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REPORT OF THE
"BOVINE TUBERCULOSIS"
SUB-GROUP

Meeting held in

The United Kingdom
27-28 March 2012

Meeting of the "Bovine Tuberculosis" subgroup of the Task Force for Monitoring Animal Disease Eradication, held in Worcester (UK), 27-28 March 2012.

List of participants: see Annex I

Agenda of the meeting: see Annex II

Opening.

The meeting was opened by David Calpin, programme manager for the bovine TB programme in the Department for Environment, Food and Rural affairs (Defra), who welcomed everyone. Short introductions of the TB subgroup and the representatives from the EU Commission and FVO were also made.

A number of presentations on various aspects of the English, Welsh and Northern Ireland TB programme were given. Below is a summary of these presentations and the discussions during the meeting. The agenda of the meeting is included as Annex II.

Presentations.

Bovine tuberculosis in Great Britain

A review of the history and recent epidemiological development (in GB) was given by Richard Clifton-Hadley, head of the TB epidemiological unit in the Animal Health & Veterinary Laboratories Agency (AHVLA). The TB eradication began in the mid 1900s and was successful until the 1980's but then an increase in the number of cases was seen. The FMD epidemic interrupted testing in 2001 and subsequent restocking caused population disruption due to the associated animal movements. In 2007 there were some 86000 cattle herds and in 2011 there were 82000. Some 60 000 herd tests were conducted in 2010, with 7.6 million cattle tests (complete 2011 figures are not available yet). The density of the cattle population is highest in the Southwest of the country and extending into the West Midlands. The average herd size has increased while the number of herds has decreased. During the last 12-month-period there were 4800 new TB incidents, representing a 7.8% increase since the previous year. 62.4% of all incidents were confirmed by culture, 24.7% of these were triggered by slaughterhouse surveillance. Training activities as well as the recent reorganisation of the slaughterhouse submission system may be the reason for increased awareness and higher submission rates, but it has also been discussed whether a change of tuberculin has led to reduced sensitivity of the test (so that a higher number of reactors are missed and detected at slaughter instead). It has also been speculated that a recently discovered fraud (change of ear-tags of reactor cattle) could have contributed to a previous delay in the post mortem detection of TB. As this only involved a few individuals it is however not likely to have made any significant impact on the surveillance. Most TB cases are seen in the Southwest, West Midlands and South Wales but sporadic cases occur outside

the endemic regions, however, this area may be expanding. The trend of new TB cases still goes upwards but the rate of increase has slowed down. Following changes to the approach to surveillance testing, 2011 was the first year with more herds on yearly testing than 4-yearly testing. The median duration of TB incidents has increased (in confirmed breakdown herds, OTFW, it is >200 d, and the mean is 325 d), as well as the mean number of reactors per TB incident. In many breakdown herds (35% of OTW herds) there is recurrence of TB. This is probably influenced by farm-level risk factors (but could also be due to undetected infected animals left in the herd).

At least one isolate from every incident is spoligotyped & VNTR typed, the results indicate multiple epidemics. A geographic clustering of genotypes is seen, this is useful for tracing.

There is a lot of evidence for badgers as TB reservoirs. In some areas deer may also play a part (especially fallow deer), but badgers are the main wildlife source. Intervention studies show that badger culling has a beneficial effect, despite lot of factors interfering with culling effectiveness. The initial perturbation effect seen in the randomised badger culling trial has caused a lot of debate but the long-term effect was positive as regards cattle TB. Based on the results from the trial it has been estimated that up to 50% of the cattle TB is due to badgers in high-risk areas, while about 6.6% of the OTFW incidents were ascribed to bought-in cattle.

In Wales all herds are tested annually. In England all herds are tested yearly in the endemic areas and herds in a buffer area around the endemic areas are tested every 2 years. In the low-incidence areas the frequency of testing is usually every 4 years with contiguous testing from reactor herds.

The cattle industry in Great Britain was described by Malla Hovi from Defra/AHVLA. There are about 81 000 cattle holdings (each holding may hold >1 herd) with 8.5 million cattle (including calves). The farmgate production is valued to 5.3 billion pounds and dairy to 3.1 billion pounds. UK has the 3rd largest dairy production and the 4th largest beef production in the EU. 1.4 million animals are in beef suckler herds and 1.8 million animals in dairy herds. At least 50% of the cows are purebred for dairy replacements, the rest are cross-breed from dairy to supply commercial suckler replacements. There is a trend towards larger commercial units delivering to tight specifications. England and Wales have a similar cattle population, while in Scotland there are (relatively) more beef herds. There are many small holdings (nearly half of the herds have 1-50 cattle) but most animals are kept in large herds. The trend points towards larger, more fragmented holdings and more animal movements. In 2010 the number of movements into England from England and Wales were: farm-farm >700 000, to markets nearly 1.2 million. Movements must be reported within 3 days (to and off holding, recorded also in the register of the animal keeper). Pre -movement testing is required for all cattle from herds in the annual and 2-yearly testing areas (60 day window). Most movements are via markets, there are only a few farm-to-farm contracts (e.g. rearing of replacement heifers on another farm).

