

COMMISSION  
OF THE  
EUROPEAN COMMUNITIES

SANCO/10075/2002

---

Directorate General for  
Health and Consumer Protection

---

SANCO/E.2

REPORT ON THE

**TASK FORCE MEETING  
OF THE  
“SHEEP&GOAT BRUCELLOSIS”  
SUB-GROUP**

**PORTUGAL, MIRANDELA  
26-27 NOVEMBER 2001**

**REPORT OF THE**  
**“SHEEP & GOATS BRUCELLOSIS” TASK FORCE SUB-GROUP MEETING**  
**HELD IN MIRANDELA, PORTUGAL, ON 26-27 NOVEMBER 2001**

**Participants:** see Annex 1

**Agenda:** see Annex 2

**DAY 1**

The meeting was held in Mirandela, a small town in the Trás-os-Montes Region, located in the north-eastern part of Portugal close to the Spanish border, in the headquarters of the Regional Direction of Agriculture.

The presentations and discussions were either in English or Portuguese (sometimes in French) and some of the participants provided a simultaneous translation service. The first day of the meeting was dedicated to the sheep and goats brucellosis national eradication programme and several examples of regional implementation. The second day included, in the morning, a visit to two sheep and goat flocks and a visit to the corresponding local association of breeders. In the afternoon, a meeting was held with the Portuguese counterpart for clarification of matters and discussion of the sheep and goat Brucellosis programme and the list of recommendations. A small meeting of the sub-group for general discussion and work planning followed this.

**THE NATIONAL ERADICATION PROGRAMME FOR SHEEP AND GOATS  
BRUCELLOSIS IN PORTUGAL: MEASURES IN PLACE AND  
EPIDEMIOLOGICAL SITUATION** (*A. Rosinha*)

The National Eradication Programme for sheep and goat brucellosis in Portugal, the measures in place and the epidemiological situation were explained and copies of the overheads were handed over to the experts. The organisation of Veterinary Services, laboratories and breeders associations at the national, regional and local levels was explained. It was stated that this has also been well summarised in a recent FVO Mission Report (*DG (SANCO)/3166/2001 – MR final*).

Portugal is divided into seven regions<sup>1</sup> on the mainland plus the two island regions of Azores and Madeira. The central state veterinary services (DGV) forms part of the Ministry of

---

<sup>1</sup> Entre Douro e Minho; Trás-os-Montes; Beira Litoral; Beira Interior, Ribatejo e Oeste, Alentejo, Algarve.

Agriculture, Rural development and Fisheries and is responsible for planning, programming and co-ordination. Regional Veterinary Services (DSV-DRA), that are included in an administratively autonomous structure (the Regional Agriculture Board) but are functionally dependant on the central level, operate with local units (*Divisões de Intervenção Veterinária*) that themselves include smaller administrative units or municipalities (*Concelhos*). The local units (DIV) supervise the relevant activities regarding animal identification, flock registration, movement permits, eradication programmes and contingency plans. Most of the practical aspects related to the surveillance and eradication programme are implemented through breeders co-operative structures set up under official guidance, the *Organizações de Produtores Pecuários* (OPPs) [previously called the *Agrupamentos de Defesa Sanitária* (ADSs)].

## **SHEEP AND GOAT BRUCELLOSIS ERADICATION PROGRAMME IN PORTUGAL**

In Portugal, there are more than 84,000 flocks of sheep and goats with nearly 3,200,000 animals. At the national level, after a plateau period (1995-1998) the prevalence rate of infected flocks has been decreasing regularly by up to the year 2000. However the incidence rate of infected flocks has not really improved over these past years (1997: 1.45%; 2000: 1.58%). This is related to a great heterogeneity according to the different regions. While in most regions the situation has been improving, in one region (Trás-os-Montes) the flock prevalence rate increased from 19.3% to 43.1% (1995-2000) and the incidence rate from 6.22% to 15.07% (1997-2000). In another region (Algarve) while the flock prevalence rate has improved from 25.9% to 14.7%, the incidence rate has not improved these past years (1.75% in 2000).

In Portugal, 507 brucellosis cases in humans were reported in 2000 (including 195 in Trás-os-Montes, 71 in Beira Interior, 64 in Alentejo and 61 in Beira Litoral).

The national programme is mainly based on a test-and-slaughter strategy, however vaccination has been re-enforced in Beira Interior and re-introduced in some other regions (Trás-os-Montes, Entre-Douro e Minho e Beira Litoral) as a measure to accelerate the eradication process. Vaccination is applied in these regions by local decisions, generally in farms (or epidemiological units) with more than 5% within flock prevalence. Vaccination is done with Rev.1 vaccine and is administered conjunctivally to animals aged 3-6 months (except males). In certain epidemiological circumstances, the application of adult vaccination could be decided for some epidemiological units in defined areas, as in Trás-os-Montes. In situations with high level of infection (*Brucella* isolation, presence of males positive, or within-flock prevalence > 15%, or no improvement within the last 24 months) and where

regular measures (serological control and vaccination) could not be applied properly, the depopulation of the flock could be decided (submitted to a decision of the DGV).

