

POLICY DOCUMENT

BOVINE TUBERCULOSIS ERADICATION PROGRAMME

September 2002

SUMMARY:

Veterinary Ireland supports the opinion of DAFRD that the current TB programme can only achieve containment of the level of TB in cattle at or near current levels but that it will not lead to the eradication of TB in cattle. Veterinary Ireland accepts the increasing scientific and epidemiological evidence that the endemic high levels of TB in wildlife, particularly badgers, is the most significant barrier to TB eradication in Ireland, and that this represents a very difficult obstacle to overcome. We support the current research and other work which is attempting to find both interim and long-term solutions to overcoming the problems associated with TB in wildlife. Veterinary Ireland sees the current 12-month window in which cattle can be traded freely after a TB test as a significant weakness in the programme, and strongly recommends that this 12-month window be shortened. Veterinary Ireland considers that there would be significant benefits in relation to the prevention, control and management of TB and other Animal Health problems at farm level if considered in the context of an overall Herd Health Management Programme on each farm.

BACKGROUND AND HISTORY.

Prior to 1954, an estimated 80% of cattle herds and 17% of animals in Ireland were Infected with TB. [A voluntary scheme for the eradication of bovine tuberculosis in cattle commenced in](#) September [1954](#), initially in counties Sligo and Clare. The scheme was gradually extended and intensified from 1958 onwards, and was given a statutory basis [Diseases of Animals (Bovine Tuberculosis) Act, 1957]. The scheme was prompted by the desire to preserve market access for Irish store cattle to the UK, but also by concerns about reduced animal productivity and worries about human infection from the heavily infected animal population. In relation to Public Health it is important to remember and acknowledge that the current extremely low levels of *M. bovis* infection in humans in Ireland is a significant ongoing benefit derived from the current programme.

In the early years of the programme very rapid and significant progress was made, with large numbers of reactors being removed. Between 1959 and 1962, 120 000 to 160 000 reactor animals per annum were removed as part of the eradication programme. By 1965 the [scheme has succeeded in reducing the](#) tuberculin reactor rate to about [0.5%](#). In 1965 Ireland declared itself “Disease Attested“, and an impression was erroneously formed that Ireland had eradicated bovine tuberculosis.

Indeed a publication was produced on behalf of the Department of Agriculture and Fisheries in October 1965 to “mark the memorable occasion of the formal declaration of the whole state as cleared of bovine tuberculosis“. This publication detailed how we had “eradicated “ and “eliminated “ tuberculosis and paid tribute to all those who had been involved. In reality it is clear that while substantial progress had been made, approximately 20 - 40 000 reactors per annum continued to be identified from 1965 onwards. This has remained the case in recent years, with disease levels remaining relatively static and approximately 30 000 reactor animals being identified and removed each year.

In April 1988, ERAD, the Eradication of Animal Disease Board, was established by the Irish Government as an executive agency to implement a vigorous four-year eradication programme. The ERAD board included representatives from the Farming Organisations, the Veterinary Profession, Agribusiness interests, the Department of Finance and the Department of Agriculture. ERAD devised and implemented a programme that resulted in just over 44 million tests being completed and 151,000 reactors being removed over the four-year period from a population of some 6.9 million animals.

This increased level of testing coupled with a more severe test interpretation resulted in a 50% higher reactor extraction rate than under previous programmes. As well as round or screening testing, there was a very considerable strategic component. This involved additional ‘special check’ testing of black spot areas, known high-risk herds, and contiguous herds. Herds were categorised according to disease incidence, with a specific strategy applied to each category.

In parallel with this testing programme, a comprehensive research programme was established to review all aspects of the disease and its epidemiology.

The main conclusion drawn from the ERAD programme was that eradication would be more difficult to achieve than had been originally envisaged, that special emphasis needed to be placed on the development of technological tools and that a programme to systematically and progressively reduce the disease should be pursued.