Nigel Clarke gave an overview of the situation in Northern Ireland (NI). The fundamentals of the TB programme in NI are the same as in the rest of the UK. Disease control has however evolved independently in NI, which has a land border with the Republic of Ireland. The cattle density is high, there are 1.6 million cattle (25% dairy, 20% adult sucklers). The farms are small and highly fragmented. There is a separate NI database (DARD APHIS), which is fully integrated as regards animals, animal

movements and disease control. DARD controls the work of the Veterinary Public Health Unit, the Veterinary epidemiology unit, field veterinarians etc under TB programme. All herds are tested annually, all are full herd tests and there are no exemptions. About 2.5 million tests are conducted every year, 90% by private veterinary practitioners. The γ -IF test is used as a supplementary test on voluntary basis (as suggested by DARD). Some 18,000 γ -IF tests were carried out in infected herds in 2011.

Animals not tested for 15 months are pre-movement tested. VNTR and spoligotyping of isolates has revealed strain clustering on a larger scale but more variation on a small scale. Some farms seem to have multiple sources while others only one. A badger population survey (performed by the university) estimated badger population density to 0.56 social groups/km², which is much less than in the high-risk areas in GB. A road traffic accident survey indicated a prevalence of TB in badgers of about 20%, geographic association with cattle strains has been noted. There have been recent developments in audit and control, on several levels. Key performance indicators are followed up twice/year, and include test delivery time, tracing of traded animals and other measures of the performance of both government and private staff. The quality control of testing includes field audits (some 20% of testing veterinarians are audited every year).

Veterinarians who fail an audit face significant sanctions and must undergo a re-training and auditing. 90% of the herds are officially free, some 8000 reactors are detected every year, with some 1200 herd breakdowns/year. The herd incidence is 4-6%, while animal incidence is 0.4-0.6%. There has been a recent increase in incidence, the cause of which has not been determined, it is possible that it is simply a diagnostic issue. Herd and animal prevalence remain steady at 6% and 0.2% respectively.

There is a lot of data on herds but DARD has not yet been able to focus on all relevant epidemiological investigations, the focus is on removing reactors and tracing the infection. There will be more data analyses in the future to assess the links between risk factors, strain types, wildlife risk etc.

Policy development since last subgroup visit 2009

UK roles and responsibilities were outlined by Steve Plant. The basic TB eradication policy is the same in all UK, with test-and-slaughter etc. A TB liaison group includes representatives from GB (England, Scotland & Wales) and NI, including the CVOs and encourages co-ordination and effective communication between the four countries. The delivery of controls is the same in GB but separate in NI. DEFRA/Welsh Government/Scottish Government request policy implementation from AHVLA, Rural Payments Agency, Food Standards Agency and Local Authorities. Each country has its own financial and policy responsibility for animal health, as well as their own legislation, and can apply it to their own needs. The TB liaison group has been efficient in helping to overcome any problems. Although there is a potential for problems with the English/Welsh border, no real problems with borders etc have arisen.

Michael Rose explained the development since 2009. The routine testing strategy is now more clear and not based on parish calculations, there is only one retest of IRs (inconclusive reactors), QA has improved, slaughterhouse surveillance has improved, stakeholder involvement has improved, and the coordination between delivery and policy is better. There are several studies on-going that will form the basis for possible changes in testing intervals or test interpretation.

David Calpin summarised the TB programme in England. There is a coalition government since 2010, and they have declared a commitment to a badger control policy as part of a TB control package. A TB eradication programme was published in 2011. Public and stakeholder consultations led to a decision on badger culling in December 2011. There is however financial pressure on the eradication programme due to spending cuts.

