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Date sent to the Commission: 15 April 2011

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

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

1.1.1. Surveillance system:

The Department of Agriculture and Rural Development for Northern Ireland (DARD) carries out a programme of blood and milk testing of all herds containing breeding stock (n ≅ 20,200). Routine brucellosis (BR) blood sampling is carried out on cattle herds in Northern Ireland on an annual basis, with the exception of some dairy herds (n = 590), which are routinely blood sampled on a biennial basis (with associated monthly bulk milk ELISA testing). The blood samples are tested by means of a serum agglutination test (SAT) in accordance with Annex C of Directive 64/432/EEC. If any SAT reading > 30 iu is detected at this test, the sample is again tested by means of an SAT (EDTA) test and complement fixation test (CFT). Any animal giving an SAT test result of >30 iu of agglutination per ml or any CFT reading of < 20 iu is classified as an inconclusive reactor and is required to be isolated and retested. A risk analysis is carried out and if significant risk factors exist, then an ELISA test is requested on subsequent tests. Derestriction of the animal's movements within the MS may occur if the iELISA and CFT results are negative and SAT remains less than 102 iu. Animals with SAT readings of ≥ 102 iu may be taken as reactors, as may animals with CFT readings of ≥ 20 iu. Those with iELISA positive results may be removed, again depending on significant risk factors. Cattle being slaughtered at O48MS (Over 48 Months Scheme) slaughter plants are routinely blood sampled. In addition, monthly bulk milk samples, which are collected by the dairies, are tested at the Veterinary Sciences Division (Stormont) laboratory using an ELISA kit (n = 38,318 bulk milk samples tested during 2010). Premovement testing of BR eligible cattle was introduced in December 2004. In 2010, there were 169,000 tests carried out under the premovement regulations, yielding 6 reactor animals. Further disease statistics on brucellosis are available from the DARD web site on a monthly and quarterly basis (http://www.dardni.gov.uk/index/dard-statistics/animal-disease-statistics.htm).

1.1.2. Notification of Abortions:

Herd keepers and veterinary surgeons are required under the Brucellosis Control Order (Northern Ireland) 2004 to notify a Divisional Veterinary Office if any bovine animal has had an abortion (This 2004 Control Order replaced the 1972 Control Order on 1st October, 2004). A restriction notice is issued for these animals, prohibiting their movement off the premises and requiring them to be isolated. The animals are tested by the DARD Veterinary Service using both SAT and CFT until a negative test at 21 days post-calving is obtained. During 2010, 2,644 cattle were blood sampled following the reporting of an abortion.

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[2] A concise description is given with data on the target population (species, number of herds and animals present and under the programme), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination …) and the main results (incidence, prevalence, qualification of herds and animals). The information is given according to distinct periods if the measures were substantially modified. The information is documented by relevant summary epidemiological tables, graphs or maps.

1.1.3. Measures in case of positive findings:

Herd restrictions, which stop the movement of animals onto and off the premises, except under the authority of a licence issued by DARD, are imposed once a reactor is identified. The reactor is required to be kept in isolation until slaughtered.

When the presence of *Brucella abortus* is confirmed by culture of tissue samples taken at point of slaughter either:

- all breeding and potential breeding animals (reactors, infected and contact) are valued and slaughtered; or
- the breeding animals in the herd are subject to further testing.

The OBF status of the herd is not restored until at least two clear herd tests have been completed, the last test being completed at least 21 days after any animals pregnant at the time of the outbreak have calved. In practice, this may mean the restriction and testing of all breeding cattle in a herd through an entire calving cycle.

Investigations into contact with contiguous herds are undertaken to assess the risk of spread of infection. Herds of origin, transit herds or other herds considered to be at risk are tested. Forward tracing is carried out and animals which have left the infected herd since the last negative herd test are tested. All contiguous herds are tested as well as herds with cattle movements to and from the affected herd. Before restrictions can be lifted, the premises have to be cleansed and disinfected with an approved disinfectant and subjected to veterinary inspection.

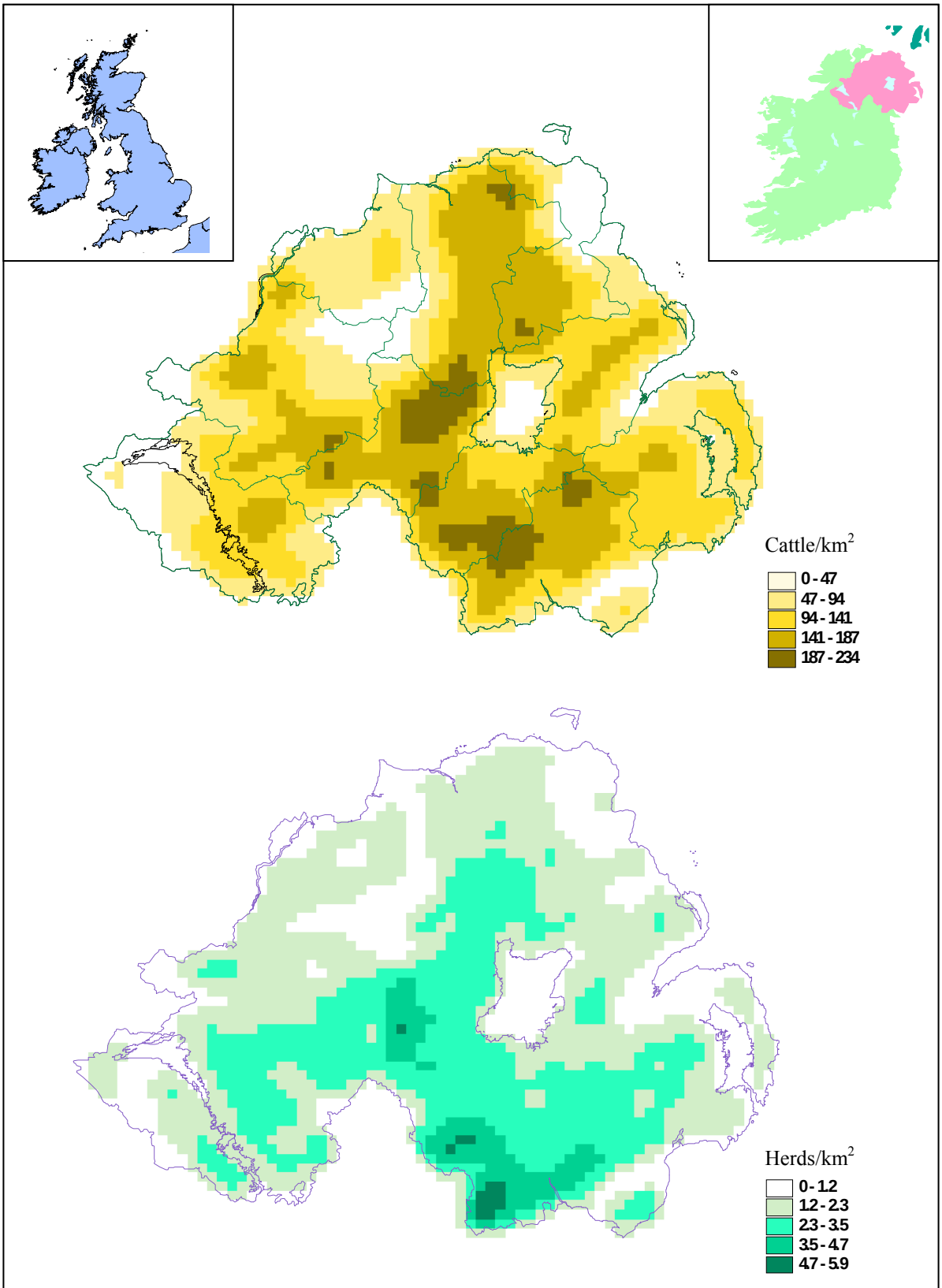
The amount of compensation varies depending on whether the animal is a reactor or a contact. In the case of reactors, compensation is paid to a limit of 75% of the average market value subject to a ceiling based on market returns. In the case of contact animals, 100% of the value is paid with no upper limit. When an animal is intended to be slaughtered, the amount of compensation is based on the market value of the animal. The market value is an amount agreed between the competent authority and the owner of the animal. Where agreement cannot be reached the owner has the option to nominate an independent valuer to value the animal. Where either the competent authority or the owner is dissatisfied with the determination of market value they may submit an appeal to an independent panel. If the amount of salvage received by DARD for the carcase exceeds the compensation payable under the above rules then the difference is paid to the herd keeper.

1.1.4. Historical data on the epidemiological evolution of the disease:

There are currently 1.58 million cattle in Northern Ireland, distributed among 25,930 active herds. Dairy cows/heifers comprise 21% of the national herd while beef cows/heifers account for 18%. Based on cattle TB tested in herds, the mean herd size has increased from 56 cattle in 1990 to 65 in 2010, an increase of 16%. However, the data are strongly skewed to the right and the median was 33 for all TB herd tests in 2010. Almost two-thirds of herds (63%) in Northern Ireland have fewer than 50 cattle.

Herd and cattle density is highest in the south and west, with the highest concentration in County Armagh (Figure 1). Conversely, herds in the north and east tend to be larger than those in the south or west.