More recently, the Programme for Prosperity and fairness (PPF) set ambitious targets in relation to a reduction in TB levels. The PPF document, which was formally endorsed in March 2000, states:

“To reduce the incidence of TB by 50%, and to make significant progress towards the eradication of brucellosis, within the next four years, the following measures will be taken:

- *As the primary constraint on containing and eradicating TB is the existence of a significant reservoir of infection amongst the wildlife population, the government will:*
- *Commit specified staff resources in each DVO to carry out investigative work into the causes of breakdowns; and*
- *In addition to current arrangements relating to wildlife, take a proactive approach in each DVO area, using 75 dedicated Departmental and Farm Relief personnel, to the removal of all sources of infection in the 20% of the country which yields some 50% of current TB reactors; the distribution of these resources will be finalised in consultation with the farm organisations.”*

The above measures are now in the process of being implemented within DAFRD, and the recruitment of the dedicated staff mentioned above is expected to be completed in the second half of 2002.

Three further relevant matters were agreed in the PPF document i.e.

- (i) the introduction of an on-farm valuation system (implemented in 2001/2002),
- (ii) the establishment of monitoring committees (Departmental, veterinary and farming representatives) in each DVO area (implemented in 2002) and
- (iii) *“Additional measures relating to movement controls will be considered in the framework of the Animal Health Forum”*. This refers to a measure sought by DAFRD and the Veterinary organisations i.e. a reduction in the 12-month trading window which currently exists for an animal after a TB test. (No progress has been made on this issue to date.)

Appendix 1 sets out the evolution of TB from 1960 to 2001 in terms of the cattle population and the number of reactors each year.

BASIC ELEMENTS OF CURRENT PROGRAMME.

The principle test used in the programme is the Single Intradermal Comparative Tuberculin Test as specified in Council Directive 64/432 EEC (as amended). The current Tuberculosis programme is designed to carry out a full monitor of the national herd through a combination of routine screening testing and testing targeted on epidemiological grounds as set down in Directive 64/432/EEC (as amended) Annex C and Annex B. Considerable work has been undertaken on the development of laboratory based blood tests for TB. The Gamma Interferon assay, the most promising of these, is used occasionally as an adjunct to the tuberculin test in infected herds.

Under legislation, veterinary surgeons are required to notify the Superintending Veterinary Inspector (SVI) at the District Veterinary Office of details of all positive and inconclusive test results and where on clinical grounds, tuberculosis is suspected. Keepers who have reason to suspect that the disease may be present in their herds are also obliged to contact the District Veterinary Office.

Where tuberculin test positive animals are identified or where bovine TB is otherwise identified, the holding is restricted under EU and national legislation and an animal may not be moved into or out of a restricted holding except in accordance with a movement permit.

Where a lesion is detected in a carcase from an animal originating in a clear herd, the herd is immediately restricted, the lesion is subjected to laboratory examination and the herd is subjected to the appropriate testing regime as defined in Council Directive 64/432/EEC (as amended). All holdings are registered in accordance with EU and national legislation by means of a unique herdnumber on a County (regional) basis. A national computer record of herdnumbers is maintained. Strict conditions apply to the granting of herdnumbers and herdnumbers may be withdrawn or amalgamated where conditions are breached.

In accordance with the provisions of Directive 64/432/EEC, as amended, the status of a herd in which an animal/s has reacted inconclusively to the skin test is suspended until the status of that animal/s is resolved. The purpose of this suspension is to prevent trade in animals from the same herd as an animal that may be infected with TB.

Since the commencement of the bovine TB eradication scheme in 1954 individual animals have been identified most recently (mid 1960's) by means of secure approved ear tags with unique numbering. Since 1996 calf birth and identity are required by law to be registered on a national herd database, enhancing traceability. In addition, an official National Bovine Administrative Document and Cattle/Passport is issued in respect of each animal. This provides for recording of the details required under Council Regulation (EC) No. 820/97 and in addition the date of the last tuberculin test and the herd in which the animal was tested. All animal details must be entered in the on-farm herd register (this may also be kept in approved computerised format). Details of animal movements are captured through a variety of mechanisms and are recorded centrally on the Computerised Movement Monitoring System (CMMS). These requirements are laid down in Irish legislation in accordance with the requirements of Council Regulation (EC) No. 820/97.

