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Directorate G – Veterinary and International Affairs
Unit G5: Food chain and animal health expenditure

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REPORT ON THE

TASK FORCE MEETING OF THE BOVINE TUBERCULOSIS SUBGROUP

5 – 6 March 2014

Dublin (Backweston), Ireland

REPORT OF THE MEETING OF THE TUBERCULOSIS SUB-GROUP OF THE TASK FORCE FOR MONITORING DISEASE ERADICATION HELD IN Dublin (Backweston), 5-6 March 2014

List of participants: see Annex I

Agenda of the meeting: see Annex II

Opening

The meeting began with introductions and welcome by the Irish CVO Martin Blake who also provided some background to the meeting: some doubts had been raised by the EU Commission at SCOFCAH about the efficiency of the Irish programme. He proceeded to put forward some arguments for the contrary view. The severity of episodes (number of reactors/positive herd) as well as the number of severe episodes (>4 reactors/positive herd) has decreased during the past decade. As the Irish figures represent all reactors regardless of e.g. confirmation by culture, the total number of positive herds does not necessarily correspond to truly infected herds and it cannot serve as a measure of the severity of herd breakdowns.
Christophe Bertrand confirmed that the Commission has certain doubts about the proper implementation of some of the measures of the Irish programme: in particular in relation to the use of pre-movement testing only on animals exported and on the possibility to move animal from and into "restricted" holdings for several reasons. A reduced funding has been granted for the implementation of the 2014 programme as the Commission would have a full picture through the outcome of this meeting and the findings, conclusions and recommendations by the FVO audit that will be carried out in the second half of May 2014. He indicated that the Commission would like to see clear progress as result of the implementation of the EU co-financed programme, which is one of the most expensive. For that reason, three additional experts (out of the TF group) have been invited by the Commission to ensure the broadest range of expertise be available to assist to review the results achieved and to discuss the scientific basis and rationale behind the Irish programme as a whole and indeed various elements within it.

Presentations.

Below is a summary of these presentations and the discussions during the meeting

Programme overview

A financial overview was given by Philip Kirwan. Agriculture is important to Ireland, and the objective is to increase animal production (milk & beef) for export and thus control of animal diseases is important. Routine annual testing is paid by farmers and all supplementary testing by the Department of Agriculture, Food and the Marine (DAFM). Financial compensation to farmers is specifically designed to expedite the removal of reactors.
The gross expenditure for DAFM (excluding staff) was 30 400 000 euro in 2013. There has been a constant reduction every year mainly due to reduced reactor numbers and cuts to fees paid. Testing cost farmers directly around 25 million euro and disease levies around 5 million. The global cost was around 75 million euro (about 16% funded by EU). In the period 2008-2013 there was a 50% reduction in DAFM spend.