For veterinary administrative purposes, the province is divided into ten regions, each with a divisional veterinary office (Figure 2). The regions are sub-divided into "patches", each managed by a veterinary officer (VO) and team of technical officers. A centralised animal health database ("APHIS"), incorporating an animal movement and test management system is used for all aspects of brucellosis and tuberculosis testing. The former is used to administer between-herd movement of cattle, captured in real-time using a licensing system and terminals located in markets and abattoirs. The latter facilitates management of herd-level and animal-level tests, with results recorded at animal level.



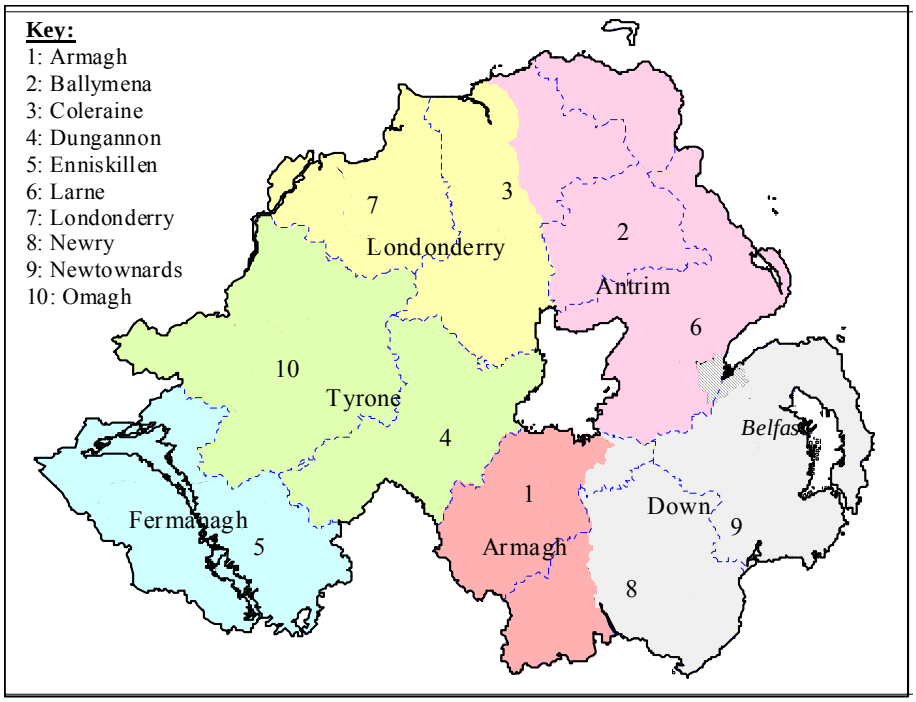


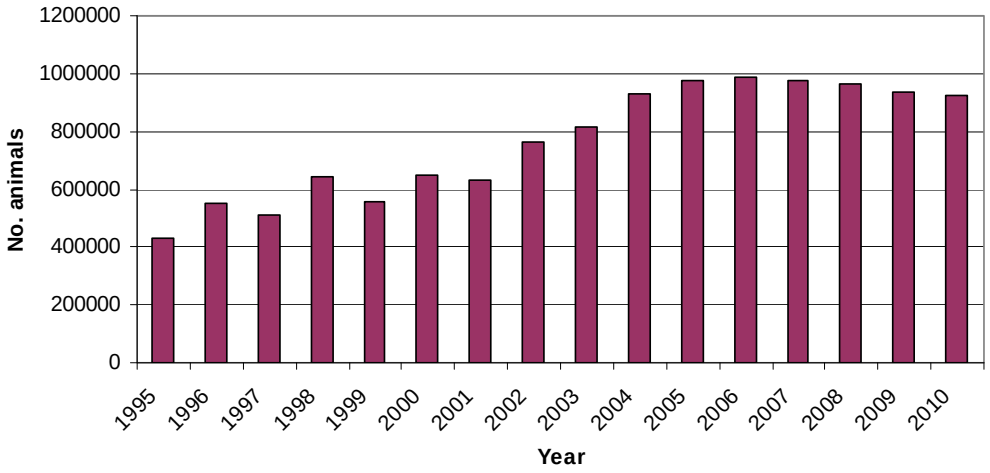
Figure 2. Counties (coloured and annotated) and Divisional Veterinary Office regions (numbered) in Northern Ireland.

Screening for brucellosis comprises of serological testing of eligible cattle (hereafter referred to as on-farm sampling), iELISA testing of bulk milk tank samples from dairy herds and sampling at slaughter of cattle older than 48 months. Serological samples are screened using the microtitre tray Serum Agglutination Test (MSAT) and non-negative results confirmed with the Complement Fixation Test (CFT) with the iELISA used in certain higher risk circumstances.

During the period 1995 to 2001, the mean annual number of animals tested for brucellosis was 568,000 but this increased to an annual mean of over 900,000 (925,000 in 2010) for the last six years (Figure 3). This was due to the introduction of monthly bulk milk testing and also annual testing of herds that are not purely dairy herds.

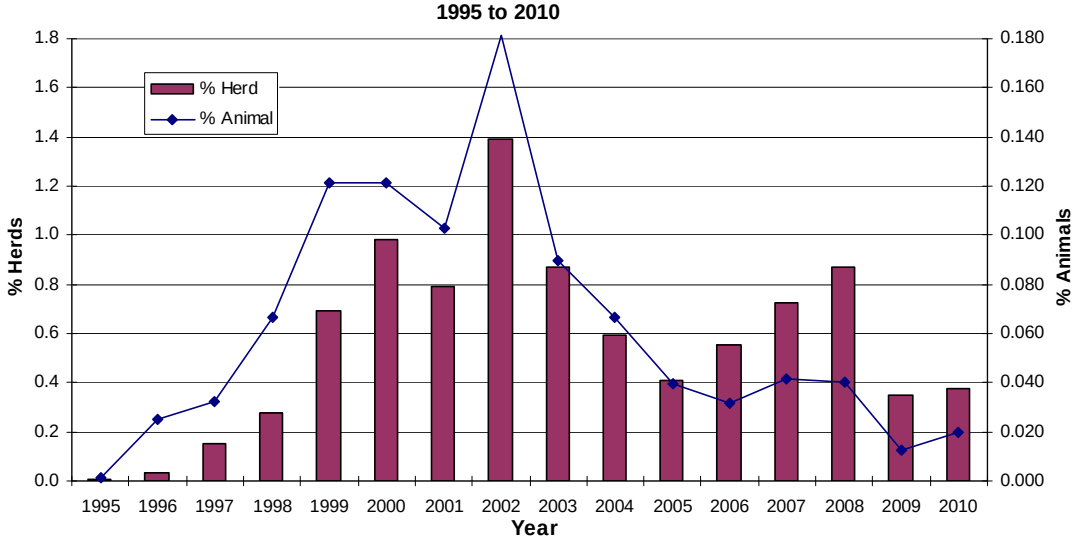
Monthly bulk milk sampling commenced in 2001 and all dairy herds were included in the screening programme within the following year (38,300 milk samples in 2010). Serological screening at slaughter of cattle older than 30 months also commenced in 2001 (under an Over Thirty Months Scheme). This scheme was replaced by an Older Cattle Disposal Scheme which decreased the numbers being monitored for brucellosis by this surveillance route and an Over 48 months scheme commenced in 2009 (19,500 sampled in 2010).

Figure 3: Annual number of animals tested for brucellosis (blood or milk samples) 1995 - 2010



Bovine brucellosis was largely eradicated from Northern Ireland by the 1980s but three primary outbreaks in the late 1990s, associated with cross-border activity, resulted in significant recrudescence. Herd and animal incidences increased until 2002 before declining (Figure 4). There was an apparent reduction in incidence in 2001 but this arose from significant reductions in testing that year, associated with a foot and mouth disease epidemic. From 2005, herd incidence increased due to a significant cluster of breakdowns associated with an outbreak in County Armagh, and to increased use of parallel testing and severe interpretation of serological tests (see later).

Figure 4: BR annual herd and animal incidence: 1995 to 2010



The annual herd incidence where BR infection is confirmed by bacteriological culture remained similar from October 2006 to June 2008 (Figure 5). There has been a steady decline in confirmed annual herd incidence (0.27% to 0.06% in November 2009) but there has been a slight rise during 2010 (0.11% in November 2010).

Figure 5: BR annual herd incidence where infection confirmed by culture: December 2005 to November 2010

Most outbreaks are located in the south of the country, with 76% of outbreaks up to 2005 located in the three southern counties[3] and 42% located in County Armagh. In more recent years, the vast majority of infection has been concentrated in two foci in the south of the country.

A study of outbreaks between 1995 and 2005 showed that 47% of first incidents were identified at contiguous testing i.e. where infection is disclosed in herds in close proximity to outbreaks (Figure 5). However, some non-contiguous tests occurred in contiguous herds, for example, 40% of herds identified through post-abortion testing were tested within the previous six months due to contiguity with an infected herd. Adjusting for this resulted in 61% of incidents being first identified at such testing.

Twenty percent of incidents were disclosed at routine testing, mostly through the biennial or annual herd test. Excluding 1995, with only a single seropositive herd, the percentage of incidents identified at routine herd tests ranged from 7.4% (2003) to 40% (2005), with a 10-year mean of 16.6%. The percentage of routine test disclosures increased in 2004 (15.4%) and 2005 (40%), from a previous 5-year mean of 11.5%. This corresponded with a significant reduction in the proportion of incidents confirmed by bacteriological culture.