Herdowners (keepers) themselves are responsible for arranging annual herd tests within timescales prescribed by the Department with their veterinary practitioners, including payment of fees directly to practitioners in respect of these tests. Any second or subsequent herd test in the course of the year is arranged and paid for by DAFRD.

Routine post-mortem examination of all animals slaughtered (approximately 1.9 million) conducted by veterinarians provides an important additional monitor of the national herd.

OBSTACLES TO PROGRESS

Wildlife reservoir: There has been considerable debate over many years in relation to the significance of the role played by wildlife (mainly badgers) in relation to bovine TB. The disease has now been shown to be endemic within the badger population with upwards of a 20% infection level in badgers across the whole of the Island. It is now generally accepted that this high level of infection that exists in the badger population is the single biggest obstacle to progress towards eradication of TB in cattle in Ireland. TB in wild deer may also be of significance in some areas.

Strain typing techniques have confirmed that infected badgers and cattle commonly share the same strain types of *M. Bovis* within local areas. A number of large-scale research projects have been carried out by DAFRD to attempt to quantify the contribution of infected badgers to persistently high TB levels in the cattle population. The East Offaly project, which commenced in 1989, covered an area of 240 square miles and compared a badger removal strategy in the project area with a non-removal strategy in a surrounding control area. The APT (reactor animals per 1000 tests) in the project area decreased from 3.91 in 1988 (prior to the project starting) to 0.46 in 1995. The actual number of reactor animals in the project area decreased from 326 in 1988 to 30 in 1995. In the control area, the APT decreased from 3.39 in 1988 to 2.10 in 1995 (a decrease in reactor number from 910 to 430). (It is thought that the reduction in disease levels in the control area is due to a reduction in badger density in the control area also, as badgers migrate from the control area into the buffer and project areas as badgers were removed from these areas). To confirm that the dramatic results obtained in the East Offaly project could be repeated in other areas, four similar large-scale 5-year projects (in Cork, Kilkenny, Donegal and Monaghan) were established. While these 5-year projects will not be completed until later this year, all the indications are that similar reductions in TB levels in cattle will be seen in all 4 project areas. A series of similar projects are also currently being carried out in the UK. Recent research from the UK (Garnett et al., Proceedings of the Royal Society), using video shot at nighttime in cowsheds, highlighted a surprisingly high degree of interaction between badgers and housed cattle, as badgers made frequent nocturnal “raids” for food and water.

Veterinary Ireland recommends that the research effort continues and is strengthened in relation to wildlife and TB. In particular Veterinary Ireland supports the priority currently being given in Ireland to the development of a wildlife vaccine. We support the concept that a wildlife vaccine represents the most likely acceptable long-term solution to the TB reservoir in wildlife.

Testing Interval: Herds are obliged to undergo a full herd test once every 12 months. Thereafter an animal can move freely from a non-restricted herd to another herd without a requirement to undergo a pre-movement test. Because the herdowner himself now pays for the annual herd test, it is in his interest to have as few animals as possible at the time of that annual test. Thus in practice there is an

incentive to sell animals prior to the time of the annual herd test, and to refrain from buying-in until after the herd test. In this way the test interval for individual traded animals is often extended (legally) well beyond 12 months.

There appears to be no disagreement that the re-introduction of a pre-movement test will reduce the spread of tuberculosis, prevent the introduction of disease into clear herds and reduce the number of herds restricted each year. In addition it would lead to earlier detection of disease in herds and thus limit within herd spread and limit the risk of contiguous spread. There is some lack of agreement about the scale of impact that the re-introduction of a pre-movement test will have on disease levels. DAFRD estimates that a 30-day pre-movement test (as is required for brucellosis) would result in a 10% reduction in the number of herd restrictions. (DARDNI estimates approximately an 8% reduction). If we accept the 10% figure, in 2001 this would have meant 919 fewer herds restricted for TB.