Anthony Duignan presented the main features of the programme and how it has moved to a risk based approach. There are almost 116 000 holdings with a little over 6 million bovine animals, the average herd size is about 50 animals. The objective of the programme is eradication of bovine tuberculosis. National legislation encompasses infection in bovine animals with all species within the *M. tuberculosis* complex.
A comprehensive IT system allows for integrated management of all programme components. The single intradermal comparative tuberculin test (SICTT) is used with a minimum of 30 000 IU bovine & 25 000 IU avian PPD. Quality controls are included in all parts of the testing chain. A significant risk of cross-reactions to the single intradermal tuberculin test (SIT) has been demonstrated. This is due to, among other things, the occurrence of numerous environmental mycobacterial species.
Any suspect lesion at slaughter or positive skin test will lead to herd restrictions that, when OTF status is withdrawn, are not lifted until all remaining eligible animals have had two consecutive clear tests, the first a minimum of 60 days and the second a minimum of 4 months after the removal of the last positive reactor. Moreover, all herds where OTF status was withdrawn are re-tested 6 months after de-restriction. In high-risk herds (i.e. with 2 or more infected animals in one episode), severe interpretation of SICTT and additional testing post de-restriction are applied. Herds contiguous to breakdown herds with within-herd spread have movement restrictions applied unless the herd has completed a test within the last 4 months. This will continue on a 4 month rolling programme for the duration of the primary breakdown and effectively provides a herd level pre-movement test. Risk based tracing is performed from all breakdown herds and back-tracing of introduced reactors. Wildlife controls are carried out if wildlife is implicated in a breakdown. In high-risk herds and contiguous herds, the gamma interferon test (GIF) is used in parallel to SICTT. Epidemiological investigations in 2012 implicated wildlife in some 70% of all breakdowns and bought-in animals in about 7%. Inconclusive reactors are restricted to the herd in which they are identified for life (only allowed into feedlot if negative retest and then directly to slaughter). AIMS (animal identification and movement system) is continuously updated from the AHCS (Animal Health Computer System) so that all slaughterhouses etc can immediately get updated information about restrictions.
There is a scientific support system in CVERA (Centre for Veterinary Epidemiology and Risk Analysis) in the university.
All herds are tested annually except for those that have no animals when the test is due. There has been a continuous decrease in animal and herd incidence, yearly number of reactors etc. Fluctuations in incidence are smoothed out when looking at a 5-year moving average.
Slaughterhouse surveillance is carried out by veterinarians and some 30% of breakdowns come from slaughterhouse detection. Slaughterhouse submission rates are continuously monitored (total as well as non-TB) and this shows that sufficient numbers are submitted. The proportion of animals with lesions that are confirmed positive has dropped, and this is cited as evidence that the observed reduction in prevalence is genuine.
Among the 'singleton-protocol' reactors (one reactor with <12 mm bovine over avian reaction and no epidemiological links) the number deemed to be caused by non-specific reactions remains the same (OTF status suspended) but the number confirmed with *M bovis* infection (OTF status withdrawn) has dropped. There are plans to focus more on herds with suspected residual infection.

John Higgins explained the management of TB breakdown herds. The electronic communication via AHCS includes information about post mortem lesions, test results, lab results, restrictions etc, as well as notification of contiguous herds. All herds have an epidemiological investigation, those with 2 or more standard reactors are visited by a veterinarian who requires the farmer to take steps to limit spread of infection, assesses the

quality of testing and the testing facilities. A visit pack with all necessary forms and information on e.g. herd and animal history is used. An example of an epidemiological investigation was shown and the basis for assessment of the probable source of infection and focus of infection was demonstrated. Contiguous testing is applied at the level of farm fragment unless it was demonstrated that the risk was the same across all fragments.

Programme informed by scientific research

Michael Sheridan explained the emphasis on integrating research in the programme since 2003 and Simon More gave a presentation on how the concept of risk comes into the issue of bovine TB in Ireland. The scientific questions are: What are the risk factors and what is the biology behind them? This is continuously studied and evaluated. Three key risk factors have been identified: herd size (in particular number of cows – a proxy for age), geographic location and prior herd history (this risk persists for a long time). Recurrence may be due to residual infection (e.g. previous breakdowns, in particular with high number of reactors), wildlife in the area (reintroduction from badgers) or introduced animals (related to number of animals purchased >12 months of age). The relative importance of reasons for local persistence has been estimated as 15% due to residual infection, contiguous spread 0-20%, and transmission from wildlife 19-39% (contiguous spread may also be due to wildlife). As the wildlife risk is increasingly managed, residual infection may become relatively more important. Management responses to the results from research include managing contiguous herds by retesting every 4 months until the index herd is cleared, wildlife management, group depopulation in heavily infected groups within herds and occasionally whole-herd slaughter (when local disease risk is managed).

