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REPORT OF THE

“Tuberculosis”

TASK FORCE SUB-GROUP

**Meeting held in
Santiago de Compostela
Spain**

4-5 October 2012

**REPORT OF THE
MEETING OF THE TUBERCULOSIS SUB-GROUP OF THE
TASK FORCE FOR MONITORING DISEASE ERADICATION
HELD IN SANTIAGO DE COMPOSTELA, SPAIN, 4-5 OCTOBER 2012**

List of participants: see Annex I

Agenda of the meeting: see Annex II

Opening.

The meeting began with welcome and brief introductions. Short introductions of the TB subgroup and the representatives from the EU Commission were also made. A number of presentations on various aspects of the Spanish 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.

The structure and organisation of the Spanish Official Veterinary Services was presented. The regional structure with a central government and autonomous regions was outlined in respect of the authorities involved in animal production and health. The system is complex requiring coordination and collaboration between the different authorities at central and regional level as stated in Spanish law. A working group has been set up for TB and this consists of experts from central and regional level. An epidemiology working group has also been established. Various authorities and organisations are involved in the two working groups, including the universities and national reference laboratories and both groups have input to the implementation of the TB programme, assessment of the effectiveness of the eradication plan and production of the plan for the following year.

A recent enhancement to the programme is the training courses for field veterinarians to improve the quality of field tests. These courses last for 4 days and include theory as well as practical elements and are mandatory for all vets doing field tests. Training is also provided for official veterinarians.

Dr José Luis Sáez Llorente presented the evolution of the TB programme since the last meeting in 2007. The historical trend in herd prevalence and animal incidence remains positive although the reduction has been slower in the last decade. In 2011 the prevalence declined from 1.59% to 1.33%. In 2006 and 2007 the number of gamma interferon (GIF) tests was increased, resulting in more reactors, a fact which influenced the trend but should also contribute to lower figures in following years. This is what has been seen since 2009. In December 2011 98.99% of all tested holdings were negative in

the last test (although not all of these had yet achieved OTF status). The trend seen in 2011 has continued for the first half of 2012, i.e. herd prevalence and incidence as well as animal incidence continues to decrease. Most autonomous regions saw a reduction in herd prevalence from 2010 to 2011 except for Madrid, where prevalence was increased, possibly due to the the movements of animals to different types of pastures (private, common use) inside one municipality. The programme states that a positive breakdown in any herd where cattle graze the common pasture or when other epidemiological links are identified will result in restrictions on all other cattle herds grazing the same pasture or liked epidemiologically.

The high-prevalence regions are mainly located in the central and southern parts of the country.

The recommendations from the subgroup meeting in 2007 have been followed as regards instigation of an epidemiology working group, work on wildlife issues, slaughterhouse monitoring, inclusion of fattening herds and communication between authorities of veterinary and public health.

The epidemiological work has resulted in the BRUTUB database where epidemiological data as regards tuberculosis and brucellosis are collected. Systematic epidemiological investigations are conducted by field vets on every confirmed breakdown herd, and the results are entered in the database. Special training will be introduced in December 2012 for field investigators to improve the quality of epidemiological investigations. Another database includes all details of bacterial isolates from animals with tuberculosis in Spain.

A national monitoring system for wildlife has been initiated and legislation on wildlife biosecurity issues has been implemented.

Slaughterhouse samples have been taken from 1108 herds and 10799 positive animals, 70% of these herds were confirmed as positive. There are 307 slaughterhouses. In 2011, 2,201,075 animals were slaughtered, 1376 with suspect lesions. Samples were taken from 1,234 and 551 were culture positive. This gives a sampling rate of 1.12/2000 animals. The low number of culture positives is not seen as surprising, the field test has been optimised for maximum sensitivity and a low rate of culture positive samples from non-reactor animals is to be expected. The communication between slaughterhouses, public health authorities and veterinary authorities has been formalised to ensure rapid reporting.

OTF (T3) herds in high prevalence areas are tested twice yearly while herds not yet OTF (T2) are tested at least 3 times/year. GIF is used in parallel to tuberculin testing, it is mandatory when new confirmed positive herds are detected. In 2011, ancillary GIF was used in 902 herds, 304 were positive and the infection was confirmed in 20% of the positive animals.

Pre-movement testing is in place and was used in 14,970 herds (209,493 animals) in 2011, of which 27 herds (136 animals) were positive.

Fattening herds are progressively included in the programme; only closed fattening herds in high-prevalence regions are still excluded. These herds can only buy animals from negative (last check negative, OTF) herds and can only send animals directly to slaughter.