It is worthwhile to look at the basic cost implications of the re-introduction of a pre-movement test, even simply in terms of testing costs alone. Each restriction lasts on average 6 months, and two clear tests are required prior to derestriction. Each restricted herd also has to undergo a special check test 6 months after derestriction, thus each restriction results in 3 extra herd tests for the index herd. In addition each restriction in 2001 led to an average of just under 2 contiguous herd tests per restricted herd. Thus each individual herd restriction for TB leads to approximately 5 extra herd tests being carried out. Extrapolating from this, a reduction of 919 restrictions would lead to approximately 4500 fewer herd tests being carried out in 2001.

One option that could be explored is the possibility of limiting the type of animals requiring a pre-movement test to cows and bulls over 12 months of age (i.e. to those animals which currently require a blood test for brucellosis anyway). This option would have the advantage of concentrating resources on the class of animals which produce the largest volume of reactors (more than 75%) and thus constitute the greatest source of disease spread. It would minimise the cost and disruption caused by testing by only involving those animals in which a (brucellosis) test is required anyway, while still yielding significant benefits in terms of reducing Tb. If we were to factor in the savings that would accrue in terms of reduced reactor compensation

payments, reduced administrative costs, reduction in losses at farm level as a result of fewer restrictions etc., we contend that this measure would undoubtedly be cost effective.

Veterinary Ireland strongly supports some reduction in the current 12-month trading window. It recognises that the farming organisations have adapted a negotiating position which states that they are opposed to such a move, largely for reasons of cost rather than for disease control reasons per se. Veterinary Ireland recommends that DAFRD, through the Animal Health forum, explore ways to reconcile the disease control benefits to be gained with the cost concerns of the farming side. We are confident that a positive outcome to this impasse can be found which will deliver real benefits in terms of reducing TB levels without any negative cost implications.

Test Specificity & Sensitivity: The TB test is generally considered to have a test specificity in excess of 99.9%. Various studies have shown that the test as applied in Ireland has a sensitivity in excess of 80%. No other currently available test for TB has such high specificity and sensitivity. Nevertheless, an improved test if available would obviously be of benefit. Veterinary Ireland recommends the continuation of research into alternative or supplementary tests, including the gamma interferon test, while recognising that no imminent breakthrough is likely in this regard.

Cattle Movement Patterns and Farm Structures: It is recognised that the traditional nature of farming and trade in bovine animals in Ireland is such that cattle may move 3 or more times on average during their lifetime. In a disease context this is undesirable, as inevitably the more often an animal moves the greater the opportunity for contacting and subsequently spreading disease. In this context the ability to move freely without the need for a pre-movement test for TB inevitably leads to some degree of disease spread to clear herds and areas that would otherwise have been prevented.

The increasingly fragmented structure of farm holdings in Ireland is also a negative factor in terms of disease control. This fragmented structure means that even within a holding cattle tend to move frequently and often over significant distances. Veterinary Ireland welcomes the more recent trend (post FMD) towards less

frequent movement of animals. It welcomes and encourages recent developments such as video sales or internet selling of cattle as being a positive development in reducing disease spread generally. Veterinary Ireland also welcomes the recent moves to register and regulate cattle dealers and cattle dealing premises.

Illegal Interference with the TB test: The TB test is a field test based on a skin reaction to an injected antigen. By its nature it is vulnerable to interference. This can arise in terms of suppression of the test reaction to avoid the consequences of being restricted. Alternatively it can involve the generation of false reactions for the purpose of fraudulent compensation claims. While there have been some recent prosecutions of cases where this has occurred, it is likely that the volume of such illegal activity is currently very small. The introduction of a system of market valuation of reactors should have reduced the incentives for such activity. Nevertheless it is a factor which must be addressed in any eradication programme. In this regard Veterinary Ireland supports the activities of DAFRD in monitoring and where necessary prosecuting any such illegal activity.