Eradication is the long-term goal, the strategy is moving towards a risk-based, staged, approach. Partnerships are with industry, and cost-sharing will be introduced more and more. EU compliance and engagement are essential, as are support and advice for farmers. It is a comprehensive and balanced programme including cattle and badger measures, R&D etc. The badger association with TB is no longer debated, the remaining issue is how to handle TB in badgers. Vaccine for cattle and/or badgers is regarded as an important key feature for success. The developments in recent years include an expansion of the annual testing area and 2-year buffer zone, single re-test of IRs, enhanced controls of OTFS herds (non-confirmed breakdown herds), extended use of γ -IF, an alignment of the terminology with EU legislation, a reviewed pre-movement testing policy, and enhanced slaughterhouse surveillance. Future plans include reduced compensation for overdue tests, removing some pre-movement testing exemptions, strengthening of compliance and enforcement, a strategy for the edge of the high-risk area, more risk-based trading (e.g. providing information to farmers about the TB history of source herds). Badger control is a central issue in the national debate. Culling and/or vaccination will be applied, but the only available vaccine at this stage is injectable and expensive to administer. Farmers will now be allowed to cull badgers under license. There is a comprehensive set of criteria, initially the culling will take place in two pilot areas with monitoring of humanness and safety of controlled shooting. Based on the results, a decision on wider roll-outs will be taken. If the pilot is successful it is foreseen to license up to 10 further badger culling areas per year. Vaccine (injectable BCG, licensed) is available and used in the Badger Deployment Project (by FERA and currently in one pilot area) and available for private use. A badger vaccination fund has been set up to support and encourage vaccination. Documentation has been submitted to the UK Veterinary Medicines Directorate (VMD) for a cattle vaccine (that will be used in combination with a DIVA test) but the EU vaccination ban is an impediment. Advice has been given to approach the OIE with the vaccine and the DIVA test. There is also work on an oral badger vaccine.

The strategic movement towards greater cost-sharing include transferring testing costs to farmers and reductions in compensation. There are political challenges. A new Animal Health and Welfare Board (with 50-50 representatives from the farming industry and civil servants from DEFRA) in England will provide the only advice on these issues to ministers in the future. The board has a mandate to consult with the farming industry on how to improve cost-effectiveness of TB programme.

Christianne Glossop, Welsh CVO, presented the development in Wales since 2009. TB eradication has been a long-standing Welsh Government commitment. The TB Action group was formed in 2004. The programme is organised under a board with a technical advisory group, animal health and welfare strategy steering group, project managers and regional programme delivery boards. There is also engagement with individual stakeholder groups. A comprehensive approach based on 4 basic principles is adopted (keep it out, find it fast, stop it spreading, eradicate it), encouraging farmers to protect themselves from TB. The programme has the same elements as in England. Herd

incidence is around 8% and prevalence just above 5%, but there are regional differences. Improvements 2008-2009 include better breakdown management, shorter reactor removal times, less overdue testing, improved involvement of private veterinarians, better enforcement and a review of the current IR policy. An Order from 2008 allows for powers of entry to tuberculin test all mammals. The TB status in Wales was assessed in Health Check Wales (tuberculin testing of all herds), this led to an annual testing policy in 2010 and Wales will never return to parish testing. The UK TB Eradication Plan in 2010 includes Wales. Additional controls are applied in the Intensive Action Area (Southwest Wales) including 6 monthly testing, banning of some movements, biosecurity visits on farms, 2 clear tests required before lifting restrictions, and badger culling. However the culling of badgers was delayed due to a challenge through the courts and recently political changes have resulted in a reversal in the decision to cull badgers and now vaccination of badgers will be used to control the wildlife issue. A new legislation was published in 2010 (TB and Brucellosis Wales Order), which includes enforcement, mandatory slaughter of untestable cattle, changes of pre-movement exemptions, Veterinary Improvement Notices (empowering vets in breakdown herds to order risk-reducing measures) and a reduction in payment for cattle slaughtered for TB where specific cases of non-compliance are identified. There were some budgetary changes last year, devolving the budget for animal health and welfare to Wales and therefore allowing Wales to manage their own programme budget, but the research budget will remain central for GB to allow effective use. The new Welsh government in 2011 put the badger policy on hold and now the minister has announced that there will be no badger culling but vaccination of badgers will be organised. Some of the differences between England and Wales can be used to the advantage of TB eradication. There are differing policies in England and Wales and this does result in some cross border issues, with owners wanting to be located on either side according to the policy affecting them at that time. Local offices of AHVLA are aware of the requirements for each side of the border and the UK liaison group also raise awareness. Risk-based trading efforts must however be developed jointly. It has been proposed that the measures in the Intensive Action Area should be kept in place for a longer time so as to allow for learning from the results, 2 years is not enough. Resources that were planned for the badger cull will now be used for badger vaccination.