Liz Lane and Peter Maher presented data on cattle movements and herd breakdowns. In the period 2011-2013, there were 7.8 million animal movements. 402 365 animals (5.2%) moved into herds that subsequently broke down, 1.4% of these animals were positive in the herd test, however only 0.8% were introduced within 60 days before the test in the herd of destination. The risk of moved animals being SICTT positive increased with time in the new herd. It was estimated that >2.6 million pre-movement tests would be needed to detect 950 positive animals.
About 10% of the herds of origin of bought-in test reactors are positive in trace-back testing. Approximately 50% of the animals that became positive in their herd of destination probably came in with the infection.
The possibility that a moved animal that was test negative could be the cause of the breakdown in the destination herd was discussed. If it was slaughtered before testing it would possibly have been caught at slaughter but if still alive it is an unquantifiable possibility. However, such infected but tuberculin test-negative animals would not have been caught in a pre-movement test either.

Tracy Clegg presented the scientific studies done to clarify the role of animal movements in the spread of TB. About 2.4-7.4% of restrictions may be due to introduced animals. Animals moved from exposed herds (previous breakdowns) pose a higher risk. There is more within-herd spread in outbreaks involving homebred animals as compared to bought-in animals. Animals that move out of exposed herds have a lower risk of subsequently becoming positive as compared to those that stay in those herds.
The benefit of individual testing or partial testing is usually lower than whole-herd testing, as herd sensitivity is greater than individual sensitivity of the test.

Margaret Good explained how risk based controls are incorporated into the programme.
The tuberculin and the equipment used are routinely subjected to quality checks.

If 2 or more standard reactors are found, the interpretation is immediately changed to severe (automatic in the software system, including the hand-held device).
The legislation empowers veterinary inspectors to increase the test sensitivity by changing interpretation criteria, based on an epidemiological assessment and/or ancillary tests.
H herds are herds with a higher risk of repeat breakdowns, herds with spread of infection within herd (this is defined as the presence of 2 or more animals that are reactors and/or have post-mortem lesions detected at slaughter). Resources are focused on such herds.
Tests are prioritised based on risk. Interpretation is changed so as to increase sensitivity in herds with higher risk, when retesting in infected herds and in contiguous herds.
Disease status includes free/suspended/withdrawn but there is also a trading status that may be suspended/withdrawn based on risk, or when testing is due. Herds automatically lose their free status if they become overdue for testing.
Exceptional permits to move animals out of trade restricted herds are given if there are special reasons (e.g. animal welfare). If the reason for restriction is an overdue test, no permit is given. The 6-month retest after de-restriction is applied with severe interpretation (3 times at 6-month intervals if H herd). Contiguous herds are tested every 4 months, while the index herd is restricted.
Some 1.5-1.7 million animals are slaughtered every year, with a total submission rate around 30 submitted lesions /10 000 animals slaughtered. In 2012 the submission rate for lesions confirmed as non-TB went up to 22/10 000 slaughtered animals, whereas the overall submission rate (including TB positives) was 37/ 10 000.
The risk of bias when private vets paid by farmers perform routine tests was discussed. A QA system is in place to monitor the performance of these vets, the system flags any negative animal with PM lesions, these are traced back to the individual vet who is consequently monitored more closely. It is also well explained to farmers that if vets identify reactors early this is a good thing. Farmer incentivisation with various schemes for cost-bearing such as a change to state funded routine testing and farmer funded supplementary testing was also discussed.

Simon More presented some of the evidence for the role of wildlife reservoirs. Examples were given such as feral pigs (spillover host) and feral buffalo (maintenance host with spillback to cattle) in Australia and white-tailed deer in Michigan (maintenance host with spillback). When TB was first detected in badgers it was important to find evidence for what role they played. The East Offaly project provided the first evidence of badgers serving as maintenance host with spillback to cattle, these results were confirmed in the Four Area project. The RBCT in the UK showed similar results for areas where badgers were removed.
The next question is whether wildlife control is needed. If cattle-to-cattle transmission is reduced to R_0 below 1, the prevalence/incidence should drop. It didn't, and thus badgers are a source and must be managed. Now studies are being conducted estimating R_0 in the cattle and badger populations, to be able to evaluate management efforts. Options to decrease effective contact are essentially biosecurity, badger removal, immunisation.