Investigations into other causes of suspect lesions in slaughterhouses were discussed; this has not yet been studied. It is expected that the lesion rate in the absence of tuberculosis would perhaps be 1 in 2000 animals slaughtered, based on what is

regarded reasonable in other countries particularly the USA (although less than 50% of that expected in Ireland).

Dr José Luis Sáez Llorente continued to present the national TB programme for 2012 and the forecast for 2013, including enforced measures in high-prevalence regions.

The testing frequency will be increased in all herds in high-prevalence regions. Spot checks of field teams will be intensified. The single intradermal test (SIT) with severe interpretation will be used in all regions with >1% prevalence. Low-prevalence regions may use normal interpretation of the SIT or, in particular cases where cross-reactions are suspected (due to earlier findings), comparative testing. The use of ancillary GIF and measures to prevent infection from wildlife will be gradually increased. In low-prevalence regions with zero prevalence testing intervals may be increased to two years. In low prevalence regions with <1% testing intervals may be increased to two years, but only in provinces with zero prevalence. No region or province has applied this reduction yet.

OTF herds in all other regions will be tested at least yearly and epidemiological investigations conducted in case of reactors. Non-OTF herds will be tested at least twice yearly. All zero-prevalence provinces will include specialised fattening units in the programme.

If wildlife is identified as a potential source for TB in a herd, a specific plan will be instituted in collaboration between the authorities and the owner of the holding.

GIF will be used in all positive confirmed holdings.

Pre-movement tests will be carried out before or after movement, except for movements to slaughter, movements within the same epidemiological unit (provided it is in the same region) and movements to common pasture and transhumance for T3 herds if these herds are qualified as OTF more than 3 years. Common pastures are considered one unit and only T3 herds may share such pasture.

Goats with epidemiological links to cattle must be tested.

BRUTUB has been modified in 2012 to include data from negative control herds.

In 2013 controls will be reinforced for field teams in high-prevalence regions, with training courses foreseen for Official Veterinary Services carrying out controls.

Distribution of information to farmers and all involved in the programme is planned on several levels and by various means. So far, farmers have accepted the eradication measures and communications and information have helped to make them positive to the changes.

The programme in the autonomous region of Galicia was presented by **Dr Jorge Mourelo Estella**. Galicia consists of 4 provinces. The cattle population is around 950.000 animals and characterised by very small holdings. The average herd size is 21 animals (for Spain the figure is 46). A particular feature of the region is that farmers often raise “feedlot” calves for their own consumption and not for sale. Nearly 14% of the farms in the region are of this type and send their animals directly to the slaughterhouse.

In 2011 herd prevalence was 0.19% and 99.28% of the herds were T3.

All T3 herds are tested yearly, others more frequently, as necessary. Some high-risk herds are tested every 6 months. In units with >1% prevalence the severe interpretation is used, extra-severe interpretation is used in herds with previously confirmed TB and herds epidemiologically related to infected holdings. There are 14 authorised slaughterhouses in Galicia that receive reactors. In 2011, 130 (21%) of 614

slaughterhouse samples were positive. Once a year a meeting is held between Veterinary Services for animal health and public health authorities, and a report describing the results of samples taken is produced.

In 2011, 21 of the 71 positive herds were depopulated. Stamping out is used in case of recurrent TB or >20% positive animals.

The wildlife surveillance began in 2008, in collaboration with hunters' associations. The conclusions so far are that cervids are not supposed to play a significant role in TB epidemiology in the region. Wild boar is less prevalent than in the southern regions -and always *M bovis* has been isolated in wild boar from areas where resident cattle are positive”.

At the moment wild boar is not regarded as a reservoir in Galicia but may be useful as sentinel species for the rural environment. In addition to wildlife, close cohabitation of cattle and goats and TB sources in domestic animals are associated with TB and the presence of other shared diseases.

Paratuberculosis serology has been performed in some holdings, indicating a seroprevalence of 2.4-7%. Knowledge of paratuberculosis in the herd is useful for test interpretation but must be regarded with care. When the comparative test is used in some holdings, monitoring and sampling is performed on a representative number of these animals at slaughter.. A regional working group has been created and various courses and training events are planned in the near future. There is confidence in the region that eradication will be achieved in some years.

The last presentation of the first day was made by **Dr Pilar García Jané**, on the programme in Castilla la Mancha. The region has 5 provinces. A total of 2130 cattle farms with some 245100 animals are located in the region.