Ian McKee from DARD in NI gave some more details on the NI programme. The legislation is very similar to England and Wales. There is supervision of both private practitioners and government staff. The authorities deal with both bovine brucellosis and bovine TB, but brucellosis appears to be under control and vanishing and now resources can be focused on TB. A study is being conducted in the high-incidence area on cattle-to-badger and badger-to-cattle interactions. Herds with repeated breakdowns will be more closely investigated. A number of audits have been conducted of different aspects of the programme and there will be a "mini-review" on TB in 2 months. The apparent recent increase in incidence will also be more closely looked into. There will be a meeting on badger intervention and possible effects on cattle TB this spring.

Discussions on main elements of the programme

Michael Rose summarised the routine TB surveillance testing. Until 2009 the surveillance testing was based on calculations on parish level, combined with local veterinary discretion. Since then the approach has been more risk-based and

comprehensive, resulting in larger areas of annual testing with buffer zones of 2-year testing. The entire area in the Southwest and West Midlands in England and the whole of Wales is on annual testing, In the North and East there is mainly 4-year testing. The area of annual testing in England is expanding. Parishes are however a well-understood entity by farmers with recognised boundaries and therefore the term is still used as a descriptor. Wales will remain on annual testing while the next steps in England include a long-term more sustainable strategy based on the regional situation, this must be epidemiologically sound and EU legal compliance must be ensured. Stable areas to monitor incidence would be needed. Different options for unit to replace parish have been discussed. Annual testing in the entire country has also been discussed but may not be cost-efficient at the present stage (but the idea should not be abandoned entirely). Surveillance is needed for disease control and should be targeted and also tailored to meet regional objectives. However, surveillance is not equal to control. Perhaps regional OTF status could be achieved but a surveillance basis for this must be determined. Currently testing is organised via AHVLA, the schedule is adjusted to ensure temporal smoothing and an even distribution of herds have to be tested each year in any parish. Most tests are performed by officially appointed private veterinarians (OVs), a testing notice is sent to farmers who contact the veterinarian for the test. Overdue tests lead to suspension of TB status. Cross compliance penalties are applied if a farmer fails to test (i.e. reduction of subsidies) and there is a reduction in payments for animals slaughtered for TB in Wales. This is also planned for the future in England.

Epidemiological units/herds/holdings was discussed. Currently epidemiological units are used when handling breakdowns but movement reporting is based on herds/holdings and movement between units in different areas may not be reported if it is the same herd/holding in the database and a Single Occupancy Authority (SOA) is in place. These issues have been the subject of a review across all areas of animal health and welfare and there is work ongoing to consider the options for fragmented holdings so that all movements will be recorded. The future of SOAs is being considered and the first step has been to prohibit the issue of new SOAs across areas of different TB risk. Plans are ongoing to remove the high risk links initially. The difficulties in removing SOAs over a short time scale were pointed out, there was considerable work involved in the IAA in Wales when existing SOAs were removed.

OTF regions versus annual testing in all England was also discussed. The option of OTF status of some regions will probably be the chosen strategy, based on the current testing scheme, if possible in the face of financial constraints. It is felt that working towards this option may provide incentives and encouragement for the industry and lead to better practices in risk based trading. It is important to sever all links between farms in different regions if this is going to work, a comprehensive approach is needed as well as work with industry to achieve risk-based surveillance and prevent new introductions. The Spanish and Italian experiences of regionalisation as regards TB prevalence was discussed. Spain applies yearly testing in the entire country to protect low-prevalence regions, Italy has both OTF-regions and non-OTF regions, including some high-prevalence regions. Different testing approaches are applied in the regions depending on regional status, also as regards testing in herd breakdowns.

The focus on low-prevalence areas was encouraged, also to get farmers to cooperate with the aim to keep disease out of these areas. The need to define the “edge” of the high-prevalence area and try to prevent it from moving outwards was acknowledged.

Malla Hovi presented some key statistics. In 2010 there were 4283 breakdowns, with 26606 reactors removed. On average there were 9 reactors per OTFW breakdown, with a mean duration of 325 days for OTFW breakdowns. 28% of the OTFW breakdowns in the West and 33% in Wales were restricted >1 year. Movement to and from restricted holdings are sometimes allowed due to welfare reasons or for breeding, due to the production systems. A holding-specific license is needed for these movements, which is not given if there are overdue tests, and licenses are granted based on risk assessments. Re-stocking criteria have been developed. Live animals from restricted premises are allowed to leave for slaughter and to approved facilities; Approved quarantine units (AQUs) and Approved fattening units (AFUs). The approval of AQUs has currently been suspended pending the results of a review. Approved finishing units (AFU, 96 are located in the high prevalence region), can take animals from restricted herds, after pre-movement tests (within 90 d), and put them in wildlife-proof housing to be fattened. Cattle can only leave these facilities to be slaughtered. Testing is performed in AFUs every 6 months (most animals are usually slaughtered before they have been there for 6 months). 7800 animals went through AFUs in 2011.