The serological control is done:

- after the age of 6 months in non-vaccinated animals;
- after the age of 3 months in young animals ready for vaccination;
- after the age of 30 months in animals vaccinated at a young age (subcutaneous vaccination).

The identification system allows the identification of:

- animals submitted to serological control (orange ear tag on the left ear with individual and flock mark)
- animals from infected flocks (tattoo on right ear with the flock mark)
- animals vaccinated (green ear tag on the left ear + a tattoo giving the month, year and place of vaccination)

Flocks are classified as follows regarding the brucellosis status:

- B2: infected or non-free (no qualification)
- B3: free
- B4: officially free

The testing regime is complex in the regulation, but in practice it is apparently simpler:

- in B2 flocks:
  - o non-vaccinated animals: all samples tested by RBT and all RBT negative animals are further tested by CFT. A positive result to either RBT or CFT is considered as a positive animal.
  - o vaccinated animals: samples are tested using RBT and all RBT positives are further tested by CFT. The health status of the flock and the results in non-vaccinated animals is taken in account for deciding which animals should be slaughtered.
- In B3 and B4 flocks: flocks are tested on a sample of animals (according to the Directive 91/68) by RBT and all RBT positive are further tested by CFT. If one animal is positive to both tests, the status is suspended and all animals are tested. All positive animals should be submitted to bacteriological examination at slaughter.

Other measures concerning identification of positive animals, movements restrictions, epidemiological investigations, disinfection measures (farm level, transportation means), are also implemented.

The characteristics of the programme, established after the evaluation of the epidemiological situation are decided locally at the level of the area by a consensus of local partners (DSV-DRA, DIV, OPP). There are also detailed protocols (PIS) for flocks with specific problems that must be approved by the DGV.

## **THE BRUCELLOSIS LABORATORIES ORGANISATION SYSTEM IN PORTUGAL**

*(S. Rodeia & I. Travassos Dias)*

The National Reference Laboratory for Brucellosis is the “Laboratorio Nacional de Investigação Veterinária” (LNIV). The main responsibilities of LNIV and its delegation in Oporto, regarding the brucella melitensis (BM) eradication programme are: (i) control and certification of the public and private laboratories (R.L.) that perform brucellosis diagnosis; (ii) training of R.L. technicians; (iii) providing expert advice both to R.L. and to Central/Regional Veterinary Services; (iv) production and supply of antigens and national reference sera for serological diagnosis; (v) control of reagents and validation of new kits (e.g. iELISA) and methods (e.g. mRB); (vi) implementation of serological and bacteriological standard diagnosis procedures; (vii) reference diagnosis laboratory (e.g. serology in case of import/export of animals); (viii) organisation and maintenance of national serum bank and culture collection; (ix) conduction of proficiency ring trials with the other laboratories.

The 19 public regional laboratories belong to the Regional Agriculture Boards. Six of the laboratories perform both RBT and CFT while 13 perform only RBT. Only 2 regional labs (and the 2 national labs (LNIV Lisbon and Oporto)) perform bacteriology of *Brucella*. The 7 private laboratories perform RB and CFT.

The samples analysed present a decreasing trend from 1999 to 2001. The number of serological diagnosis is similar in the public and in the private laboratories.

Samples from sheep submitted to bacteriology, included liver, spleen, lymph nodes, uterus, and udder (993 from Jan to Oct. 2001, with 18% of positive results) and also vaginal swabs (11), placenta (3), aborted foetus (3), and milk/cheese (33, with 9% of positive results). A total of 426 samples from goats were submitted in the same period with 12% of positive results.

A report regarding a study comparing the standard RBT and the modified RBT (mRBT) was presented, involving 22604 animals from B2 flocks and 36756 animals from B3 flocks. The percentage of positive animals detected with the RBT is clearly improved by modifying the procedure. A sample of 4044 animals from B2 flocks and 6758 animals from B3/B4 flocks were tested using RBT, mRBT and CFT. It appears that, in both negative and positive flocks, the mRBT alone is more sensitive than the standard RBT and CFT together.