[3] Abernethy D. (2008). Epidemiology and Management of Bovine Brucellosis in N. Ireland. PhD thesis. University of London.

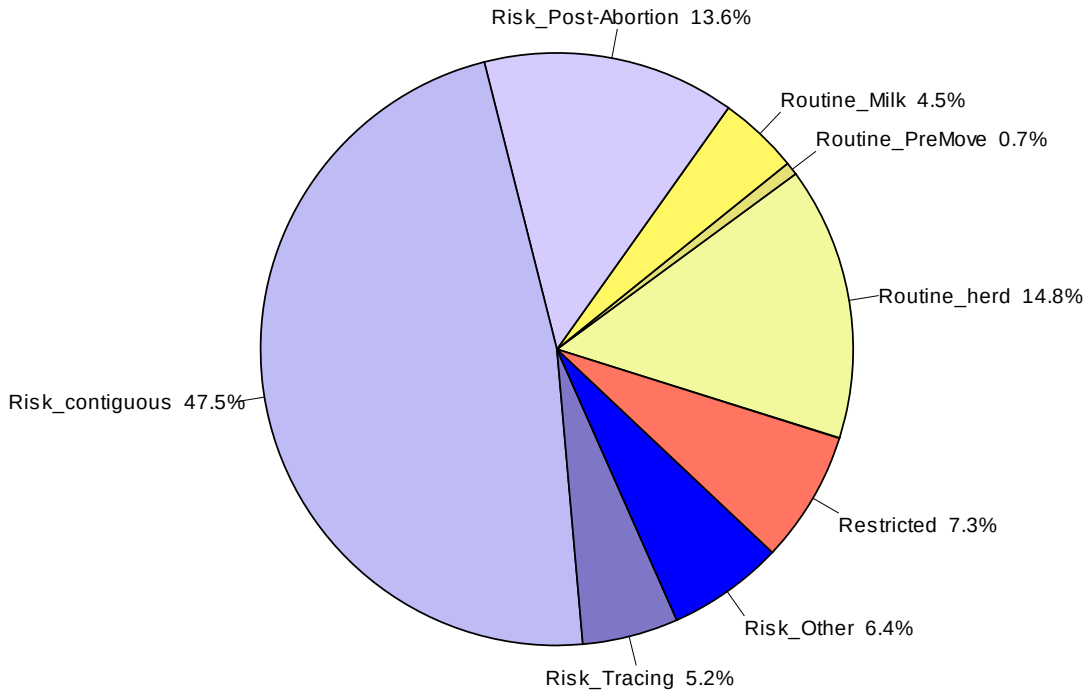


Figure 5: Proportion of outbreaks by test reason at disclosure

(n = 961).

A range of epidemiological studies have been undertaken to explore risk factors for brucellosis and to assess the efficacy of programme management. Some of these have been, or are being published, and further information can be provided if required. The following provides a brief synopsis of findings to date:

- The nature of farming in Northern Ireland is highly conducive to the spread of brucellosis. Cattle density is the highest in the United Kingdom and farm fragmentation is extensive, exacerbated by relatively small farm sizes, an increase in herd size in the 1990s and renting of pasture. Approximately sixty percent of herds use multiple premises, with a mean of 31 contiguous herds per breakdown, 13 of which directly neighbour each herd. This increases the potential for widespread exposure to infected cows, particularly when many herds utilise outdoor or mixed calving systems. Trends within the cattle farming industry, in response to economic subsidies, have further increased the risk - 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 both bovine tuberculosis and bovine brucellosis, suggesting an association with high stocking density[4].

- The lengthy incubation period and latency associated with brucellosis reduces the sensitivity and negative predictive value of serological tests. This allows latently

[4] Robinson P (2006). Cattle Subsidies in Northern Ireland 1990 – 2005: Their Influence on Cattle Demography, and Consequent Significance for Bovine Tuberculosis and Brucellosis Incidence. Dissertation for Royal College of Veterinary Surgeons Diploma in State Veterinary Medicine.

infected cattle to potentially escape the multiple, short-interval test regime surrounding outbreaks and may lead to an underestimate of the role of between-herd movement[5].

- A case control study identified herd size, herd density, between-herd movement and proximity to infection as significant risk factors for brucellosis.

- A field trial utilising six serological tests was undertaken to compare the diagnostic parameters of the tests. Over 31,000 samples were analysed as part of this trial and active consideration is being given to various changes in the brucellosis programme from the results of the trial. Amongst others, parallel testing by SAT and iELISA in risk and restricted herd and individual tests is being used widely.

- Surveillance measures for brucellosis were assessed: there was negligible increase in risk associated with biennial testing (compared with annual testing) and post-abortion testing was the most significant due to the increased within-herd prevalence associated with abortions. Bulk Milk Tank testing was the most effective surveillance measure but the low percentage of dairy herds in the country and relatively low sensitivity of the procedure precluded it replacing serological testing.

- Four, inter-related factors were assessed and identified as being crucial in determining the success of the eradication programme: management of exposed contiguous herds, the level of compensation paid, biosecurity measures employed by farmers and the level of government investment in the programme.

[5] Stringer, L.A., Guitian, F.J., Abernethy, D.A., Honhold, N.H. and Menzies, F.D. (2008). Risk associated with animals moved from herds infected with brucellosis in Northern Ireland. *Preventive Veterinary Medicine*, 84:72-84.

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3. Description of the submitted programme[6]:

Current Programme

(a) Routine annual herd tests are carried out in accordance with Directive 64/432. Routine Brucellosis blood sampling is carried out on cattle herds in Northern Ireland on an annual basis, with the exception of dairy herds in 7 lower incidence DVOs, which are routinely blood sampled on a biennial basis (with associated monthly bulk milk ELISA testing). Breeding and potential breeding cattle (female and bull cattle greater than 12 months of age) are subjected to serological testing on farm. An exception to test is made for bull beef cattle provided that the herdkeeper signs an undertaking to send these cattle directly to slaughter and that the OBF status in the herd is maintained at the routine herd test (i.e. the status of the herd is not withdrawn).

(b) Compulsory Premovement testing of all female and bull cattle greater than 12 months of age. The requirement for cattle to have been premovement tested was introduced on 1st December 2004.

(c) Cases of disease identified in the course of testing or notified to the Department result in the slaughter of affected and, in most cases where culture confirmation is obtained, all in-contact animals, the imposition of immediate movement restrictions on the holding and surrounding farms, tracing of cattle movements and an epidemiological investigation.

(d) Tests are carried out for non-routine reasons - restricted herds which are not depopulated, backward and forward traced animals or herds and herds considered to be at risk and animals of uncertain disease status. In the case of at-risk herds, these are restricted until appropriate check testing has been carried out. In the case of herds immediately contiguous to the Brucellosis breakdown herd the restriction is maintained during the initial period following restriction until the at-risk herd has shown two negative herd tests at an interval of at least three months.

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[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 (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination …), the target animal population and the area(s) of implementation and the definition of a positive case.

(e) Monthly bulk milk sampling is carried out in conjunction with the milk processing industry. A sample from the bulk tank is collected by the industry and submitted to the Veterinary Sciences Division of DARD for ELISA testing.

(f) The Department continues to undertake a publicity campaign programme promoting the prevention, detection and reporting of the disease. Activities have included a programme of direct mail shots, posters, leaflets, fliers, press articles, newspaper and journal advertisements.

(g) The use of EC approved Brucellosis vaccine is prohibited in the NI catttle population currently. Thus all herds are OBF status or have the OBF status suspended or withdrawn.

(h) Thick Lime Milk treatment of slurry of Brucellosis breakdown herds where there is a significant risk of spread of infection by slurry.

(i) The feasibility of using Brucellin Skin Testing as a diagnostic tool in high risk circumstances will be evaluated.

4. Measures of the submitted programme

4.1. Summary of measures under the programme

Duration of the programme:

First year: Brucellosis was eradicated in NI herds by 1982 with the herds attaining OBF status and biennial herd testing was introduced in 1988. The resurgence of Brucellosis started to occur in mid 1996. A Brucellosis Policy Review was completed during 2002, following which a number of new measures have been introduced.

Last year: Still current

□ Control

- □ Testing
- □ Slaughter of positive animals
- □ Killing of positive animals
- □ Vaccination
- □ Treatment
- □ Disposal of products

□ **Eradication**

- □ **Testing**
- □ **Slaughter of positive animals**
- □ Killing of positive animals
- □ Extended slaughter or killing
- □ Disposal of products

□ Monitoring or surveillance

□ Other measures *(specify)*:

4.2 Organisation, supervision and role of all stakeholders involved in the programme:

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

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 Brucellosis Programme Management team, established in October 2008, has a range of functions including monitoring of the programme, project management, change management and the provision of veterinary advice. Veterinary Service Field side consists of 10 areas (see Section 4.3), divided into patches. Field staff involved in Brucellosis control are: administrative staff, Veterinary Officers, Animal Health and Welfare Inspectors (blood samplers) and Valuation Officers.

Private Veterinary Practitioners (PVPs) and private lay testers (working under the supervision of a PVP) may be approved by DARD to carry out blood sampling for pre-movement testing.