The regional animal health services interact with various other regional authorities as well as the central authorities. There is an independent internal audit service.

Wildlife is important for the regional economy. This sometimes makes implementation of wildlife measures difficult. An agreement has been established with the hunting association, to help in wildlife surveillance.

Meetings are held regularly with all provinces in order to ensure that the programme is carried out as designed and to address any problems early on. There is good collaboration with neighbouring regions.

In the last few years a large decrease in TB prevalence has been seen (5.35% in 2011 and 2.97% in 2012 so far). Measures have been taken to increase the sensitivity of the surveillance, at different stages of the diagnostic procedure. This includes increasing testing frequency, application of severe interpretation, monitoring of animal movements and use of GIF.

The high prevalence areas are in the western part of the region. This is also where wildlife is most abundant, but there is no definitive data linking the TB prevalence in cattle with wildlife. In this area, land use is shared between farming and wildlife activities and work is on-going on how to handle TB risks without ruining the economical benefits of wildlife activities. Nowadays, currently official data does not allow to affirm that wildlife would be the main source of bovine TB in the region, but studies to verify preliminary ones on the prevalence in wildlife and its role on TB in the cattle population in that region are being performed. .

In the discussions the issue of interactions between veterinarians in slaughterhouses and the field was mentioned. The training courses for slaughterhouse monitoring are given by public health authorities but include talks from veterinary authorities on how

the different parts of the programme are important for each other and for the overall success.

The farmers' attitude has changed in the last years. The severe measures in 2006-2007 were not very popular with farmers but now that they see the positive results most of them appear to understand the value of the programme and appreciate the benefits of more export opportunities, and associated rise in prices for their products.

The second day of the meeting started with a presentation by **Dr Julio Alvarez** about the assessment of diagnostic tests and monitoring of the progress of the programme. The evaluation of tests is hampered by the absence of a good gold standard. This also leads to problems when trying to assess the real effect of implemented measures. A study was conducted to evaluate tests, including confirmed TB infected herds of all production types (dairy, beef, fighting). The SIT with severe as well as normal interpretation, and GIF, was used in all herds. Evaluation of likely estimates for sensitivity, specificity and true prevalence resulted in a lower sensitivity than prior estimates for the SIT but a similar sensitivity of the GIF as previously assumed.

An in-depth study was made to assess the programme in Madrid. Data from 1997-2009 were used and evaluated in detail. Differences between the production systems as regards within-herd transmission were detected and it was concluded that this affects the dynamics of the disease and the detection of infected herds.

Risk factors for diagnostic failures were evaluated in a study on data from Castilla y León. Detailed test results were retrieved and analysed for all culled animals from different herd types. Production type, age and number of herd tests all affected the risk of diagnostic failure. It was concluded that fighting herds and older animals should be monitored more closely due to the risk of false negative tests and that ancillary GIF could somewhat compensate for the limitations of the tuberculin test.

The database on mycobacterial isolates from animal sources (mycoDB.es) provides a useful data source for surveillance and epidemiological studies. It contains molecular data from more than 21000 bacterial isolates.

More studies are on-going and various aspects of the programme will be evaluated and monitored.

Next, the wildlife activities were presented by **Dr Christian Gortazar**. In Spain, the species considered as important reservoirs for TB are red deer and wild boar. Deer and boar are also farmed.

Infected red deer are concentrated in the southwest of the country and in some areas the TB prevalence in deer is 30%. Wild boar are abundant and some prevalence figures reach 50%. TB prevalence is associated with population density but also with supplementary feeding and proximity to infected cattle.

The reservoir role of the badger is still unclear in Spain. In Asturias the prevalence in badgers is 8%, it appears to be higher in some regions, but the true prevalence is currently unknown

Biosecurity measures are implemented and given priority, whilst population control can be used as part of a control plan. High risks of spread of infection from wildlife to cattle come from the transport of wildlife between regions, contact at places such as waterholes and biosecurity around hunting activities, particularly the discarding of offal and detritus.

The Royal Decree 1082/2009 has laid down the rules for the movements and the management of this species in order to control the spread of diseases.

Measures are investigated to limit the contact between cattle and wildlife by using fencing that cattle cannot pass around waterholes assigned for wildlife use and brush-activated gates that only cattle can open around those assigned for cattle use. Preliminary results indicate that this is successfully reducing prevalence levels in cattle. Areas have been assigned for the offal and detritus from hunting. These have been fenced off to prevent access by wildlife and scavenging birds can safely access and eat the remains without any risk of further spread of infection.