Slurry/effluent management: Work done in Ireland has shown that *M. Bovis* can survive for a considerable period of time in slurry. It has also been shown that in windy conditions bacteria can spread up to half a mile with some types of slurry spreaders. The exact contribution that infected slurry or manure may play in the spread or maintenance of TB infection in cattle and badgers is difficult to quantify. Veterinary Ireland recommends that this subject be further addressed in research work to be carried out by DAFRD and/or Teagasc.

OTHER CONSIDERATIONS:

Herd Health Management Programmes: A comprehensive herd health management programme, tailored to each individual farm, could yield significant benefits in terms of Animal Health, Public Health and Animal Welfare.

A herd health programme would involve taking a holistic approach to all matters directly or indirectly impacting on the health status of the herd, and would be drawn up by the Veterinary Practitioner in consultation with the farmer and other professional advisers (e.g. Teagasc) as appropriate. A typical programme would focus on areas such as preventive medicine, nutrition, infertility, infectious disease

control, (including TB & brucellosis), mastitis control, biosecurity, etc. etc. It would generally involve an annual plan for the farm being agreed, with reviews as necessary. It could encompass existing schemes such as the dairy hygiene scheme and quality assurance schemes. A number of variations and models for such an approach exist in other countries, and a pilot project is currently underway involving the Veterinary College and a number of farms. The Farm Quality Assurance Scheme (FQAS) which currently operates in relation to beef and lamb in Northern Ireland provides an interesting model. This is an independently certified scheme which has had a very significant uptake amongst farmers in Northern Ireland (and some suppliers in Donegal also). Farmers pay an annual fee to participate in the scheme, and in return a premium price is paid at factory level for product originating from FQAS farms. The FQAS standard includes the following requirement *“A written disease prevention and health control programme must be established and operated with veterinary advice. This programme must be reviewed at least annually or more frequently in the event of any substantial changes to husbandry practices“*

Another model of scheme would see an annual herd health plan, with a certain number of “free“ veterinary farm visits included. This model, which would encompass some degree of state funding, would tackle the increasing difficulties whereby a farmer can be reluctant to call out a vet because the cost of a visit often exceeds the economic value of the animal in question (particularly in relation to sheep). This situation is obviously undesirable for a number of reasons.

For any programme to work and be transparent and credible, the system would need to be independently auditable. In recognition of the greater controls and safeguards that would apply on such farms, those who participated in such a programme, with agreed Animal Health plans, could be allowed certain derogations in relation to the supply and use of Animal Remedies.

In Britain a debate on this whole issue is well advanced. The Policy Commission on the Future of Farming and Food has called for, among other things, a National Animal Health Strategy, a move towards a whole-farm approach to regulation, the development of herd health plans and whole-farm audits, and rationalisation of

farm and food assurance schemes. Veterinary Ireland supports the concept of herd health management programmes, and sees them contributing significantly to improvements in animal health (including TB), public health and animal welfare in the future. Veterinary Ireland recommends that prospective Food Quality Assurance programmes include a written disease prevention and health control programme established and operated with veterinary advice and that such programmes be reviewed at least annually or more frequently in the event of any substantial changes to husbandry practices.

Political and External Climate: A Cost benefit analysis of the Irish TB Eradication scheme was carried out by Professor Seamus Sheehy and Dr. K. H. Christiansen of UCD in 1991. The executive summary under the heading of “The Illusion of eradication with Present Technology“ is reproduced in full here. *The answer to this question must be sought in the political arena. The objective of eradication was innocently embraced in the early years of the scheme, and the progress in reducing the disease level tended to confirm the achievability of this objective. The declaration in 1965 of full attestation was the climax of this mood. By the early 1970s it was clear to the informed that the disease was not eradicated, but the aspiration of imminent eradication was maintained.*

This illusion has undoubtedly been the cause of most of the criticism of the scheme over the years. If realistic targets had been set then the outcome would have been much closer to those targets and the parties involved as well as the public would not have felt so frustrated. These parties – the veterinary profession, the farmers and the administrators – vented their frustration by accusing each other of malpractice while failing to invest in an improved understanding of the realities involved. Those, such as politicians, who are not directly involved but who have also pointed the accusing finger, were equally delinquent in failing to seek the root causes of the problem.