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

4.3 Description and demarcation of the geographical and administrative areas in which the programme is to be implemented:

For veterinary administrative purposes, Northern Ireland is currently divided into 10 regions, each with a Divisional Veterinary Office (Figure 1). The regions are sub-divided into "patches", each managed by a veterinary officer (VO) and team of technical officers. A centralised animal health database ("APHIS"), incorporating an animal movement and test management system is used for all aspects of Brucellosis testing. The former is used to administer between-herd movement of cattle, captured using a licensing system and available access to relevant parts of the database by market and abattoir operators. The latter facilitates management of herd-level and animal-level tests, with results recorded at animal level.

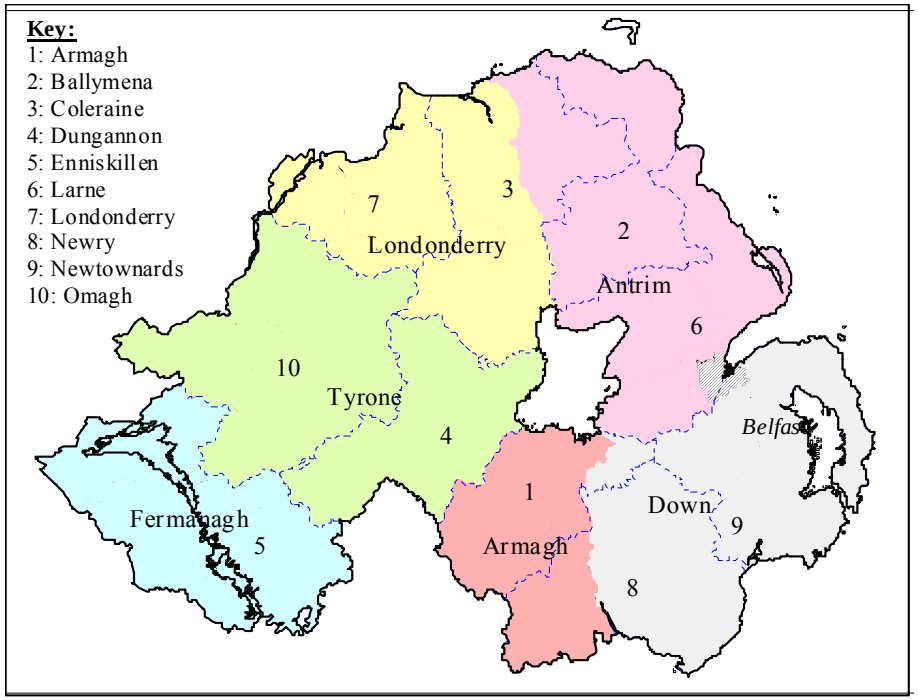
Key:
1: Armagh
2: Ballymena
3: Coleraine
4: Dungannon
5: Enniskillen
6: Larne
7: Londonderry
8: Newry
9: Newtownards
10: Omagh
7
Londonderry
3
2
Antrim
6
10
Tyrone
4
Belfast
1
Armagh
Down
9
Fermanagh
5
8

Fig 1: Divisional Veterinary Office regions (numbered) in Northern Ireland.

4.4 Description of the measures of the programme:

In 1982, Northern Ireland cattle herds were recognised as Officially Brucellosis Free (OBF) by the EEC. Since that date a monitoring programme has been carried out, in accordance with Annex B of 64/432/EC and is dependent on the percentage of herds which can be considered to be free from the disease over a given supervisory period.

Monitoring consists of:

- Annual testing of all herds in 3 'higher incidence' DVOs
- Biennial testing in pure dairy herds (supplemented by Bulk Milk testing) and annual testing of all other herds in 7 'lower incidence' DVOs
- Checks on aborted animals following notifications by farmers and veterinary surgeons
- Testing of diagnostic sample material submitted to the laboratory
- Re-test of inconclusive reactors
- Testing of animals forward traced from outbreaks of the disease
- Testing of herds identified by backward traces from outbreaks of disease
- Testing of herds inner and outer ring to a breakdown herd
- Monthly Brucellosis Bulk Milk ELISA testing in all dairy herds
- Compulsory Pre-movement testing of all female and bull cattle greater than 12 months of age
- Testing of Over Forty Eight Month cows and bulls
- Testing in Temporary Control Areas.

Other programme measures implemented include:

- Undertaking a publicity campaign programme promoting the prevention, detection and reporting of the disease

- Thick Lime Milk treatment of slurry of Brucellosis breakdown herds where there is a significant risk of spread of infection by slurry
- Regular staff training and communication updates
- On occasion, where circumstances warrant it, blood samples may be taken from other species for monitoring purposes
- The feasibility of using Brucellin Skin Testing as a diagnostic tool in high risk circumstances to enhance discrimination between false positive and true serological reactions will be evaluated.
- Liaison meetings with stakeholders

4.4.1 Notification of the disease:

Notification of Abortions:

Herd keepers and veterinary surgeons are required under the Brucellosis Control Order (Northern Ireland) 2004 to notify a Divisional Veterinary Office if any bovine animal has had an abortion. A restriction notice is issued for these animals, prohibiting their movement off the premises and requiring them to be isolated. The animals are tested by the Department of Agriculture and Rural Development (DARD) Veterinary Service until a negative test at 21 days post-calving is obtained.

4.4.2 Target animals and animal population:

All breeding cattle one year old and over are required to be presented for all classes of test.

There are approximately 26,500 active herds in Northern Ireland with some 1.6 million cattle in total. Of these cattle, approximately 960,000 are eligible for testing under the Brucellosis Control Programme.

4.4.3 Identification of animals and registration of holdings:

All cattle herds in Northern Ireland are registered with the competent 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. 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 the Department. 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. 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:

Current legislation (Brucellosis (Examination and Testing) Scheme Order (Northern Ireland) 2004) permits the use of vaccination with Department approval. The Policy currently is to prohibit the use of vaccine (Vaccination has been prohibited since 1963). Thus herds can be OBF or have their status suspended or withdrawn. The qualification of holdings is fully in line with the provisions of Annex A, II, of 64/432/EEC.

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 computer database so that no duplication should be possible. The birth of a calf must be notified to the Department within 27 days 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/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 holding, the address of premises to which the animal moved, or if 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 on the same day that an animal either leaves or arrives on his/her farm. 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 the computer database. Stock on farms are checked against official records at cattle identification inspections/and 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.

4.4.6 Tests used and sampling schemes:

Surveillence testing is carried out for early detection and confirmation of disease outbreaks and to identify possible sources of infection. Targeted and parallel (high risk) testing of contiguous herds is carried out for the early warning of disease spread.

At present the Serum Agglutination Test is used as a screening test with the Complement Fixation Test (CFT) used for confirmation. Parallel testing with SAT and ELISA is carried out in contiguous herds in high incidence areas, reactor herd tests, forward and backward tracing herd tests and individual risk tests. Test results are electronically transmitted from the laboratory to the Divisional Veterinary Offices. Bulk Milk samples are also subjected to an ELISA test.

Culture of *Brucella* is carried out at Veterinary Sciences Division, AFBI.

4.4.7 Vaccines used and vaccination schemes:

Not applicable.

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 publication "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 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.

The Diseases of Animals Act (NI) 2010 provides DARD with powers to introduce specific biosecurity guidance for specified diseases which is binding on all herdkeepers. It also prescribes the circumstances in which the Department may withhold compensation, either wholly or partially, in the event of non-compliance with statutory brucellosis biosecurity guidance. Draft statutory brucellosis biosecurity guidance is in the process of being drawn up in consultation with key stakeholders. The intention is to target the powers in respect of withholding compensation at those who demonstrate blatant or negligent disregard for the key actions contained in the statutory biosecurity guidance and in doing so put at risk a herdkeeper's own herd, the herds around him/her, or the whole industry.

4.4.9 Measures in case of a positive result:

All breeding and potential breeding stock may be slaughtered depending on the epidemiological disease assessment carried out in any breakdown herd. While almost all confirmed herds are depopulated, DARD reserves the right to undertake a programme of testing where it believes it is uneconomic to do otherwise. Factors that may be taken into account are possible previous breakdowns, the herd size, previous depopulations or the presence of high value animals. Adjoining farmers are alerted and their herds are restricted. These herds are restricted and tested immediately and at least every 3 months until all infected contiguous herds have been cleared. In inner ring herds, restrictions are lifted once there have been 2 negative herd tests. In outer ring herds restrictions are lifted following 1 clear herd test. Animals which have left a herd prior to infection being found are traced, placed under movement restriction and tested until calved or slaughtered. Where relevant, herds of origin are tested. A notice requiring cleansing and disinfection is served when the herd is restricted, and on completion, an inspection of the premises is carried out by an approved officer. Progeny of reactor cattle are traced and removed to slaughter as appropriate. In the case

of total herd depopulations the herdkeeper is prohibited from restocking the herd with cattle until a period of six months has elapsed from the date of depopulation. The competent authority has the power to require slurry on breakdown premises to be treated using Thick Lime Milk.

4.4.10 Compensation scheme for owners of slaughtered and killed animals:

Reactor animals and any relevant in- contact animals are valued on farm prior to slaughter. The amount of compensation varies depending on whether the animal is a reactor or an in-contact. In the case of reactors compensation is paid to a limit of 75% of the valuation or 75% of the average market value whichever is less. In the case of in-contact animals 100% of the market value is paid. Salvage value is paid to the competent authority. If that salvage is higher than compensation paid by the authority to the farmer, then the balance is paid to the farmer.