## **THE ERADICATION PROGRAMME FOR SHEEP AND GOATS BRUCELLOSIS IN BEIRA INTERIOR REGION: MEASURES IN PLACE AND EPIDEMIOLOGICAL SITUATION** (*A. Pina Fonseca*)

The application of the programme was explained for this particular region where the prevalence rate is now relatively low (in 2000: 4.74% of positive flocks), and has been decreasing in the past years, but where incidence is relatively constant from year to year (0.44% of newly positive flocks in 2000). The objective of the programme is to achieve the B4 status of the flocks and the region. For this purpose B2 flocks should qualify as B3 within 24 months or an evaluation of strategy at flock level is performed. The methodology for diagnosis was re-evaluated and vaccination, which had completely disappeared in 1995, was re-introduced recently due to the epidemiological situation in some areas.

Beira Interior includes the great granitic massif of Beiras, with poor soils and 625-2000 mm of rain/year concentrated in autumn and winter. In this region there are 13,931 flocks and 511,493 small ruminants. The size of flocks is heterogeneous, from 6 to 178 animals per flock.

Pina Fonseca also reported a comparative study showing that an important proportion of CFT positive sera sampled in infected flocks were RBT negative, confirming studies previously done in other countries and showing the importance of performing the CFT on RBT negative animals in all suspicious situations.

In conclusion, test and slaughter policy alone could not achieve the objective of eradication in Beira Interior. Vaccination was abandoned earlier than recommended even in areas of high brucellosis incidences and in areas where there are many common pastures. The present re-enforcement of vaccination using the conjunctival route simplifies the process and will allow for a faster control of infected flocks, while avoiding infection on B3 flocks.

## **THE ERADICATION PROGRAMME FOR SHEEP AND GOATS BRUCELLOSIS IN TRÁS-OS-MONTES REGION: MEASURES IN PLACE AND EPIDEMIOLOGICAL SITUATION** (*A. Nunes*)

The situation of Brucellosis in this particular region, with 320,000 animals (90% sheep) in 6,000 flocks, did not really improve in recent years, with a prevalence rate of infected flocks increasing annually (43,09% of positive flocks in 2000, incidence of 11,66% and 8,92% positive animals), a high number of human cases and the existence of farms showing reactors for more than ten years. This, together with several other reasons lead the authorities, in 2001,

to decide to launch a mass vaccination programme including all flocks except the B4/B3 located in really isolated areas. These reasons were: the big impact of the slaughter policy (complete closing of many farms); the extended use of communal land and the lack of effective isolation (and hygiene) of infected flocks (including the existence of uncontrolled movements of animals, especially the purchase of replacements for premia purposes); the time delay from testing to slaughter (and the consequent loss of positive animals, loss of earning, deaths, etc.); the failure to accomplish the re-inspection timings; the delay in compensation payment (causing the refusal of delivering the positive animals and the lack of co-operation of farmers) and the lack of adjustment of the value of the animal in relation to the flock status (already changed by Despacho Conjunto n.º530/2000); problems in animal identification; very small penalties for transgressors and the absence of correlation between the subsidies with the existence or not of sanitary transgressions; and also the early abandonment of the Rev.1 vaccine.

The characteristics of the production system, with small farms (56 animals in average, with only 20% with more than 200 animals), owned by aged farmers with poor education and with a considerable proportion of shepherds without land, increases the contact between flocks. 80% of animals are used for meat production while 20% are used for milk and cheese production. The birth rate occurs throughout the year but increases during April-May and October-December.

At present, efforts are concentrated in the mass vaccination campaign as well as in the improvement of all aspects identified as critical for the improvement of the programme.

## **THE ANTI-*B. MELITENSIS* VACCINATION STRATEGY IN TRÁS-OS-MONTES REGION** (*F.G. Neto*)

The mass vaccination programme implemented is based on the use of the Rev.1 vaccine administered by the conjunctival route, to all animals (females and males) of non-B3 flocks and to young replacements in B3 flocks (with the exception of holdings with Individual Sanitary Programmes where the isolation of the flock and the good level of management allows for the non introduction of the vaccine). Vaccinated animals are identified with a special earing and a tattoo (with region, county, month and year). Females with 30-120 days of pregnancy are not vaccinated. All animals are blood sampled before vaccination and all RBT positive animals are slaughtered. There is apparently already an effect on the prevalence that was, in August 2001, less than that could be expected from the previous figures.

The decision of introduction of adult vaccination was taken in collaboration with the central services (DGV and LNIV) and the neighbouring regions (Beira Interior and Entre Douro e Minho). The organisation of the campaign included several meetings with the veterinarians of the OPPs, the breeds associations and the farmers to discuss the aims, criteria and methodology of the vaccination programme.

Police forces were also involved to help on the control of animal movements and animal identification. The serological follow-up of vaccinated animals is to be done at 12 months after vaccination for animals vaccinated up to 6 months of age and 24-30 months after vaccination for the adults.