Veterinary Ireland considers it important to accept that eradication of TB in cattle in Ireland is not imminent. The current programme is effective in containing disease levels at their current relatively low levels, and the benefits of that containment are considerable in terms of trade, animal health and public health. Indeed it is likely that the current programme, with its enhanced wildlife focus, will lead to a reduction in the overall levels of TB in the national herd. However it is important to

for all stakeholders and the Public to be aware that until the significant obstacles outlined here can be overcome, in particular the problems associated with the wildlife reservoir, eradication will not be achieved.

National and International Context: A number of other countries, including Britain and New Zealand, are experiencing problems with Tb in cattle. Northern Ireland, not unexpectedly, shares many of the difficulties that we experience. Britain has a smaller but increasing TB problem. Veterinary Ireland supports the increasing North-South co-operation in relation to animal health issues, and considers that TB control is an area that lends itself extremely well to an all-island approach.

A map, which outlines the classification of EU countries as Officially TB free (OTF) or non-OTF in 1999 is attached at appendix 2.

Appendix 1.

<u>Year</u>	<u>Cattle Population</u>	<u>Number of Animal Tests</u>	<u>No. of Reactors</u>	<u>Percentage Disease Incidence</u>	<u>APT **</u>	<u>RPT ***</u>
<u>1960</u>	<u>4,683,700</u>	<u>*</u>	<u>139,881</u>	<u>2.99</u>	<u>-</u>	<u>29.9</u>
<u>1965</u>	<u>5,359,300</u>	<u>*</u>	<u>23,378</u>	<u>0.44</u>	<u>-</u>	<u>4.4</u>
<u>1970</u>	<u>5,956,500</u>	<u>*</u>	<u>35,982</u>	<u>0.60</u>	<u>-</u>	<u>6.0</u>
<u>1975</u>	<u>7,168,100</u>	<u>*</u>	<u>21,339</u>	<u>0.30</u>	<u>-</u>	<u>3.0</u>
<u>1980</u>	<u>6,908,900</u>	<u>8,878,924</u>	<u>29,827</u>	<u>0.43</u>	<u>3.6</u>	<u>4.3</u>
<u>1985</u>	<u>6,907,200</u>	<u>11,180,602</u>	<u>32,608</u>	<u>0.47</u>	<u>2.9</u>	<u>4.7</u>
<u>1988</u>	<u>6,604,100</u>	<u>11,125,500</u>	<u>29,994</u>	<u>0.45</u>	<u>2.7</u>	<u>4.7</u>
<u>1989</u>	<u>6,800,100</u>	<u>12,436,982</u>	<u>43,580</u>	<u>0.64</u>	<u>3.5</u>	<u>6.5</u>
<u>1990</u>	<u>6,899,929</u>	<u>12,427,144</u>	<u>41,419</u>	<u>0.60</u>	<u>3.3</u>	<u>6.0</u>
<u>1991</u>	<u>6,814,229</u>	<u>8,209,105</u>	<u>36,832</u>	<u>0.54</u>	<u>4.4</u>	<u>5.4</u>
<u>1992</u>	<u>7,084,441</u>	<u>10,887,513</u>	<u>35,997</u>	<u>0.51</u>	<u>3.3</u>	<u>5.2</u>
<u>1993</u>	<u>7,043,913</u>	<u>10,446,265</u>	<u>30,359</u>	<u>0.43</u>	<u>2.9</u>	<u>4.3</u>
<u>1994</u>	<u>7,137,696</u>	<u>10,435,076</u>	<u>30,439</u>	<u>0.43</u>	<u>2.9</u>	<u>4.3</u>
<u>1995</u>	<u>7,174,016</u>	<u>10,112,939</u>	<u>33,180</u>	<u>0.46</u>	<u>3.3</u>	<u>4.6</u>
<u>1996</u>	<u>7,412,933</u>	<u>10,073,859</u>	<u>30,400</u>	<u>0.41</u>	<u>3.0</u>	<u>4.1</u>
<u>1997</u>	<u>7,725,634</u>	<u>9,910,074</u>	<u>28,647</u>	<u>0.37</u>	<u>2.9</u>	<u>3.7</u>
<u>1998</u>	<u>7,946,989</u>	<u>10,677,291</u>	<u>44,498</u>	<u>0.56</u>	<u>4.2</u>	<u>5.6</u>
<u>1999</u>	<u>7,569,735</u>	<u>10,749,580</u>	<u>44,903</u>	<u>0.59</u>	<u>4.2</u>	<u>5.9</u>
<u>2000</u>	<u>7,032,407</u>	<u>10,304,162</u>	<u>39,847</u>	<u>0.57</u>	<u>3.9</u>	<u>5.7</u>
<u>2001</u>	<u>7,097,430</u>	<u>9,402,196</u>	<u>33,702</u>	<u>0.48</u>	<u>3.5</u>	<u>4.8</u>