4.4.11 Control on the implementation of the programme and reporting:

The implementation of the Brucellosis Control Programme in Northern Ireland is currently overseen by a Brucellosis Programme Management Team. This team is led by a Senior Principal Veterinary Officer and is made up of both field and policy veterinarians. One of the roles of the team is to conduct remote auditing of work carried out, to assess the work completed with expected delivery targets and compliance with procedures. Much of the monitoring may be done using the Animal and Public Health Information System (APHIS), for example in checking completion of test cycles.

Further reporting is achieved through a traffic light Key Performance Indicator system that monitors, on a monthly basis, progress against targets in the Veterinary Service Business Plan.

5. Benefits of the programme[7]:

Compensation for an in-contact animal is paid at the animal's market value. Compensation for a reactor animal is paid at the lesser of either 75% of the animal's market value or 75% of an average price calculated from market returns from a 4-week period (plus £300 for a pedigree animal).

Payment to hauliers to transport cattle to abattoirs for slaughter.

Cost of laboratory analysis of blood and milk samples.

General staff costs relating to the programme.

Payments to abattoirs in relation to slaughter of cattle.

Disposal of sharps and clinical waste.

Use of thick lime milk in slurry.

Monies received from the abattoir contracted to the Department for slaughter of cattle born after 31 July 96 – meat goes into food chain.

Possible cost of Brucellin and testing equipment

Other Costs and Benefits

Note:- *The following has been extracted from the 2002 Control of Bovine Brucellosis Policy Review*

[7] A description is provided of all costs for the authorities and society and the benefits for farmers and society in general.

The 1993 NIAO report identifies the following potential benefits from the Department's disease control programme objectives, which have, in essence, not changed:

i) protecting a valuable live animal trade;

ii) maintaining an important "health status" for exports;

iii) avoiding trade restrictions prohibiting export of animals or meat from infected herds;

iv) avoiding the economic losses associated with the disease;

v) reducing risk to human health; and

vi) producing animal welfare benefits.

For illustrative purposes, the following details the level of impact required by the brucellosis eradication programme to achieve a breakeven (in terms of economic costs and benefits) in relation to human health and cattle output.

Human Health

The United Kingdom's Department of Environment, Transport and the regions (1997) provided a cost of a 'slight' casualty to a human (representing loss of earnings, welfare costs etc.) When this is adjusted to reflect 2000/01 prices it equates to approximately £8,000. If the 2000/01 cost of the brucellosis eradication programme were measured solely against this indicator, the programme would have to prevent over 1,340 people from becoming infected by brucellosis through contact with cattle (i.e. 4% of the number of those working on farms) to be judged cost effective in purely economic terms.

Output – Cattle

The DARD Statistical Review of NI Agriculture (2001) identifies the total value of output of finished cattle and calves and milk in 2001 as £683.7 million. The 2000/01 cost of the brucellosis eradication programme represents 1.6 percent of this level of this output. Therefore, for the brucellosis eradication programme to be cost effective, it should protect its equivalent amount in cattle output.

Although the above broad-brush analysis has its limitations, it demonstrates that the brucellosis programme requires a relatively low level of economic benefit (1.6 per cent of the sector's output) to justify its existence. However, this level of benefit produced by the programme cannot be accurately quantified, as it is difficult to predict the value of costs that would occur in the absence of such a programme.

6. Data on the epidemiological evolution during the last five years

6.1 Evolution of the disease

6.1.1. Data on herds[(a)] (one table per year and per disease/species)

Year:2010 **Situation on date: 4 March 2011**

Disease[(b)]: BRUCELLOSIS **Animal species: BOVINE**

Region[(c)]	Total number of herds[(d)]	Total number of herds under the programme	Number of herds checked[(e)]	Number of positive herds[(f)]	Number of new positive herds[(g)]	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 = (7/5)x100	9 = (4/3)x100	10 = (5/4)x100 [iv]	11 = (6/4)x100 [iv]
N. Ireland	25,933 [i]	25,933[i]	22,531[ii]	77	74	30 [iv]	39.0	86.9	0.39[iii]	0.38[iii]
Total	25,933 [i]	25,933[i]	22,531[ii]	77	74	30 [iv]	39.0	86.9	0.39[iii]	0.38[iii]

[i] Number of cattle herds in which cattle were presented at a TB herd test during the last 4 years

[ii] Herds with a herd level BR test where number of cattle >= 0 (19,598 herds had a herd test where cattle were presented cf. 20,181 in same period of 2009). Also, see also [iii] below

[iii] Prevalence and incidence figures were calculated using the herds which presented cattle at a herd test.

[iv] 30 herds from 20 epidemiological units

6.1 Evolution of the disease

6.1.1. Data on herds[(a)] (one table per year and per disease/species)

Year:2009 **Situation on date: 4 March 2010**

Disease[(b)]: BRUCELLOSIS **Animal species: BOVINE**

Region[(c)]	Total number of herds[(d)]	Total number of herds under the programme	Number of herds checked[(e)]	Number of positive herds[(f)]	Number of new positive herds[(g)]	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 = (7/5)x100	9 = (4/3)x100	10 = (5/4)x100 [iv]	11 = (6/4)x100 [iv]
N. Ireland	26,287 [i]	26,287 [i]	23,135 [ii]	76	71	20[iv]	26.3	88	0.38[iii]	0.35[iii]
Total	26,287	26,287	23,135	76	71	20	26.3	88	0.38	0.35

[i] Based on number of cattle herds presenting cattle for a TB herd tests during the last four years
[ii] Herds with a herd level BR tests where number of cattle >=0 (20,181 herds had a herd test where cattle were presented cf. 20,328 in the same period of 2008). Also, see also [iii] below
[iii] Prevalence and incidence figures were calculated using the herds which presented cattle at a herd test.
[iv] 20 herds from 17 epidemiological units

6.1.1. Data on herds[(a)] (one table per year and per disease/species)

Year: 2008 **Situation on date: 2 March 2009**

Disease[(b)]: BRUCELLOSIS **Animal species: BOVINE**

Region[(c)]	Total number of herds[(d)]	Total number of herds under the programme	Number of herds checked[(e)]	Number of positive herds[(f)]	Number of new positive herds[(g)]	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 = (7/5)x100	9 = (4/3)x100	10 = (5/4)x100 [v]	11 = (6/4)x100 [v]
N. Ireland	26,780 [i]	26,780[i]	23,396 [ii]	192	177	44 [iv]	22.9	87.4	0.94[iii]	0.87[iii]
Total	26,780	26,780	23,396	192	177	44	22.9	87.4	0.94	0.87

[i] Number of cattle herds in which cattle were presented at a TB herd test during the last 4 years

[ii] Herds with a herd level BR test where number of cattle >= 0 (20,328 herds had a herd test where cattle were presented cf. 20,893 in same period of 2007). Also, see also [iii] below

[iii] Prevalence and incidence figures were calculated using the herds which presented cattle at a herd test.

[iv] 44 herds from 34 epidemiological units

6.1.1. Data on herds[(a)] (one table per year and per disease/species)

Year: 2007 **Situation on date: 14 March 2008**

Disease[(b)]: BRUCELLOSIS **Animal species: BOVINE**

Region[(c)]	Total number of herds[(d)]	Total number of herds under the programme	Number of herds checked[(e)]	Number of positive herds[(f)]	Number of new positive herds[(g)]	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 = (7/5)x100	9 = (4/3)x100	10 = (5/4)x100 [v]	11 = (6/4)x100 [v]
N. Ireland	26,915 [i]	26,915 [i]	24,139 [ii]	157	151	60	38.2	89.7	0.751 [iii]	0.723 [iii]
Total	26,915 [i]	26,915 [i]	24,139 [ii]	157	151	60	38.2	89.7	0.751 [iii]	0.723 [iii]

[i] Number of cattle herds in which cattle were presented at a TB herd test during the last 4 years

[ii] Herds with a herd level BR test where number of cattle >= 0 (20,893 herds had a herd test where cattle were presented cf 21,256 in same period of 2006). Also, see also [iii] below

[iii] Prevalence and incidence figures were calculated using the herds which presented cattle at a herd test.

6.1.1. Data on herds[(a)] (one table per year and per disease/species)

Year: 2006 **Situation on date: 16 March 2007**

Disease[(b)]: BRUCELLOSIS **Animal species: BOVINE**

Region[(c)]	Total number of herds[(d)]	Total number of herds under the programme	Number of herds checked[(e)]	Number of positive herds[(f)]	Number of new positive herds[(g)]	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 = (7/5)x100	9 = (4/3)x100	10 = (5/4)x100 [v]	11 = (6/4)x100 [v]
N. Ireland	27,694 [i]	27,694[i]	24,423 [ii]	120	118	57	47.5	88.2	0.565[iii]	0.555[iii]
Total	27,694 [i]	27,694[i]	24,423 [ii]	120	118	57	47.5	88.2	0.565[iii]	0.555[iii]

[i] Number of cattle herds in which cattle were presented at a TB herd test during the last 4 years

[ii] Herds with a herd level BR test where number of cattle >= 0 (21,256 herds had a herd test where cattle were presented cf 21,568 in same period of 2005). Also, see also [iii] below

[iii] Prevalence and incidence figures were calculated using the herds which presented cattle at a herd test.