James O'Keeffe described the badger research. In the early 21st century, 32% of agricultural land contained 69% of reactor herds. Surveys are conducted in badgers (removal, culture of 12 samples from each carcass of 1/3 of the animals) around reactor herds with suspicion of a wildlife source, by monitoring of setts and GIS registration. Experience shows that gross pathology misses approximately half of the culture positive animals so now culture is the only detection method used for badgers.
Prevalence studies in badgers in the entire country indicate a prevalence around 15% in low-prevalence regions and 36% in high-prevalence regions (range about 15-43%). Experimental vaccine studies show that badgers vaccinated with BCG show less pathology. A 4-year trial

has concluded at the end of 2013, and results are expected at the end of 2014, the aim is to estimate vaccine efficacy in natural populations of infected badgers. Vaccine studies are also being conducted in 5 paired areas, with the effect of badger vaccination being evaluated in cattle. The trials are blinded and will go on for another 4-5 years. Several trials have been designed to monitor effects in a longer perspective and include follow-up to evaluate various aspects. Once badger management is successful, the environmental risk is reduced and residual infection becomes more important.
The characteristics of negative herds were discussed; they are usually smaller, more closely managed and less commercial. However this type of farm will disappear gradually, so there is a need to determine if there are other protective factors.

Eamonn Gormley presented the work done on specificity of diagnostic tests.
In 1975, a study showed that 7% of the animals in TB free herds in Ireland were positive to SIT but not SICTT. In 1997, 59 strains of slow growing environmental mycobacteria were isolated from 16 Irish farms – crude PPD from these triggered positive SIT but not SICTT.
There is evidence that SIT has a lower specificity in the British Isles than in some Mediterranean countries. If SIT were used in Ireland, there would be a high risk of restricting a large number of non-infected herds. In 2013, EFSA determined that the specificity of SIT in Spain was equal to the specificity of SICTT in Ireland.

Progress in the Irish programme

Simon More talked about measuring progress. Various activities will have effects on apparent prevalence and this may be misleading in the short term. In the long term, measuring performance rather than activities gives more information about progress. Evolution over time and in space of prevalence and incidence allows for targeting problems and assessing factors for success. Making such comparisons based on the Irish data shows an improvement over time in most geographical areas, since 2008 and onwards. The 5-year trend shows a clear improvement in most geographic areas of the country. Recurrence rates can also be assessed.
Quality control of testing allows for assessment of progress in surveillance. Testers can be compared and reasons for difference in performance can be investigated. Slaughterhouse surveillance can be assessed by measuring submission rates and comparison of different slaughterhouses. Submission rates have gone up and variations between slaughterhouses decreased, indicating positive effects of efforts to improve sensitivity of this surveillance component.
In conclusion, key indicators show progress and improvements in the Irish programme in the past decades.

James O'Keeffe presented some more data on herd TB episodes. There has been a steady decrease in the total number of episodes as well as the severity of episodes in the past 5 years (some 50% reduction of episodes with 4 or more reactors).
Animals that are infected in one episode but test negative on subsequent tests may be detected in the slaughterhouse. One of the reasons for this is that the normal slaughter routines in the herd are disrupted by the culling of reactors and some older animals stay on longer and develop lesions detected post mortem. Thus, the detection of lesions at slaughter in test negative animals is not necessarily an indication of sub-standard performance of the tester.
Badger capturing zones have increased to covering 15 000km^2 out of the 50 000 km^2 of farmed land on the island. It is estimated that some 30% of badgers are caught in each area (at best 50%). The natural density is about 2 badgers/km^2, after capturing this is reduced to about 0,5/km^2.
One third of the caught badgers are cultured, the proportion that are positive has decreased which can be seen as an indication of lower infection pressure. Many lesions are positive for

other mycobacteria and thus gross pathology is not a good indicator of TB infection/infectiousness. Vaccine trials will have final results in June 2018. They have been set up to minimise other factors as far as possible so that results will be useful and clear-cut.