Reducing the wild boar population is expected to reduce the prevalence of TB. In some areas wild boar have been captured, field tests used to determine infection status and those that show positive results moved to a separate area where hunting will continue and all those boar will be culled over the hunting season. This allows hunting to continue and farmers continue to receive this income. Studies are conducted to evaluate such a strategy. A ban on feeding would also help reduce populations but is controversial among hunters and other stakeholders.

Vaccination is evaluated, protection of wild boar by BCG vaccination has been demonstrated, with reduced shedding of bacteria in vaccinated animals. Immunisation with a heat-inactivated field strain of *M. bovis* has also been assessed and appears to provide a similar level of protection. Suitable baits have also been developed but the young must have access to the bait using cages that are too small for adults to access. The studies have advanced to the point of a field trial in 2012, which is expected to run for 4 years before any results will be evaluated.

In face of the financial crisis, the alternative of no eradication efforts in wildlife will also be assessed. This might involve zoning and restrictions.

The final presentation, on the use of epidemiological data, was given by **Dr Alberto Allepuz**. The spatio-temporal variation of TB risk, causes of new infections and risk factors have been studied. In the north and east of the country as well as the Balearic islands, the risk is lower, whereas in the other parts the risk may vary over the years. Factors associated with this pattern are type of farm, animal movements, wildlife reservoirs, testing staff and interaction with other domestic animals.

For each year >50% of positive herds are newly detected, the rest are persisting from previous years. Sources for newly infected T3 herds include introduction of animals, residual infection, neighbourhood infection, common pastures or markets, contact with infected goats, interaction with wildlife and infected people. Expert opinion and probability estimates were used to produce a series of decision trees to determine the most likely source of infection in positive herds by using a score system. This was applied to data from Catalonia for 2010-2011. The two most common sources identified as most likely were common pastures and residual infection. More risk factor studies are currently conducted. One is a case-control study on possible causes for TB persistence; another is a case-control study on risk factors for TB presence.

The meeting was closed by Mr. Lucio I. Carbajo Goñi, Spanish CVO, that thanks the subgroup and all the Spanish representatives the work done during the meeting and highlighted the strong commitment to the programme of Spanish Veterinary Services for the next years. Due to the current economical situation, the Spanish CVO asked for additional support from the Commission to the programmes in the form of advanced payments of the financial contribution by the Union for the approved programmes.

Conclusions and recommendations

General conclusions

The subgroup appreciates the tremendous work that has been done in Spain. The progress of the eradication programme during the last decade is impressive and the results are gratifying. The commitment to the programme is seen on all levels of the veterinary services, centrally as well as in the regions. The farmers' collaboration and commitment has also been ensured and farmers are now beginning to appreciate the benefits of the programme.

The previous recommendations of the subgroup have all been taken on board, adapted to the situation and used very well.

We hope that the programme will be able to keep its momentum until the final eradication, although it soon enters a difficult stage, when prevalence has come down but progress will be slower and some stakeholders may be inclined to sit back and relax. Below are some more specific comments and recommendations that the subgroup would like to give.

Recommendations

Slaughterhouse monitoring

The group recommends more in-depth studies of the slaughterhouse surveillance. There is a need to determine a "national" target for the expected baseline of slaughterhouse lesion detection rates due to causes other than TB, in order to ensure the sensitivity of this surveillance in the future. In addition to what is already done, the follow-up of TB outbreaks detected by slaughterhouse monitoring (i.e. in test-negative herds) should be studied in detail so as to evaluate if cases detected at slaughter are due to lack of sensitivity in field testing. An evaluation of the sensitivity of slaughterhouse monitoring is also recommended, as well as comparisons of submission rates between slaughterhouses in order to detect if there are some that don't meet their expected surveillance target.

Training courses

The training activities are commended. In particular, the allocation of appropriate time for the field courses so as to ensure the quality of the training is appreciated. It is recommended that more collaboration in the courses given by public health and veterinary authorities be considered, perhaps in the form of common modules. This may improve the mutual understanding of those involved in the slaughterhouse surveillance and field testing.

In the training courses for field veterinarians, discussions on the need for strict measures at this stage of the programme and how to avoid weariness in farmers as well as others involved in the future programme are encouraged, as it will still take some time to reach the final goal.

Wildlife

The creativity as regards breaking contacts between cattle and wildlife is inspirational and a good example for others.

The wildlife work is extremely useful for the programme and must continue. It is important that the vaccination studies are carried out for as long as it takes to develop a vaccination strategy. It should also be considered to include vaccination of the negative group in the test-and-release study in wild boar.

