

POLICY DOCUMENT

BOVINE BRUCELLOSIS ERADICATION PROGRAMME

September 2002

SUMMARY:

Veterinary Ireland supports the current eradication programme which has resulted in significant improvement in the incidence of brucellosis in the national herd over the last three years. However Veterinary Ireland considers it vital that the current measures are not relaxed prematurely, before the goal of eradication is fully achieved. Veterinary Ireland supports the North-South initiatives in relation to closer co-operation on animal health issues generally and specifically in relation to brucellosis. Veterinary Ireland recommends that research efforts should continue to attempt to resolve some of the diagnostic and other problems that create difficulties in relation to brucellosis eradication. Veterinary Ireland recommends that the option of vaccination be kept under active review. Veterinary Ireland considers that there would be significant benefits in relation to the prevention, control and management of brucellosis 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:

A milk ring test survey of 105 000 dairy herds in 1965 indicated that at least 12% of herds were infected with brucellosis, with higher levels in the intensive dairying areas in the south (Hynes 1973). A national eradication scheme commenced in 1966. A programme using a combination of vaccination, serological testing, anamnestic testing using 45/20 vaccine (Cunningham 1971), and slaughter of reactors made considerable progress towards eradication. By the mid 1980s the number of herds being restricted for brucellosis had been reduced to between 300 and 500 annually. In 1984 the decision was taken to cease vaccination. In 1986 annual serological testing of the National herd was suspended and in 1988 the requirement for a pre-movement test was withdrawn. The number of new restrictions for brucellosis stayed between 300 and 400 per annum during this period. In 1991 the testing programme was curtailed due to a dispute with veterinary practitioners. In 1992 the introduction of the suckler cow quota scheme led to unusually high volumes of movement of older dairy cows throughout the country, as farmers sought to establish suckler quotas. It is likely that this led to an increased dissemination of brucellosis infection throughout Ireland. From 1993 onwards the levels of new restrictions for brucellosis began to increase, with 434 new restrictions in 1994, 441 in 1995, 630 in 1996, 823 in 1997, with a peak of 1081 in 1998. A full round of serological testing was re-introduced in 1998, and

this along with the range of measures outlined below has led to significant reductions in disease levels over the last three years.

BRUCELLOSIS DATA 1997 - 2001.

A number of different parameters can be used to measure progress in relation to brucellosis. Whichever measurement is used it is clear that significant improvements have been seen since 1998. Data in relation to four key measurements is presented here:

- (i) Number of blood positives**
- (ii) APT (Reactors per thousand tests)**
- (iii) Number of new restrictions**
- (iv) Number of Depopulations**

- ◆ Number of blood positives.

1997: 5878

1998: 6417 (9.2% increase on previous year)

1999: 4545 (29.2% decrease on previous year)

2000: 3729 (18.0% decrease on previous year)

2001: 3142 (15.7% decrease on previous year)

The 2001 figure represents a 51% decrease on the 1998 figure.

- ◆ APT

1997: APT 1.68

1998: APT 1.188 (decrease of 29.29% on previous year)

1999: APT 0.833 (decrease of 29.88% on previous year)

2000: APT 0.696 (decrease of 16.45% on previous year)

2001: APT 0.631 (decrease of 9.34% on previous year)

The 2001 figure represents a 46.89% decrease on the 1998 figure

- ◆ Number of new restrictions

1997: 823

1998: 1081 (31.35% increase on previous year)

1999: 872 (19.33% decrease on previous year)

2000: 659 (24.43% decrease on previous year)

2001: 553 (16.08% decrease on previous year)

The 2001 figure represents a 48.84% decrease on the 1998 figure

◆ Number of Depopulations

1997: 254

1998: 328 (29.13% increase on previous year)

1999: 317 (3.35% decrease on previous year)

2000: 311 (1.89% decrease on previous year)

2001: 273 (12.22% decrease on previous year)

The 2001 figure represents a 16.77% decrease on the 1998 figure

REASONS FOR IMPROVEMENT.