Finally, Paul Livingstone shared some of the experiences from New Zealand as regards TB eradication in the presence of a wildlife reservoir. TB was originally present in cattle and wild deer, the test-and-slaughter programme was successful in most areas except for one region where possums were identified as a reservoir. Disease management, movement control and vector control are the three essential parts of TB control and eradication. The importance of animal identification and movement registers was also emphasised.

Conclusions and recommendations

The conclusions and recommendations come from the members of the TB subgroup (except M Good) plus the external experts invited by the Commission (D Abernathy, S Rolfe and A Fediaevsky).
The Commission asked the group to provide an assessment of the progress since 2009, and to comment on movement restrictions.

The overall impression is positive.
The Irish programme has an evidence-informed approach and commitment to risk-based management. Epidemiological data shows a progress in the eradication of TB with regard to the indicators that were presented to us at the last visit of the task force group. This does indicate a stability in the programme and is to be commended. However, some caution is necessary at this early stage and a continual decline in bovine infection will need to be confirmed over the following years.
The data collection and continuous use of data to improve the programme, the quality controls and continuous refinement of these, the comprehensive wildlife programme and the lifelong restriction of IR's are all important components of the Irish TB eradication programme that are to be commended and encouraged. The group also noted the commitment to the end goal and the dedication of key persons in carrying out and continuously improving the programme.

Progress assessment
As regards progress of the programme, the situation appears consistent. The progress is steady but slow. This meeting took place before the 5-year plan presented last time has been given a chance to give results, which makes the numbers difficult to assess but the results are according to the predictions given in the plan, or better.
There has been a decrease in herd incidence over the past six years (5.88% in 2008 reduced to 3.88% in 2013).

Out of the total of around 5 000 positive herds, some 1 000 herds have only one animal with PM lesions and no further reactors in the herd and in about 1000 herds TB cannot be confirmed and is not suspected from any epidemiological evidence. The Irish programme has concluded that the latter herds are most likely to be exposed to environmental mycobacteria and a consequence of imperfect specificity of the SICTT and that the herds with one animal with lesion at PME and no further reactors over 2 successive tests on the herd are not infectious but "old lesions". This will require further research and epidemiological evidence before conclusions can be drawn.

Animal movements

There is a very high number of animal movements. These include various types of movements, some via markets will be registered as 2 movements but the figure is still very high and many animals move 2-3 times during their lifetime.

Movements appear to contribute in some degree to the number of outbreaks at the time, according to data presented around 7% of all outbreaks are attributed to animal movements. Animal movements represent a risk of disease movement and this should be continuously emphasised to farmers by all parties involved in advising them on various issues. The risk presented by animal movements should be regarded as a part of biosecurity that all farmers must be aware of.

A general use of pre-movement testing is not recommended as it may provide a false sense of security without giving enough additional reduction of the risk. Instead, targeted herd level pre-movement tests in high risk situations are identified and enhancement of restrictions on high-risk movements is recommended. For H herds and contiguous herds, a shortening of the 6-month movement window before retesting is suggested. Thus, only allowing movement of animals out of such herds for a couple of months after the last clear herd test is recommended, and then re-restricting it again before the 6-month retest. An optimal time window should be decided based on further analyses of the 2011-2013 data presented at the meeting.

The licensing of movements into restricted herds should be revised to ensure that this is only allowed for herds where all animals are destined for slaughter. Movements out of restricted herds must only be allowed directly to slaughter. For herds with separate units/farms for e.g. rearing and milking, where movements must be allowed for animal welfare reasons (no milking facility in replacement unit, no room for rearing calves in milking unit etc.), such movements must lead to restrictions on all epidemiologically linked units/farms.