It is recommended that the risk of badgers becoming a reservoir in some areas be closely monitored so it doesn't become a larger problem. There are lessons to be learned from other countries as regards this and they are happy to share their experiences.

Other aspects

The focus on all the potential TB reservoirs should be maintained, not only wildlife but also other farmed species such as sheep and goats, and perhaps others.

The epidemiological work has made a very good start and is encouraged. The studies performed so far are very useful for the programme and in the future more epidemiological studies will enable the detection of potential problems so that they can be tackled early on.

A production-type approach may be useful in devising strategies in different types of herds. For example, other measures/testing strategies may be needed in bullfighting herds. Anamnestic serology could be something to look into. We appreciate the legislative problem, but even if serological tests are not yet approved in EU legislation they may be useful as additional tools in special circumstances and should be approved on EU level for such use in the future.

Database information may be used to target spot-checks of field work. Testing performance of veterinarians could be evaluated from existing data such as reactor disclosure rates, detections at routine slaughter, failure to detect infected herds etc.

Finally the group would like to, once again, point out that the next phase of the eradication will require hard measures to achieve the final goal. It is important that all involved understand the need to keep going so as not to waste all the resources and efforts that have been invested so successfully. We would therefore like to encourage the Spanish authorities and wish them all luck in their future work.

The group also wishes to thank the Spanish hosts for their generous hospitality and fruitful discussions.

ANNEX I

Participants

Subgroup members:

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

Dr Margaret Good, Dept. of Agriculture, Food & Rural Development, Dublin, IE

Dr César Fernández, Negociado de epizootiología, C/ Gonzalez Pamplona, 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. Isabela Preto, Direção Geral de Alimentação e Veterinária, LISBOA, PT

EU Commission (DG SANCO)

Unit G5- Veterinary Programmes:

Mrs. Valentina Piazza

Spanish hosts: CVO Lucio I. Carbajo Goñi, Deputy CVO Beatriz Muñoz Hurtado, Dr Jorge Mourelo Estella, Dr Pilar Garcia Jané, Dr Jose Luis Saez Llorente, Dr Fulgencio Garrido Abellán, Dr Julio Álvarez, Dr Christian Gortázar, Dr Alberto Allepuz.

ANNEX II

Agenda

REUNIÓN DEL SUBGRUPO DE TUBERCULOSIS BOVINA DE LA TASK FORCE PARA EL SEGUIMIENTO DE LOS PROGRAMAS NACIONALES DE ERRADICACIÓN

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

Santiago de Compostela, 4 y 5 de Octubre de 2012

4 de Octubre de 2012

9.30 h Bienvenida e Introducción

D. Lucio I. Carbajo Goñi. Subdirector General de Sanidad e Higiene Animal y Trazabilidad. M.A.G.R.A.M.A.

D. Jorge Mourelo Estella. Jefe del Servicio de Sanidad Animal. Comunidad Autónoma de Galicia

D^a Pilar García Jané. Jefa del Servicio de Sanidad Animal. Comunidad Autónoma de Catilla la Mancha.

Welcome and introduction

D. Lucio I. Carbajo Goñi. Spanish CVO M.A.G.R.A.M.A.

D. Jorge Mourelo Estella. Head of the Animal Health Service. Autonomous Community of Galicia.

D^a. Pilar García Jané. Head of the Animal Health Service. Autonomous Community of Catilla la Mancha.

Presentación del Subgrupo e introducción

Presidente del Subgrupo de Tuberculosis Bovina de la Task Force

Presentation of the Subgroup and Introduction

Chairman of the Task Force Subgroup on Bovine Tuberculosis

10.00 h Estructura y organización de los Servicios Veterinarios Oficiales en España. Otros servicios veterinarios en la ejecución del programa de tuberculosis bovina. Cursos de formación de los veterinarios de campo.

D. Lucio I. Carbajo Goñi. Subdirector General de Sanidad e Higiene Animal y Trazabilidad. M.A.G.R.A.M.A.

Structure and organization of the Official Veterinary Services in Spain. Other veterinary services involved in the implementation of the bovine tuberculosis programme. Training courses for field veterinarians.

D. Lucio I. Carbajo Goñi. Deputy Director of Animal Health. M.A.G.R.A.M.A.

10.45 h Evolución del Programa Nacional de Erradicación de la Tuberculosis Bovina en España. Situación epidemiológica. Evaluación de las medidas de refuerzo aplicadas desde 2007.