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

Year:2010 **Situation on date: 04/03/2011**

Disease[(a)]:BRUCELLOSIS **Animal species: BOVINE**

Region[(b)]	Total number of animals[(c)]	Number of animals[(d)] to be tested under the programme	Number of animals[(d)] tested	Number of animals tested individually[(e)]	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(f)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9=(4/3)x100	10=(6/4)x100
N. Ireland	1,604,356[i]	928,756[ii]	925,361	867,402	184	184	2,304	99.6	0.020
Total	1,604,356[i]	928,756[ii]	925,361	867,402	184	184	2,304	99.6	0.020

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

[i] From June Agricultural Census

[ii] Based on average number of cattle presented at Br herd tests over the last 4 years

Year:2009 **Situation on date:**

Disease[a]:BRUCELLOSIS **Animal species: BOVINE**

Region[b]	Total number of animals[c]	Number of animals[d] to be tested under the programme	Number of animals[d] tested	Number of animals tested individually[e]	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[f]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9=(4/3)x100	10=(6/4)x100
N. Ireland	1,612,813 [i]	946,438 [ii]	936,672	888,898	116	116	2,227	99	0.012
Total	1,612,813	946,438	936,672	888,898	116	116	2,227	99	0.012

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

[i] From June Agricultural Census

[ii] Based on average number of cattle presented at Br herd tests over the last 4 years

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

Year:2008 **Situation on date: 2 March 2009**

Disease[(a)]:BRUCELLOSIS **Animal species: BOVINE**

Region[(b)]	Total number of animals[(c)]	Number of animals[(d)] to be tested under the programme	Number of animals[(d)] tested	Number of animals tested individually[(e)]	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(f)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9=(4/3)x100	10=(6/4)x100
N. Ireland	1,622,541[i]	960,549[ii]	961,894	908,811	384	384	5372	100.1[iii]	0.04
Total	1,622,541	960,549	961,894	908,811	384	384	5372	100.1	0.04

(a) Disease and animal species if necessary.
(b) Region as defined in the approved eradication programme of the Member State.
(c) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(d) Includes animals tested individually or under bulk level scheme.

(e) Include only animals tested individually, do not include animals tested by bulk level samples (e.g.: milk bulk tank tests).
(f) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

[i] From June Agricultural Census

[ii] Based on the average number of cattle presented at Br herd tests over the last 4 years.

[ii] 94.6% animal coverage for individual tests (>100% because of repeat herd testing and births & deaths through the year. Denominator also an estimate based on average herd size over last 4 years).

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

Year:2007 **Situation on date: 14 March 2008**

Disease[(a)]:BRUCELLOSIS **Animal species: BOVINE**

Region[(b)]	Total number of animals[(c)]	Number of animals[(d)] to be tested under the programme	Number of animals[(d)] tested	Number of animals tested individually[(e)]	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(f)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9=(4/3)x100	10=(6/4)x100
N. Ireland	1,643,458[i]	945,318[ii]	973,529	911,394	402	402	6,585	103.0[iii]	0.041
Total	1,643,458[i]	945,318[ii]	973,529	911,394	402	402	6,585		0.041

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

[i] From June Agricultural Census

[ii] Based on the average number of cattle presented at Br herd tests over the last 4 years.

[ii] 96.4% animal coverage for individual tests (>100% because of repeat herd testing and births & deaths through the year. Denominator also an estimate based on average herd size over last 4 years).

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

Year:2006 **Situation on date: 16 March 2007**

Disease[(a)]:BRUCELLOSIS **Animal species: BOVINE**

Region[(b)]	Total number of animals[(c)]	Number of animals[(d)] to be tested under the programme	Number of animals[(d)] tested	Number of animals tested individually[(e)]	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered[(f)]	% coverage at animal level	% positive animals Animal prevalence
1	2	3	4	5	6	7	8	9=(4/3)x100	10=(6/4)x100
N. Ireland	1,635,727[i]	938,061[ii]	985,127	928,445	313	313	4,986	105.0[iii]	0.032
Total	1,635,727[i]	938,061[ii]	985,127	928,445	313	313	4,986	105.0[iii]	0.032

(a) Disease and animal species if necessary.
(b) Region as defined in the approved eradication programme of the Member State.
(c) Total number of animals existing in the region including eligible herds and non-eligible herds for the programme.
(d) Includes animals tested individually or under bulk level scheme.

(e) Include only animals tested individually, do not include animals tested by bulk level samples (e.g.: milk bulk tank tests).
(f) Include all positive animal slaughtered and also the negative animals slaughtered under the programme.

[i] From June Agricultural Census

[ii] Based on the average number of cattle presented at Br herd tests over the last 4 years.

[ii] 99.0% animal coverage for individual tests (>100% because of repeat herd testing and births & deaths through the year. Denominator also an estimate based on average herd size over last 4 years).

Stratified data on surveillance and laboratory tests

6.2.1. Stratified data on surveillance and laboratory tests (one table per year and per disease/species)

Year: 2010 **Disease[a]: *Brucellosis*** **Animal species/category[b]: Bovine**

Description of the used serological tests: (SAT) Serum Agglutination Test **(CFT)** Complement Fixation Test **(ELISA**) Enzyme Linked Immunosorbent Assay

Description of the used microbiological or virological tests: Culture of lymph nodes and vaginal swabs

Description of the other used tests:

Region[c]	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested[d]	Number of positive samples[e]	Number of samples tested[d]	Number of positive samples[e]	Number of samples tested[d]	Number of positive samples[e]
Northern Ireland	Blood~1,196,260	438	537*	56*		
	Milk 38,318	27				
Total	1,234,578	465	537*	56*		

(a) Disease and animal species if necessary.
(b) Breeders, laying hens, etc, when appropriate
(c) Region as defined in the approved eradication programme of the Member State.

(d) Number of samples tested, all confounded.
(e) Number of positive samples, all confounded
~ 1,176,730 samples from on-farm testing and 19,530 from over 48 month slaughter samples
* Samples equates to all tissue samples or swabs taken from one animal on a specified day, Samples submitted for routine diagnostic purposes are not included.

6.2.1. Stratified data on surveillance and laboratory tests (one table per year and per disease/species)

Year: 2009 **Disease[a]: *Brucellosis*** **Animal species/category[b]: Bovine**

Description of the used serological tests: (SAT) Serum Agglutination Test **(CFT)** Complement Fixation Test **(ELISA**) Enzyme Linked Immunosorbent Assay

Description of the used microbiological or virological tests: Culture of lymph nodes and vaginal swabs

Description of the other used tests:

Region[c]	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested[d]	Number of positive samples[e]	Number of samples tested[d]	Number of positive samples[e]	Number of samples tested[d]	Number of positive samples[e]
Northern Ireland	1,240,887 Blood~	247	267	28		
	38,945 Milk	17				
Total	1,279,832	264	267	28		

(a) Disease and animal species if necessary.
(b) Breeders, laying hens, etc, when appropriate
(c) Region as defined in the approved eradication programme of the Member State.
(d) Number of samples tested, all confounded.
(e) Number of positive samples, all confounded
~ 1,222,323 samples from on-farm testing and 18,564 from over 48 month slaughter samples

6.2.1. Stratified data on surveillance and laboratory tests (one table per year and per disease/species)

Year: 2008 **Disease[a]: *Brucellosis*** **Animal species/category[b]: Bovine**

Description of the used serological tests: (SAT) Serum Agglutination Test **(CFT)** Complement Fixation Test **(iELISA**) Indirect Enzyme Linked Immunosorbent Assay

Description of the used microbiological or virological tests: Culture of lymph nodes, vaginal swabs and aborted foetii

Description of the other used tests:

Region[c]	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested[d]	Number of positive samples[e]	Number of samples tested[d]	Number of positive samples[e]	Number of samples tested[d]	Number of positive samples[e]
Northern Ireland	Blood 1,368,860~	783	403*	81*		
	Milk 31,664	20				
Total	1,400,524	803	403	81		

(a) Disease and animal species if necessary.

(b) Breeders, laying hens, etc, when appropriate
(c) Region as defined in the approved eradication programme of the Member State.
(d) Number of samples tested, all confounded.
(e) Number of positive samples, all confounded

~ 1,321,798 samples from on-farm testing and 47,062 from over thirty month slaughter samples & older cattle disposal scheme

* Samples equates to all tissue samples or swabs taken from one animal on a specified day. Samples submitted for routine diagnostic purposes are not included.

6.2.1. Stratified data on surveillance and laboratory tests (one table per year and per disease/species)

Year: 2007 **Disease[(a)]: *Brucellosis*** **Animal species/category[(b)]: Bovine**

Description of the used serological tests: (SAT) Serum Agglutination Test **(CFT)** Complement Fixation Test **(ELISA**) Enzyme Linked Immunosorbent Assay

Description of the used microbiological or virological tests: Culture of lymph nodes and vaginal swabs

Description of the other used tests:

Region[(c)]	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested[(d)]	Number of positive samples[(e)]	Number of samples tested[(d)]	Number of positive samples[(e)]	Number of samples tested[(d)]	Number of positive samples[(e)]
Northern Ireland	Blood 1,291,960	808	277*	99*		
	Milk 31,280	22				
Total	1,323,240	830	277	99		

(a) Disease and animal species if necessary.
(b) Breeders, laying hens, etc, when appropriate
(c) Region as defined in the approved eradication programme of the Member State.
(d) Number of samples tested, all confounded.
(e) Number of positive samples, all confounded
~ 1,260,709 samples from on-farm testing and 31,251 from over thirty month slaughter samples & older cattle disposal scheme
* Samples equates to all tissue samples or swabs taken from one animal on a specified day. Samples submitted for routine diagnostic purposes are not included.