Diagnostic testing

There are some concerns about the sensitivity of the skin test and a focus on increasing sensitivity and bearing in mind the possibility of herd misclassification due to this is important. Severe interpretation of SICTT and ancillary testing with GIF in parallel in H herds and contiguous herds is already in place. In addition, the group suggests that all testing data be reassessed using criteria so as to mimic a SIT (preferably analysed stratified by reason for test/risk group). In this way conclusions about false positives, old lesions versus active infection etc. can be evaluated and any misinterpretations or overestimations of SICTT sensitivity be discovered. In addition to this, the use of GIF in all herds where TB is confirmed could be introduced, in line with SANCO 10067/2013. However, the group could not reach a common conclusion on whether such a general recommendation of additional GIF should be made at this point or at a later stage when more progress has been made and the effects of wildlife control are more evident.

The risk of reduced sensitivity due to repeat testing should also be considered. This might be assessed by analysing individual test data from e.g. non-reactors with confirmed infection.

There is a good programme in place for the quality control of tuberculin testing of cattle. This may be further improved to ensure that testing is always conducted to the required standard. Unannounced spot-checks are already done in the field, random as well as by inspections of already tested animals and in follow-up of positive herds. The group agreed that Ireland should continue to conduct analyses of data on testing results of individual vets to reassess if there is a hitherto undetected problem with individual private vets performing routine testing of herds. In particular, data from herds given OTF status may need to be scrutinized so as to ensure that they have been properly tested. Further analyses should also focus on breakdown herds where cases are detected at slaughter, in animals that have tested negative, to see if they can be associated with a certain category of vet, geographic locality or other factors.

The group also recommends greater use of culture and molecular subtyping. For example, some of the conclusions that have been made based on epidemiological investigations need to be substantiated by molecular epidemiology. Therefore, at least one sample from each breakdown herd should be cultured and subtyped. In case of herds with animas introduced from other herds, this number needs to be increased. Moreover, subtyping should be used to substantiate assumptions about badgers as a source of outbreaks in individual herds.

Other aspects

A further assessment of the zone where contiguous herds are controlled around infected farms is recommended. More investigations in a larger area will make it possible to determine if the current size is sufficient. The meeting did not cover all details around the contiguous testing and therefore the group cannot give detailed recommendations but there may be an opportunity for improvement of the detection capability by including more herds as contiguous.

The conclusions drawn from epidemiological investigations in breakdown herds were not discussed in detail, but there is a need to substantiate the conclusions about source of the infection and a thorough scientific evaluation should be made of these. This applies also to herds detected by slaughterhouse surveillance, a thorough evaluation of all data from such herds needs to be done in order to substantiate the assumption that these herds reflect a sensitive surveillance system in slaughterhouses and not a suboptimal testing in the field. Moreover, an analysis of the association between number of reactors in a herd and means of detection would be useful, if not already done.

The criteria for depopulation should be considered, so as to ensure that this tool is used to its full potential, whenever a control benefit could be derived from it.

Biosecurity measures should be advised based on the research performed on the risk of transmission from wildlife and how this varies in time and space. Although there was no time to discuss this research in detail during the meeting, the group wants to encourage the incorporation of the results from it in future policy and advice.

Finally, the group noted that some of the recommendations from the last visit had been implemented, while there was no time to discuss others. Therefore, if some recommendations since the last meeting are still not addressed we would recommend that this be done. In particular, the recommendation to apply the same testing strategy, epidemiological investigation, restrictions etc in the entire epidemiological unit until there is solid evidence for a difference in risk for different subsets of the epidemiological unit.

A warm thank you is extended to the Irish hosts for their great hospitality and willingness to share information about the details of the programme. The effort of arranging this meeting is greatly appreciated.