A series of enhanced programme measures have been introduced and these collectively have produced a marked improvement.

Pre-movement test: The 30 day compulsory pre-movement test was re-introduced in February 1998 and has significantly reduced the levels of “bought in” infection. In 1997, as a result of epidemiological investigations by Veterinary Inspectors, bought in animals were considered to be the source of infection in 29% of brucellosis cases where a likely source was attributed. By comparison in 2001 bought in animals were considered to be the source of infection in only 12.5% of cases.

Intensified testing programme: A full round of serological testing of all eligible animals was re-introduced in 1998. In addition computerisation of the contiguous testing programme and greater use of computerised mapping technology have improved the efficiency of the surveillance programme.

Rapid depopulation policy: Experience has clearly shown that the more quickly an infected herd is removed the less contiguous spread occurs. Contiguous spread is now considered to be the major source of new infections. It is current policy to remove infected herds within as short a time frame as possible following initial diagnosis.

Slurry treatment: B. abortus can survive for up to 12 months in slurry. Work done in Ireland has shown that marker bacteria in slurry can be dispersed up to half a mile in certain conditions. A number of samples taken by DAFRD in 1999/2000 showed that brucella could be isolated quite easily from slurry on many infected farms. Arising from this, a unique system has been developed in Ireland to allow for

the simple treatment of slurry on infected farms. The system is based on the addition on hydrated lime in liquid form (“Thick Lime Milk”) in sufficient quantities to raise the PH of the slurry to 12. Following treatment slurry can be safely spread within 24 hours. This treatment is now compulsory in all brucellosis depopulated herds since January 2001.

Diagnostic improvements: No test for brucellosis is 100% sensitive or 100% specific. The Serum Agglutination Test (SAT) was the standard screening test in use in Ireland, with the Complement Fixation Test (CFT) used as a confirmatory test. A number of newer blood tests for brucellosis are now available, and greater use is being made of these as part of the eradication programme. These tests include the indirect ELISA (EIA), the competitive ELISA (cEIA) and the Fluorescent Polarisation Assay (FPA). Strategic use has also been made of the brucellin skin test in designated areas and herds. The skin test, which measures a cell-mediated immune response, offers the possibility of picking up some infected animals earlier than blood tests.

Improved milk testing: The Milk Ring test (MRT), applied to bulk milk samples, has been in use since 1965. However it suffers from poor specificity, with up to 80% false positive results. A more specific and more sensitive test, the milk ELISA or whey ELISA test is now available. Since June 2000 all positive MRT samples have been subjected to a confirmatory whey ELISA test. From March 1st 2002 the whey ELISA test has replaced the MRT as the milk screening test in Ireland.

Extended rest periods: District Veterinary Offices now have the option of extending the rest period following depopulation beyond the existing four-month period. This measure is used in situations where active infection is still present in contiguous herds, and where previously a restocked herd would have been at high risk of becoming re-infected.

Tackling fraud/irregularities: The Special Investigation Unit of the Department of Agriculture, Food and Rural Development has been strengthened in recent years and has focussed considerable attention on the investigation of irregularities in relation to Brucellosis. A number of successful prosecutions have been brought and a number of others are in train.

Cull cow monitoring: Since 1999, a blood sample is being taken from cows in all slaughter plants for brucellosis testing. This scheme has yielded significant benefits in terms of identifying disease that may otherwise have gone undetected for some period of time. More than 80% of all cows slaughtered are now sampled in this way.

KEY ROLE OF VETERINARY PRACTITIONERS.

Reporting abortions: The reporting of abortions and the testing of foetal material or post-abortion blood testing of cows for brucellosis remains a critical means of detecting infection.