6.2.1. Stratified data on surveillance and laboratory tests (one table per year and per disease/species)

Year: 2006 **Disease[(a)]: *Brucellosis*** **Animal species/category[(b)]: Bovine**

Description of the used serological tests: (SAT) Serum Agglutination Test **(CFT)** Complement Fixation Test **(ELISA**) Enzyme Linked Immunosorbent Assay

Description of the used microbiological or virological tests: Culture of lymph nodes and vaginal swabs

Description of the other used tests:

Region[(c)]	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested[(d)]	Number of positive samples[(e)]	Number of samples tested[(d)]	Number of positive samples[(e)]	Number of samples tested[(d)]	Number of positive samples[(e)]
Northern Ireland	Blood 1,302,420	680	192*	114		
	Milk 38,917	21				
Total	1,341,337	701	192	114		

(a) Disease and animal species if necessary.
(b) Breeders, laying hens, etc, when appropriate
(c) Region as defined in the approved eradication programme of the Member State.
(d) Number of samples tested, all confounded.
(e) Number of positive samples, all confounded
~ 1,302,420 samples from on-farm testing and 20,568 from over thirty month slaughter samples & older cattle disposal scheme

* Samples equate to animals as multiple tissue samples from one animals is counted as one sample in the above figures

6.3. Data on infection (one table per year and per disease/species)

Year:2010 **Disease[(a)]: BRUCELLOSIS** **Animal species: BOVINE**

Region[(b)]	Number of herds infected[(c)]	Number of animals infected
N. Ireland	24^	50^
Total	24^	50^

(a) Disease and animal species if necessary.
(b) Region as defined in the eradication programme of the Member State.
(c) Herds equal flocks, or holdings as appropriate.

^ Based culture results from reactor animals from the date of first disclosure of the reactor animal

6.3. Data on infection (one table per year and per disease/species)

Year:2009 **Disease[(a)]: BRUCELLOSIS** **Animal species: BOVINE**

Region[(b)]	Number of herds infected[(c)]	Number of animals infected
N. Ireland	13^	24^
Total	13^	24^

(a) Disease and animal species if necessary.
(b) Region as defined in the eradication programme of the Member State.
(c) Herds equal flocks, or holdings as appropriate.

^ Based culture results from reactor animals from the date of first disclosure of the reactor animal

6.3. Data on infection (one table per year and per disease/species)

Year:2008 **Disease[a]: BRUCELLOSIS** **Animal species: BOVINE**

Region[b]	Number of herds infected[c]	Number of animals infected
N. Ireland	36 ^	72 ^
Total	36 ^	72 ^

(a) Disease and animal species if necessary.

(b) Region as defined in the eradication programme of the Member State.
(c) Herds equal flocks, or holdings as appropriate.

^ Based culture results from reactor animals from the date of first disclosure of the reactor animal.

6.3. Data on infection (one table per year and per disease/species)

Year:2007 **Disease[a]: BRUCELLOSIS** **Animal species: BOVINE**

Region[b]	Number of herds infected[c]	Number of animals infected
N. Ireland	56 ^	97 ^
Total	56 ^	97 ^

(a) Disease and animal species if necessary.
(b) Region as defined in the eradication programme of the Member State.
(c) Herds equal flocks, or holdings as appropriate.

^ Based culture results from reactor animals taken at date of first disclosure of the reactor animal.

6.3. Data on infection (one table per year and per disease/species)

Year:2006 **Disease[a]: BRUCELLOSIS** **Animal species: BOVINE**

Region[b]	Number of herds infected[c]	Number of animals infected
N. Ireland	58	114
Total	58	114

(a) Disease and animal species if necessary.
(b) Region as defined in the eradication programme of the Member State.
(c) Herds equal flocks, or holdings as appropriate.

6.4. Data on the status of herds at the end of each year[8]

Year:2010 **Disease[(a)]: BRUCELLOSIS** **Animal species: BOVINE**

Region[(b)]	Status of herds and animals under the programme[(c)]													
	Total number of herds and animals under the programme		Unknown[(d)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(g)]		Free from disease[(h)]		Officially free from disease [(i)]	
					Last check positive[(e)]		Last check negative[(f)]							
	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]
N. Ireland	25,933 [i]	928,756 [ii]	0	0	14	1,377	43	3,010	725	43,169	n/a	n/a	25,094	881,200
Total	25,933 [i]	928,756 [ii]	0	0	14	1,377	43	3,010	725	43,169	n/a	n/a	25,094	881,200

[i] Number of cattle herds in which cattle were presented at a TB herd test during the last 4 years
[ii] Based on the average number of cattle presented at Br herd tests over the last 4 years

[8] Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis).

6.4. Data on the status of herds at the end of each year[9]

Year:2009 **Disease[(a)]: BRUCELLOSIS** **Animal species: BOVINE**

Region[(b)]	Status of herds and animals under the programme[(c)]													
	Total number of herds and animals under the programme		Unknown[(d)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(g)]		Free from disease[(h)]		Officially free from disease [(i)]	
					Last check positive[(e)]		Last check negative[(f)]							
	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]
N. Ireland	26,287[i]	946,438[ii]	0	0	10	1,196	63	3,218	841	36,358	n/a	n/a	25,373	905,666
Total	26,287	946,438	0	0	10	1,196	63	3,218	841	36,358	n/a	n/a	25.373	905,666

[i] Number of cattle herds in which cattle were presented at a TB herd test during the last 4 years
[ii] Based on the average number of cattle presented at Br herd tests over the last 4 years

[9] Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis).

6.4. Data on the status of herds at the end of each year[10]

Year:2008 **Disease[a]: BRUCELLOSIS** **Animal species: BOVINE**

Region[b]	Status of herds and animals under the programme[c]													
	Total number of herds and animals under the programme		Unknown[d]		Not free or not officially free from disease				Free or officially free from disease status suspended[g]		Free from disease[h]		Officially free from disease [i]	
					Last check positive[e]		Last check negative[f]							
	Herds	Animals[j]	Herds	Animals[j]	Herds	Animals[j]	Herds	Animals[j]	Herds	Animals[j]	Herds	Animals[j]	Herds	Animals[j]
N. Ireland	26,780	960,549	0	0	14	968	92	6,520	808	32,303	n/a	n/a	25,866	920,758
Total	26,780	960,549	0	0	14	968	92	6,520	808	32,303	n/a	n/a	25,866	920,758

[10] Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis).

6.4. Data on the status of herds at the end of each year[11]

Year:2007 **Disease[(a)]: BRUCELLOSIS** **Animal species: BOVINE**

Region[(b)]	Status of herds and animals under the programme[(c)]													
	Total number of herds and animals under the programme		Unknown[(d)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(g)]		Free from disease[(h)]		Officially free from disease [(i)]	
					Last check positive[(e)]		Last check negative[(f)]							
	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]
N. Ireland	26915	945318	0	0	33	4308	103	4147	1524	61824	n/a	n/a	25255	875039
Total	26915	945318	0	0	33	4308	103	4147	1524	61824	n/a	n/a	25255	875039

[11] Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis).

6.4. Data on the status of herds at the end of each year[12]

Year:2006 **Disease[(a)]: BRUCELLOSIS** **Animal species: BOVINE**

Region[(b)]	Status of herds and animals under the programme[(c)]													
	Total number of herds and animals under the programme		Unknown[(d)]		Not free or not officially free from disease				Free or officially free from disease status suspended[(g)]		Free from disease[(h)]		Officially free from disease [(i)]	
					Last check positive[(e)]		Last check negative[(f)]							
	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]
N. Ireland	27,694	938,061	0	0	28	2,402	112	6,697	79	5,960	n/a	n/a	27,475	923,002
Total	27,694	938,061	0	0	28	2,402	112	6,697	79	5,960	n/a	n/a	27,475	923,002

[12] Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis).

6.5. Data on vaccination or treatment programmes[13] (NOT APPLICABLE)

Year: **Disease[(a)]:** **Animal species:**

Description of the used vaccination, therapeutic or other scheme:

Region[(b)]	Total number of herds[(c)]	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[(d)] vaccinated	Number of young[(d)] animals vaccinated
Total								

(a) Disease and species if necessary
(b) Region as defined in the approved eradication programme of the Member State
(c) Herds equal flocks, or holdings as appropriate

[13] Data to provide, where appropriate for Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Aujeszky's disease, Salmonella pullorum, Salmonella gallinarum, Anthrax, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis), Mycoplasma gallisepticum, heartwater transmitted by vector insects in the French overseas departments, babesiosis transmitted by vector insects in the French overseas departments, anaplasmosis transmitted by vector insects in the French overseas departments, Bluetongue in endemic or high risk areas, Rabies, Echinococcosisand salmonellosis (zoonotic salmonella) and agents thereof.

(d) Only for Bovine brucellosis, Ovine and caprine brucellosis (B. melitensis) and zoonotic salmonella, and as defined in the programme

6.6. Data on wildlife[14] (NOT APPLICABLE)

6.6.1. Estimation of wildlife population

Year: **Method of estimation[(a)]:**

Regions[(b)]	Estimation of the population of the concerned wild species			
	Species:	Species:	Species:	Species:
Total				

(a) The hunting bag is considered to be the standard method of estimation. If other method is used, explain

(b) Region as defined in the approved eradication programme of the Member State

[14] Data to provide for Bovine brucellosis, Ovine and caprine brucellosis (B. melitensis), Aujeszky's disease, African Swine fever, swine vesicular disease, endemic classical swine fever, Rabies, Echinococcosis and trichinellosis and agents thereof.