ANNEX I

Participants

Subgroup members:

Dr Susanna Sternberg Lewerin National Veterinary Institute, SE (Chair)
Dr Margaret Good, Dept. of Agriculture, Food & Rural Development, Dublin, IE
Dr José Luis Saez Llorente , General Subdirection of Animal Health, M.A.R.M, ES
Dr. Javier Bezos, TB CRL Madrid, ES
Dr Linda Evans **,** Veterinary Business Partner (England), Exter Animal Health Office and Worcester Animals Health HQ, UK
Dr. Giorgio Zanardi, I Z S Lombardia e Emilia, Brescia, IT
Dr. Ludovica Pacciarini, I Z S Lombardia e Emilia, Brescia, IT
Dr. Isabela Preto, Direção Geral de Alimentação e Veterinária, LISBOA, PT

Additional experts (sponsored by EU Commission):

Dr Darrell Abernethy, Assoc. Professor and HoD, Department of Veterinary Tropical Diseases, Faculty of Veterinary Science,University of Pretoria (SOUTH AFRICA)
Dr Alexandre Fediaevsky, Chef du bureau de la santé animale, SPRSPP/SDSPA/Bureau santé animale, Direction Générale de l'Alimentation (FR)
Dr Simon Rolfe, Veterinary Adviser, Office of the Chief Veterinary Officer, Welsh Government,Cathays Park, Cardiff (UK).

EU Commission (DG SANCO)

Unit G5: Mr Christophe Bertrand and Mrs. Valentina Piazza
Unit F6 (FVO): Mr Francisco Perez Perez (observer)

Irish hosts: Mr Martin Blake (CVO), Mr Michael Sheridan, Mr Richard Healy, Mr Tom McTague, Mr Pat Meskell, Mr Anthony Duignan, Mr James O'Keeffe, Mr Philip Kirwan, Mr Eamonn Gormley, Mr Simon More, Mr John Higgins, Mr Peter Maher, Mrs Liz Lane, Mrs Tracy Clegg, Mrs Rosanne Green and Mrs Bridget Hickey.

Additional experts (sponsored by Ireland): Prof emeritus Wayne Martin and Dr Paul Livingstone.

ANNEX II

Agenda

MEETING OF THE TASK FORCE FOR MONITORING NATIONAL ERRADICATION PROGRAMMES,
SUBGROUP BOVINE TUBERCULOSIS

Dublin, 5-6 March 2014

Wednesday 5 March

Session 1: Programme Overview

9.00 Welcome/Introduction Martin Blake CVO
9.20 Financial Overview – Philip Kirwan
9.35 Current Irish Bovine TB Programme - Anthony Duignan
9.50 Questions/Clarification
10.00 Veterinary Management of the Programme in Practice - John Higgins
10.30 Questions/clarification
10.45 Coffee

Session 2: Programme Informed by Scientific Research

11.00 Role of Research in the Programme – Michael Sheridan DCVO
11.15 The importance of risk in the presentation of bTB in Ireland – Simon More
11.45 Questions/clarification
12.00 Movement facts, statistics and analysis - Liz Lane/Peter Maher
12.10 The role of animal Movement in spread of TB - Tracy Clegg
12.30 Questions/Clarification on morning session
13.00 Lunch

Session 3: Programme Informed by Scientific Research (Contd)

14.00 Controls in the programme to address risks identified, with particular reference to controls to reduce risk by animal movement Margaret Good
14.30 Questions/Clarification
14.45 Evidence on the role of wildlife reservoirs in Bovine TB - S. More
15.15 Questions/clarification
15.30 Programme response to scientific evidence on the role the badger plays as a constraint to TB eradication- James O'Keeffe-
15.50 Questions/Clarifications
16.00 Coffee
16.15 Test Specificity issues in Ireland – E.Gormley
16.30 Questions/Clarification
16.45 Restocking into restricted herds T. Clegg
17.00 Questions/Clarification
17.30 To hotel
19.30 Dinner

Thursday 6 March

Session 4: Progress in Irish Programme

9.00 Evidence of Progress in Irish bTB Programme in an international context - S.More
9.20 Evidence of progress in the Irish bTB Programme J. O'Keeffe:
9.50 Lessons learned from New Zealand experience - Paul Livingstone
10.20 Questions
10.45 Coffee
11.00 General Discussion
11.45 Meeting of Task Force
12.30 Conclusions of meeting
13.00 Lunch