D. José Luís Sáez Llorente. Jefe del Área de Programas Sanitarios. Subdirección General de Sanidad e Higiene Animal y Trazabilidad. M.A.G.R.A.M.A.

Evolution of the National Eradication Programme on Bovine Tuberculosis in Spain. Epidemiological situation. Evaluation of the reinforced measures implemented since 2007.

D. José Luís Sáez Llorente. Head of the Department of Veterinary Programmes. Deputy Directorate of Animal Health. M.A.G.R.A.M.A.

Discusión/Discussion

12.00 h Café

Coffee break

12.15 h El Programa Nacional de Erradicación de la Tuberculosis Bovina en España para 2012. Medidas de refuerzo aplicadas en regiones y comarcas de alta prevalencia y previsiones para 2013.

D. José Luís Sáez Llorente. Jefe del Área de Programas Sanitarios. Subdirección General de Sanidad e Higiene Animal y Trazabilidad. M.A.G.R.A.M.A.

The National Eradication Programme on Bovine Tuberculosis for 2012. Reinforced measures in place in high prevalence regions and zones and forecast for 2013.

D. José Luís Sáez Llorente. Head of the Department of Veterinary Programmes. Deputy Directorate of Animal Health. M.A.G.R.A.M.A.

Discusión/Discussion

13.30 h Comida

Lunch

15.15 h. El Programa de Erradicación de la Tuberculosis Bovina en la Comunidad Autónoma de Galicia. Evaluación de la situación epidemiológica y medidas de ejecución en una región de baja prevalencia.

D. Jorge Mourelo Estella. Jefe del Servicio de Sanidad Animal. Comunidad Autónoma de Galicia.

The Eradication Programme on Bovine Tuberculosis in the Autonomous Community of Galicia. Evaluation of the epidemiological situation and measures implemented in a low prevalence region.

D. Jorge Mourelo Estella. Head of the Animal Health Service. Autonomous Community of Galicia.

El Programa de Erradicación de la Tuberculosis Bovina en la Comunidad Autónoma de Castilla la Mancha. Evaluación de la situación epidemiológica y medidas de ejecución en una región de alta prevalencia.

D^a Pilar García Jané. Jefa del Servicio de Sanidad Animal. Comunidad Autónoma de Castilla la Mancha.

The Eradication Programme on Bovine Tuberculosis in the Autonomous Community of Castilla la Mancha. Evaluation of the epidemiological situation and measures implemented in a high prevalence region.

D^a Pilar García Jané.. Head of Animal Health Service. Autonomous Community of Castilla la Mancha.

17.00 h Café

Coffee break

17.15 h Coloquio general: todos los participantes

General discusión: all participants

18.30 h Fin del primer día de la reunión.

First day meeting closure.

5 de Octubre de 2012

9.00 h Evaluación de las pruebas de diagnóstico de la tuberculosis bovina aplicadas en España. Estudios realizados desde 2007.

Dr. Julio Álvarez. Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS). VISAVET. Facultad de Veterinaria. U.C.M.

The scientific assessment of the diagnostic tests used in the National Eradication Programme on Bovine Tuberculosis. Studies carried out since 2007.

Dr. Julio Álvarez. Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS) and VISAVET Health Surveillance Centre, University Complutense of Madrid

9.45 h Programa nacional de vigilancia de fauna silvestre. Investigación sobre control sanitario en la interfase fauna-ganadería

Dr. Christian Gortázar. Instituto de Investigación de Recursos Cinegéticos. IREC.

Wildlife disease surveillance and research on disease control at the wildlife-livestock interface.

D. Christian Gortázar. National Wildlife Research Institute IREC. CSIC-UCLM-JCCM.

10.30 Café

Coffee break

10.45 h El uso de los datos epidemiológicos. Análisis de la variabilidad geográfica del riesgo de infección y de las causas de nuevas infecciones. Estudios en curso sobre factores de riesgo.

Dr. Alberto Allepuz. Centre de Recerca en Sanitat Animal. Universidad Autónoma de Barcelona.

The use of epidemiological data. Analysis of the spatial variation of disease risk and of the causes of new infections. Epidemiological studies of risk factors in progress.

Dr. Alberto Allepuz. Research on Animal Health Centre. Barcelona Autonomous University

11.30 h Coloquio general: todos los participantes

General discusión: all participants

12.00 h Reunión del Subgrupo TF-TB

Meeting of TF-TB Subgroup

13.30 h Reunión final: conclusiones y recomendaciones

Final meeting: conclusions and recommendations

13.45 h Comida