All AQUs and AFUs are audited annually and are subject to spot checks and inspections. There is an on-going review of all movement controls and trade measures. There is a Pilot project in England and Wales to consider enhanced measures for long standing incidents. Herds on breakdown for longer than 18 months are being targeted and measures such as ancillary testing, interpretation of skin testing and badger biosecurity measures are all being considered as part of an enhanced case management plan. No figures are currently available for the follow-up of animals that went through AQUs but this will be compiled as part of the basis for assessment of this practice and how to apply it in the future. Experiences from Spain of benefits from banning all movements except to slaughter from restricted farms were discussed. The legislative status and practical meaning of "movements directly to slaughter" was also debated. Some of these movements go via specialised slaughter markets/red meat markets from which animals can only go to slaughter or to AFUs. The AQU animals come from different herds and are mixed to create a new herd, most are <6 months.

Jo Fairman, head of the Regulatory Hub in AHVLA gave a presentation on compliance and enforcement of controls and regulations, with the specific areas of non-compliance that are targeted. The primary objective of this work is to encourage compliance with the legislation to ensure efficient disease control. There are QA processes in place and auditing for QA and non-compliance in specific areas and a high level of importance is given to farmer education and support in order to reduce the likelihood of non-compliance. The majority of the GB farmers present no problems, but a few non-compliant farmers can create problems. There are numerous enforcement tools and prosecution is the last resort. The compliance process was described as Prevention-Intelligence-Enforcement. Work is ongoing to ensure that the entire process where farmers are non-compliant e.g. for overdue testing or for refusal to allow reactor removal, is clear and correct, so that farmers can be prosecuted successfully if necessary. The current controls focus on quality assurance of tuberculin testing, audits (including testing, animal ID, slaughterhouse inspection, licenses etc), compliance (e.g. overdue tests, presentation of cattle for testing, reactor removals, movements etc) and enforcement.

Chris Williamson from AHVLA presented efforts to increase awareness and improve understanding by various parties involved in the programme to increase farmer support. Advice is provided to industry on preventive measures, there is support to official veterinarians (private practitioners performing official duties) to arrange farmers' meetings and additional epidemiology training of official veterinarians (so that they can perform on-farm investigations). Moreover, a series of one-day on-farm biosecurity training events have been carried out and stakeholder group meetings with industry are arranged. There is also enhanced biosecurity training of official veterinarians (to perform annual biosecurity assessments in Wales). The slaughterhouse surveillance training was also discussed. A training package has been produced by AHVLA and FSA. The training was successful in improving detection rates and was implemented nationally in 2010. Regional liaison groups have been set up to monitor QA, and FSA currently monitors NVL positives (i.e. reactors without visible lesions but positive culture) and VL negatives (i.e. animals with visible lesions but negative culture). AHVLA field staff carries out audits in slaughterhouses and VLA labs audit sample quality. A common interface in the new IT system will allow for monitoring of QA down to individual slaughterhouse level. TB testing is mainly performed by private practitioners, engaged as official veterinarians. Training is done based on a centralised training package, which ensures consistency. The training includes pre-course work, formal training sessions and post-course assessment as well as the completion of a supervised test following training. QA includes Operational Manual Instructions and testing audits. Currently checks are done on testing charts, both active and passive checks and a pilot is being run across Wales to audit OV testing using unannounced checks.

A success story where the roll-out of DNA tagging for all reactors in England and Wales solved a fraud problem was briefly touched upon.

Actions have been taken to coordinate and strengthen cooperation between various bodies. Prioritisation has been necessary due to resource limits. A task force approach has been taken to overcome national versus local agendas and identify areas of non-compliance. Priorities for the coming years include improved single sources of information, influencing behaviours through campaigns, addressing known weaknesses, reviewing penalties.

Discussions and clarifications

There were some issues where the subgroup had not fully understood the details, which were clarified. One issue was the interpretation of the tuberculin test. This is applied somewhat differently in different situations. The standard interpretation is according to EU legislation. In Great Britain the severe interpretation requires that IRs with a bovine reaction of 2-4 mm greater than the avian reaction (and any animals with a positive bovine reaction but a negative avian reaction) are re-classified as reactors. Those animals with a 1-2 mm difference remain IRs. In Wales the severe interpretation means that an additional group of animals (with a B-A difference of 1 or 2mm) are re-classified as ('severe only') IRs. This population of IRs will be sampled for γ -IF testing if not resolved at the first skin re-test.