Raising Awareness: Practitioners have a key role to play in raising awareness of the highly contagious nature of this disease. Epidemiological investigations show many cases where the most likely source of spread from one farm to another is via people or equipment. If brucellosis occurs in a herd, it is a relatively common occurrence for mechanical spread to occur to the home herds of farm workers, milkers etc. who have cattle themselves. Obviously it is particularly important for veterinary surgeons to lead by example in terms of cleaning and disinfection of their clothing, footwear, calving jacks and ropes when attending any calving cases, afterbirth retentions, etc. Likewise practitioners have a key role to play in relation to advising their clients in relation to cleaning and disinfection, on buying-in policies and in relation to pre and post-movement testing requirements.

Public Health: Practitioners also need to be aware of the human health risks associated with brucellosis, and to remind farmers and farming families about reducing these risks. Taking suitable precautions at calving time and never drinking unpasteurised milk are the key points to emphasise. While there are no official figures available, it is clear that many veterinary surgeons in Ireland have themselves contracted brucellosis at some stage during their careers. We are aware of at least one recent example where the first indication of a brucellosis problem in an area was when a practitioner himself developed brucellosis. The source of the problem was traced to a herd he had been attending.

POSSIBLE OBSTACLES TO PROGRESS:

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. The re-introduction of the pre-movement test for Brucellosis in 1998 brought an immediate and substantial benefit in relation to the reduction of brucellosis levels. However as no blood test is 100% sensitive, bought in infection can still occur, so a closed herd policy in relation to breeding stock is always the preferred option where possible. Where breeding stock are bought in they should always be isolated pending a clear post-calving test.

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.

The trend towards an increasing use of “bed and breakfast” seasonal housing arrangements in some parts of the country is a worrying development. This practice increases the risk of spreading the disease, particularly where pregnant female animals are involved.

Brucellosis in Northern Ireland: It is clear that the brucellosis situation in Northern Ireland has deteriorated recently. The problems there were exacerbated by the FMD outbreaks in 2001, which essentially led to the suspension of brucellosis testing for a considerable period of time. Given the close trading and other cross border links that exist, the danger of a “spillover” of brucellosis to border counties such as Cavan, Monaghan Louth and Leitrim is considerable. Veterinary Ireland recommends that close co-operation between the authorities North and South

should continue and intensify in recognition of the fact that it is essential that brucellosis be eradicated on both sides of the border.

Diagnostic deficit: It is well recognised that some infected animals will not show positive on blood tests, particularly at certain stages of pregnancy. Veterinary Ireland supports the work that has been done in recent years in relation to examining the benefits of newer more sensitive tests such as the indirect ELISA test on blood samples and the milk ELISA test on bulk milk samples. Veterinary Ireland supports the research that is underway in Ireland to try to develop new tests that may help to overcome the diagnostic deficit that hinders brucellosis eradication.

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 (eg 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 independantly 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 independantly 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 brucellosis) , 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.

Vaccination: Vaccination can be a highly effective tool in relation to brucellosis eradication, and has been used in the past by many countries as part of an eradication programme. However in accordance with current EU legislation there are some significant drawbacks to the use of brucellosis vaccination in Ireland. Any herd where vaccine was used would lose its Official Brucellosis Free status (OBF) for a three year period. Similarly any herd which bought vaccinated animals from

the vaccinated herd may also also lose its status. In practice this would amount to a significant restriction on those herds (no live animal exports would be allowed from those herds). However it may be possible to overcome these drawbacks, and in some heavily infected areas vaccine use could offer significant benefits in terms of disease control. Veterinary Ireland recommends that the option of vaccine use be kept under active review.

THE FUTURE.

The current programme, with some ongoing refinements and improvements, should continue to deliver significant reductions in disease levels over the next few years. There is general agreement by all stakeholders that if final eradication is to be achieved it is essential that the control measures now in place are maintained until the finishing line has been crossed, and indeed for a further “buffer period” beyond that point. We have previously seen the consequences of relaxing controls too quickly when the end is in sight.