* Accurate figures for the total number of animal tests per year were not available until 1978.

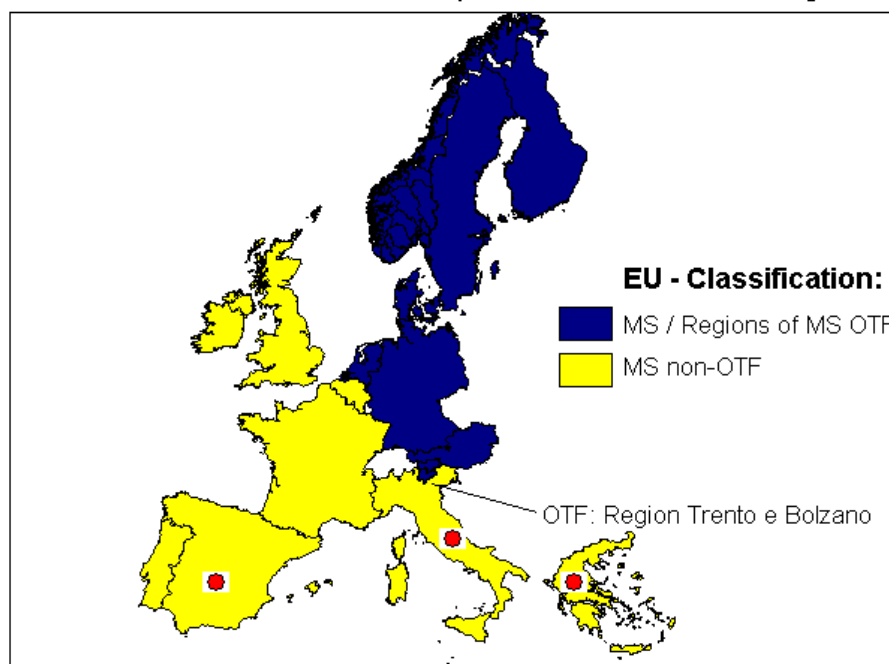
** The APT is used as a measure of the incidence of disease compared to the level of testing being carried out. The APT figures represent the number of reactor animals disclosed per 1,000 tests.

*** The RPT is used as a measure of the incidence of disease compared to the total population of animals. The RPT figures represent the number of reactor animals disclosed per 1,000 animals.

Appendix 2.

Regions classified as Officially TB free (OTF) or non-OTF in 1999.

Figure MY 1
Bovine Tuberculosis in the European Union and in Norway 1999



● Greece, Italy and Spain run eradication programmes approved for co-financing by the Community for 1999
OTF: officially free of bovine tuberculosis