The veterinary officer handling a TB breakdown herd must conduct a risk assessment as regards animals that would not be regarded as reactors at standard interpretation.

Factors relevant in such a risk assessment are e.g. degree of contact with infected animals, detailed tuberculin test results, ancillary test results, prevalence of infection in

the herd or group of animals, post-mortem results from slaughtered animals. OTW herds are cleared after 2 herd tests (at least 60 days apart) at severe interpretation while OTFS herds are cleared after only one herd test at standard interpretation.

A confirmed breakdown herd (OTFW) is when samples from animals from the herd have either yielded *M. bovis* or showed pathology indicative of TB.

The effect on sensitivity of the tuberculin test by the recent change of tuberculin supplier has been evaluated. In NI the change was made abruptly and no apparent change in the test results could be seen due to this. In GB the change was made gradually which makes it more difficult to distinguish an effect but there are no indications that the change in tuberculin has affected test sensitivity.

The prevalence of paratuberculosis is around 30%. Vaccination is not common but some herds use the Spanish vaccine for small ruminants (under the cascade system).

Calculations of prevalence and incidence in areas where not all animals are tested every year were discussed. The number of breakdown herds and reactor animals (i.e. the numerators) may include herds/animals detected by routine testing, herds/animals detected by contiguous testing and herds/animals detected by slaughterhouse surveillance. The denominator could be either all herds in the area, or all herds tested during a particular year. All these approaches have their merits and their flaws and it is important to know exactly what is being calculated and for what purpose. Moreover, different types of surveillance should not be mixed in the same calculation but rather calculated separately and then amalgamated by epidemiological methods suitable for this purpose.

The new IT system, Sam release 6, was briefly presented. It has been rolled out (but not all the functions are available yet) and will allow for more efficient managing of all aspects of the programme. External users (e.g. official vets and FSA) will be able to log on and supply as well as retrieve information relevant to them, although the full system is in the hands of AHVLA.

Data on slaughterhouse surveillance was supplied after the meeting. In 2010, 36349 cattle were slaughtered for TB purposes in England, Scotland and Wales. 34769 of these were reactor animals. The total number of animals from which samples were submitted from slaughterhouses was 11240. For Great Britain as a whole, there were 2.286 million animals slaughtered for human consumption. This gives a total slaughterhouse submission rate of 10 in 2000 animals slaughtered. As 9782 of the submissions came from reactor animals, only 1458 submissions came from non-reactor animals, giving a submission rate for "slaughterhouse-initiated samples" of about 1.3 in 2000.

Conclusions

The subgroup recognises the large effort and vast resources applied to the control of TB in cattle in UK. There has been improvement since the group last visited UK in 2009 (before EU co-funding). In particular, the holistic approach is appreciated as well as the view that TB in badgers must also be dealt with, alongside cattle.

It is however of utmost importance that there is a political consensus and commitment to long-term strategies to combat TB in badgers as well as in cattle. The Welsh eradication plan will lose some impetus as badger culling will now be replaced with badger vaccination. This was not part of the original strategy that consisted of a comprehensive plan that has now been disrupted.

There is no scientific evidence to demonstrate that badger vaccination will reduce the incidence of TB in cattle. However there is considerable evidence to support the removal of badgers in order to improve the TB status of both badgers and cattle.

UK politicians must accept their responsibility to their own farmers and taxpayers as well as to the rest of the EU and commit to a long-term strategy that is not dependent on elections. The TB eradication programme needs continuity and it must be recognised that success will be slow and perhaps hard to distinguish at first. There is a lot of skill and knowledge among the veterinary authorities and they must be allowed time to use it.

The eradication goal of the programme is now clearly stated, which is appreciated. The creation of the TB liaison group was a good initiative that seems to have helped to achieve better co-ordination.

The adherence to pre-movement testing is good and all exemptions to this testing should be discontinued. The plan to sever the links between holdings in different areas is commended and needs to be prioritised.

The replacement of test intervals based on parish data with annual testing in the entire high-risk area, with 2-year testing in buffer zones is a great improvement. However annual testing in the buffer zones as well would add considerable confidence as a control measure in order to have earlier detection of spread from the endemic areas (see below).