6.6.2. Monitoring of wildlife (one table per year and per disease/species) **(NOT APPLICABLE)**

Year: **Disease[(a)]:** **Animal species:**

Description of the used serological tests:

Description of the used microbiological or virological tests:

Description of the other used tests:

Region[(b)]	Microbiological or virological tests		Serological tests		Other tests	
	Number of samples tested	Number of positive samples	Number of samples tested	Number of positive samples	Number of samples tested	Number of positive samples
Total						

(a) Disease and species if necessary
(b) Region as defined in the approved eradication programme of the Member State

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

Year: **Disease[(a)]:** **Animal species:**

Description of the used vaccination, therapeutic or other scheme:

Region[(b)]	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) Disease and species if necessary
(b) Region as defined in the approved eradication programme of the Member State

7. Targets

7.1. Targets related to testing 2012

7.1. Targets on diagnostic tests

Disease[(a)]:Brucellosis **Animal species:Bovine**

Region[(b)]	*Type of the test*[(c)]	*Target population*[(d)]	*Type of sample*[(e)]	*Objective*[(f)]	*Number of planned tests*
N Ireland	SAT (EDTA) / CFT/ ELISA*	Breeding cattle greater than 12 months old	Blood	Surveillance	1,419,000
	ELISA	Dairy Herds / Herds with a dairy component	Milk	Surveillance	39,000
	SAT (EDTA) / CFT	Breeding cattle (> 12 months) prior to movement	Blood	Premovement test	170,000
	SAT (EDTA) / CFT	Cattle aged over 48 months	Blood	Surveillance	20,000
Total					1,648,000

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

* high risk tests

7.1.2. Targets on testing herds and animals[15]

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

Disease[(b)]:Brucellosis **Animal species: Bovine**

Region[(c)]	Total number of herds[(d)]	Total number of herds under the programme	Number of herds expected to be checked[(e)]	Number of expected positive herds[(f)]	Number of expected new positive herds[(g)]	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 = (7/5)x100	9 = (4/3)x100	10 = (5/4)x100	11 = (6/4)x100
N. Ireland	26,000	26,000	23,000	65	60	20	31	88.5	0.28	0.26
Total	26,000	26,000	23,000	65	60	20	31	88.5	0.28	0.26

(a)

15 Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Anthrax, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis), CBPP, African Swine fever, swine vesicular disease, endemic classical swine fever, heartwater transmitted by vector insects in the French overseas departments, babesiosis transmitted by vector insects in the French overseas departments, anaplasmosis transmitted by vector insects in the French overseas departments, Bluetongue in endemic or high risk areas.

7.1.2.2. Targets on the testing of animals

Disease[a]: Brucellosis **Animal species: bovine**

Region[b]	Total number of animals[c]	Number of animals[d] under the programme	Number of animals[d] expected to be tested	Number of animals to be tested individually[e]	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[f]	Expected % coverage at animal level	% positive animals (Expected animal prevalence)
1	2	3	4	5	6	7	8	9=(4/3)x100	10=(6/4)x100
N Ireland	1,600,000	925,000	915,000	860,000	100	100	2,000	98.9	0.01
Total	1,600,000	925,000	915,000	860,000	100	100	2,000	98.9	0.01

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

7.2. Targets on qualification of herds and animals[16]

Disease[(a)]:Brucellosis **Animal species:Bovine**

Region[(b)]	Total number of herds and animals under the programme		Targets on the status of herds and animals under the programme[(c)]											
			Expected unknown[(d)]		Expected not free or not officially free from disease				Expected free or officially free from disease status suspended[(g)]		Expected free from disease[(h)]		Expected officially free from disease [(i)]	
					Last check positive[(e)]		Last check negative[(f)]							
	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]	Herds	Animals[(j)]
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
N. Ireland	26,000	925,000	0	0	10	1,200	50	2,750	650	26,000	N/A	N/A	25,290	895,050
Total	26,000	925,000	0	0	10	1,200	50	2,750	650	26,000	N/A	N/A	25,290	895,050

(a) Disease and species if necessary
(b) Region as defined in the approved eradication programme of the Member State
(c) At the end of the year
(d) Unknown: No previous checking results available
(e) Not free and last check positive: Herd checked with at least one positive result in the latest check
(f) Not free and last check negative: Herd checked with negative results in the latest check but not being “free” or “officially free”

[16] Data to provide for Bovine tuberculosis, Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Enzootic bovine leukosis (EBL), Aujeszky's disease, Maedi/Visna and CAEV, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis).

(g) Suspended as defined for the respective disease in Community or national legislation where appropriate or according national legislation.
(h) Free herd as defined for the respective disease where appropriate in Community or national legislation where appropriate or according national legislation
(i) Officially free herd as defined for the respective disease where appropriate in Community or national legislation where appropriate or according national legislation(j) Include animals under the programme in the herds with the referred status (left column)

7.3. Targets on vaccination or treatment (NOT APPLICABLE)

7.3.1. Targets on vaccination or treatment[17]

Vaccine(s) and vaccination scheme or treatment and treatment scheme[18]:

Disease[(a)]: **Animal species:**

Region[(b)]	Total number of herds[(c)] in vaccination or treatment programme	Total number of animals in vaccination or treatment programme	Targets on vaccination or treatment programme					
			Number of herds[(c)] in vaccination or treatment programme	Number of herds[(c)] 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[(d)] expected to be vaccinated	Number of young[(d)] animals expected to be vaccinated
Total								

(a) Disease and species if necessary
(b) Region as defined in the approved eradication programme of the Member State
(c) Herds equal flocks, or holdings as appropriate

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17 Data to provide for Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (B. melitensis), Aujeszky's disease, Salmonella pullorum, Salmonella gallinarum, Anthrax, IBR/IPV (other types of enterprise), Johnes disease (paratuberculosis), Mycoplasma gallisepticum, heartwater transmitted by vector insects in the French overseas departments, babesiosis transmitted by vector insects in the French overseas departments, anaplasmosis transmitted by vector insects in the French overseas departments, Bluetongue in endemic or high risk areas, Rabies, Echinococcosis, salmonellosis (zoonotic salmonella) and agents thereof.

18 Specify the vaccine and the vaccination scheme (which herds and animals, the frequency and the interval of vaccination) with reference to the national legislation.

(d) Only for Bovine brucellosis and Ovine, caprine brucellosis (B. melitensis) and zoonotic salmonella and as defined in the programme

7.3.2. Targets on vaccination or treatment[19] of wildlife **(NOT APPLICABLE)**

Disease[(a)]: **Animal species:**

Region[(b)]	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) Disease and species if necessary
(b) Region as defined in the approved eradication programme of the Member State

[19] Data to provide for Bovine brucellosis, Ovine and caprine brucellosis (B. melitensis), Aujeszky's disease, , African Swine fever, swine vesicular disease, endemic classical swine fever, Rabies, Echinococcosis and trichinellosis and agents thereof.

8. Detailed analysis of the cost of the programme[20]

Costs related to	*Specification*	*Number of units*	*Unitary cost in £*	*Total amount in £*	*Community funding requested (yes/no)*
1. Testing					
1.1. Cost of the analysis	***Test:Brucella abortus serology (£1,245,764 of total is staff costs)***	***1,609,000***	***£0.933***	***£1,501,197***	***YES***
	Test:Brucella culture (£136,102 of total is staff costs)	***2,700***	***£55.55***	***£149,985***	***Not Applicable***
	Test:Brucella milk sampling (£52,958 of total is staff costs)	***39,000***	***£1.96***	***£76,440***	***YES***
1.2. Cost of sampling	***Blood sample kits***	***1,350,000***	***£0.30***	***£405,000***	***YES***
1.3. Other costs					
2. Vaccination or treatment					
2.1. Purchase of vaccine/treatment	***Not applicable***				

[20] Fixed costs should not be included. All amounts are VAT excluded.

2.2. Distribution costs	***Not applicable***				

2.3. Administering costs	***Not applicable***				
2.4. Control costs	***Not applicable***				
3. Slaughter and destruction					
3.1. Compensation of animals		***2,000***	***£1,137***	***£2,274,000***	***YES***
3.2. Transport costs		***2,000***	***£7.50***	***£15,000***	***Not applicable***
3.3. Destruction costs	***Data not available***				
3.4. Loss in case of slaughtering	***The contract for slaughter of cattle results in the contractor paying a salvage price for the carcases. The cost of slaughter is built into this and can't be broken down.***	***Not applicable***	***Not applicable***	***Not applicable***	***Not applicable***
3.5 Costs from treatment of products (milk, eggs, hatching eggs, etc)	***Not applicable***				
4. Cleaning and disinfection	***Data not available***				

***5. Salaries** (staff contracted for the programme only)*	***Total shown excludes laboratory staff costs detailed at 1.1 above***			***£6,034,214***	***Not applicable***
6. Consumables and specific equipment	***Not Applicable***				
7. Other costs					
Disposal of sharps and clinical waste				***£18,000***	***Not applicable***
Use of thick lime milk in slurry				***£68,000***	***Not applicable***
Salvage		***2,000***	***104.80***	***-£209,600***	***Not applicable***
TOTAL				***£10,332,236***	