The planned studies on biosecurity as regards badger contacts will be important for prevention of disease transmission as well as for farmer compliance.

The new computer system will allow for more efficient use of resources and data, as well as more thorough epidemiological evaluation and monitoring of performance.

Veterinary disease report visits and local epidemiological investigations are important and should be continued.

The use of culture and/or pathology for confirmation of TB is good. However, some additional information may be used to classify herds, see recommendations below. Slaughterhouse submission rates are much improved (the number of submissions has increased 10-fold since 2009). It must still be recognised that slaughterhouse monitoring is not ideal for sensitive surveillance, and the current submission rate is only as high as what is expected in a region without TB (i.e. corresponds to the expected prevalence of macroscopic lesions caused by agents other than TB).

Recommendations

While the need to deal with wildlife is recognised, the focus on TB in cattle must be maintained. If this is not already done, a number of performance indicators that allow for monitoring of the efficiency of surveillance and on-farm eradication may be used. These include testing history (i.e. detailed test results) of breakdown herds, testing history and results of follow-up tests in herds detected at slaughter, pathology of index animals from herds detected at slaughter, number of herds detected by tracing from infected herds, testing history and results of follow-up tests in herds detected by tracing from infected herds, testing performance of individual veterinarians, trends in prevalence and incidence (by various calculations) and differences in these trends, slaughterhouse submission rates, time to clearance of infected herds etc.

As regards the calculation of incidence and prevalence, different methods should be used for different objectives, and trends based on each method evaluated separately. This may already be done, but in all communication care should be taken to clarify the numerator and denominator. It would also be useful to calculate the results for all different surveillance activities and combine them with methods suited for this purpose, to obtain an overall estimate of the sensitivities and results obtained from different surveillance activities.

Increased test sensitivity is needed in particular for pre-movement tests from high-prevalence areas to low-incidence areas. Also in herds with confirmed infection sensitivity should be prioritised above specificity. This may be best achieved by using the single test with only bovine tuberculin instead of the comparative test.

The single test should be used as pre-movement test from the high-prevalence area to other areas.

In addition, γ -IF may be used as an ancillary test. If this is not possible in all instances, the severe interpretation (meaning no IRs, all animals not regarded as negative interpreted as positive reactors) of the comparative test should be applied in all confirmed breakdown herds. γ -IF could be used more in the high-prevalence area. However, we recognise the need to deal with the wildlife source in order to achieve farmer compliance with this strategy.

The differentiation between OTFW and OTFS herds is questioned, in particular as the OTFS herds are released after only one standard interpretation test and there is still a high risk that these herds are truly infected. We recommend that either all breakdown herds be regarded as OTFW (best option), or that additional epidemiological information is used as a basis for the classification. This means that OTFS herds in the high prevalence areas or with multiple reactors, a history of confirmed TB, a history of introduced animals from confirmed herds etc. be regarded as OTFW.

We acknowledge that this is already applied to some extent, but would recommend that it be extended further.

If OTFS herds are to be released after only one negative herd test, at least the severe interpretation should be applied at this test.

Whole-herd testing in all herds should be implemented as planned. The issue of links between herds must be addressed so that all animals in any linked herds are identified

and also tested, regardless of location. All links between herds located in areas with a different incidence of TB should be removed as soon as possible.

A paratuberculosis prevalence of 30% is high. There is a risk that it interferes with tuberculin test sensitivity (as *M. paratuberculosis* will provoke an avian reaction that may conceal a bovine reaction). The instructions to veterinarians on how to use their discretion in test interpretation should be amended so that it is clear that known paratuberculosis infection in a herd is a reason for using the severe test interpretation or single testing with only bovine tuberculin.

Vaccination against paratuberculosis in cattle should not be allowed as it interferes with the tuberculin test sensitivity in a similar way.

In order to properly evaluate the situation, a snapshot in the form of testing all herds one year (i.e. also in the 2-yearly and 4-yearly testing areas) is recommended. In view of the fact that the high-prevalence area appears to be expanding and there is an on-going discussion about the possibility of obtaining OTF status for some areas, this information is clearly needed.

Annual testing in the buffer zone would allow for an earlier detection of further expansions of the high-risk area.

The application of the tuberculin test is critical to the successful diagnosis of TB and further efforts should be made to ensure the consistent application of the test in compliance with EU legislation. The performance of each OV should be monitored and in particular the testing of unidentified animals should cease. Some of these efforts have already been initiated and are thus encouraged.

The movement towards a more risk-based approach to testing around infected herds, instead of parish-based calculations, in the low-incidence area is encouraged.

This could all be part of a strategy for future OTF status of some regions. It is however advisable to first make sure that there is no undetected source of infection in those areas.

Animals from restricted herds must not be moved from the herd other than directly to slaughter. All other movements from restricted herds (or to restricted herds) are not in compliance with EU legislation. However, the use of officially controlled special fattening units, with strict biosecurity, for fattening animals from restricted herds that then only move directly to slaughter is acceptable from a disease control point of view.

The movement of animals from restricted herds via slaughter markets is however regarded as a higher risk and not suitable for exemption. Quarantine units for animals from restricted herds that then go on to other herds as livestock are also regarded as a high risk. We advise that detailed data on animals that have been moved within this system are compiled to evaluate the risk and provide an argument for such a practice, if it were to be reintroduced or kept in place.

The view of the group is that any system that allows testing of a collection of animals from TB restricted herds in order to regain TB freedom for this group (allowing such animals to go anywhere but directly to slaughter) involves a high risk of spreading TB and must be avoided.

The nomenclature herd, holding and epidemiological unit should be sorted out in the databases and all necessary hierarchical structures applied so that it is possible to easily retrieve information about what animals are epidemiologically linked and what

geographical locations are involved. This is also a priority in the work with linked holdings.

Finally the group would like to extend a warm thanks to the UK hosts for their hospitality and openness in all discussions and a well organised meeting, as well as their hard work to improve the programme.

Annex 1

List of participants:

Participants:

Subgroup members:

Dr Susanna Sternberg Lewerin (Chairwoman), National Veterinary Institute, SE (Chair)

Dr Anthony Duignan, Dept. of Agriculture, Food & Rural Development, Dublin, IE

Dr José Luis Saez Llorente , General Subdirection of Animal Health, M.A.R.M, ES

Dr Maria Pacciarini, I Z S Lombardia e Emilia,Brescia, IT

Dr. Javier Bezos , TB CRL Madrid – Spain

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.

EU Commission (DG SANCO)

Unit G5- Veterinary Programmes:

Mr. Christophe Bertrand

Mrs. Valentina Piazza

FVO-Unit F6

Mr Benoit Sauveroche (observer)

UK hosts: David Calpin, Richard Clifton-Hadley, Ricardo de la Rúa, Malla Hovi, Nigel Clarke, Christianne Glossop, Ian Mckee, Michael Rose, Steve Plant, Joanne Fairman, Chris Williamson, Dan Hackett, Melissa Awcock, Stephen Jackson, Richard Griffiths, Simon Rolfe, Patrick Kitson, Clare Taylor, Sara Gutierrez-Ojanguren, Jessica Parry, Simon Hall, Jan Rowe, Neil Blake, John Biggs

Annex II

Bovine Tuberculosis Sub-Group of the Task Force for monitoring animal disease eradication Meeting in the UK on 27th – 28th March 2012

Agenda

Location

AHVLA Block C, Government Buildings, Whittington Road, Worcester, WR5 2LQ

Objectives

- To update the Task Force on progress on the TB surveillance, control and eradication programmes in UK since their last in May 2009 views.
- To seek Task Force advice on the TB eradication programme in place and to be implemented in 2012 and following years in UK.

Day One – Tuesday 27th March

09:00	Arrival at AHVLA and coffee	
09:20	Welcome and introductions	David Calpin Susanna Sternberg
09:45	TB situation in the UK <ul style="list-style-type: none">- History and recent epidemiology in GB- Structure and systems of the cattle industry (BCMS, CPH, IT systems etc.) in GB- Situation in Northern Ireland- Q&A	Richard Clifton-Hadley Malla Hovi Nigel Clarke
10:45	Policy developments since 2009 Task Force visit <ul style="list-style-type: none">- UK roles and responsibilities- England update- Wales update- Northern Ireland update- Q&A	[TBC] David Calpin Christianne Glossop Ian McKee
11:45	Introducing the discussion on the main elements of the programme	David Calpin
12:00	Routine TB surveillance testing	Michael Rose & Steve Plant
12:45	Lunch	

13:30	Movement restrictions	Dan Hackett, Malla Hovi & Clare Taylor
	Compliance and enforcement	Dan Hackett & Jo Fairman
	Responsibility and cost-sharing	David Calpin
	Discussion	All
17:30	Close	

Day Two – Wednesday 28th March 2012

09:00	Recap and any questions/points of clarification	All
10:00	Meeting of Task Force members	Commission & TF Members
12:30	Lunch	
13:00	Task Force feedback and recommendations	TF Chair and Members
14:30	Close and depart	