The vaccination programme started in February 2001. The number of animals to be vaccinated is 289,000 (85% of the population) and up to 16 November 2001, 45,5% were vaccinated (112,029 adults + 19,378 young replacements = 131,407 animals). In the vaccinated flocks, some animals missed vaccination due to gestation (30,276 females) and 24,288 were already vaccinated (in previous years). Several farmers decided to take the risk of vaccinating pregnant females and there were some problems of abortion. A serological surveillance of a sample of vaccinated animals was also implemented (30 and 120 days after vaccination). It is interesting to note that while nearly 100% of vaccinated animals were sero-positive 30 days after vaccination (% of positive tests with mRBT > RBT >> CFT), the rate of sero-positive animals dramatically decreased at 120 days post-vaccination and most animals were negative to all tests 4 months after vaccination.

Other problems faced by the BM programme were the delay of transport of positive animals to slaughter. In response to this problem, the DRATM created a transport system. Positive animals are marked and immediately transported to the abattoir. The average time from testing to slaughter was 32 days (several times, less than 16 days). Compensation was paid earlier with a significant increase in the number of farmers collaborating in the campaign.

## **EVALUATION AND DISCUSSION ON THE MEASURES IN FORCE AND THE EPIDEMIOLOGICAL SITUATION IN PORTUGAL AND IN PARTICULAR IN TRÁS-OS-MONTES AND IN BEIRA INTERIOR**

A general discussion took place between the sub-group and the Portuguese colleagues took place. The sub-group made general positive comments regarding the strategy followed in Portugal and especially the recent evolutions.

The main points of discussion were:

- The need to simplify and improve the strategy of use, interpretation and decision regarding RBT and CFT.
- The use of sampling in B3/B4 flocks at risk
- The strategy of using the vaccine tool in certain regions (there was no explanation why in some regions with high prevalence rates, the vaccination has not been re-introduced) or in certain zones (need to enlarge the vaccination areas?).
- The strategy of compensation.

## **DAY 2**

### **VISIT TO TWO SHEEP/GOATS FLOCKS AND THE CORRESPONDING ASSOCIATION OF FARMERS (ADS/OPP)**

This visit gave members of the sub-group the opportunity to see the implementation of the programme in the field and especially to look at the PISA system, the national database allowing the rapid transfer of information from the field to the vet services and the laboratory.

### **CONCLUSIONS**

The sub-group considered the meeting in Mirandela as fruitful with very good and totally open participation by the Portuguese national, regional and field Vet Services and also the farmers' organisations. The sub-group would like to underline the enthusiasm and commitment to the BMP revealed by the two regions of BI and TM and the good level of co-operation achieved in these regions by all partners. These two experiences could be shared with the other regions of Portugal specially those with a high level of infection.

## **RECOMMENDATIONS OF THE BRUCELLOSIS SUBGROUP**

### **RECOMMENDATIONS TO PORTUGAL**

- 1) Vaccination should be the main priority. Even when serological control is restarted, vaccination should not be stopped.
- 2) The use of sampling for serological testing (*i.e.* according to the 91/68 EC Directive) should only be applied in free areas or when the official veterinary service has established that there is no risk of infection.
- 3) Based on the result of the RB & CF tests, the decision as to which animal ought to be slaughtered should be simplified. If the flock is considered by the Vet Services with a high probability of having infection regarding the serological results obtained, there is no reason for not slaughtering a positive animal to any of the tests.
- 4) In the national programme, the time period from the vaccination of young animals (3-6 months of age) to the first serological control is 30 months. Using the conjunctival route of vaccination, this interval should be reduced to 12 months.
- 5) In vaccinated farms, it is advisable to keep the animals in the original farm until the establishment of a minimum level of protection (at least 3-4 weeks in general). When pregnant females are vaccinated, a restraint of movements is advisable up to the time of birth.
- 6) In the mass vaccination zone, the trade of adult vaccinated animals between farms should be limited to those farms with mass vaccination. The use of markets should be allowed but avoiding contact with non-vaccinated animals.
- 7) The number of personnel at the official Veterinary Services at the regional level is insufficient for the work being developed in sheep and goat brucellosis campaign in Portugal, especially in Trás-os-Montes where mass vaccination is being implemented. The co-ordination of the programme should be done at the regional level by a veterinarian fully dedicated to this task.

As demonstrated by the Portuguese experience, the work of the OPP is fundamental for the success of the eradication programme, therefore OPPs should receive a full support.

### **RECOMMENDATIONS TO THE COMMISSION**

The brucellosis vaccine should be considered for financial support by the Commission.

## PARTICIPANTS

OF THE “SHEEP & GOATS BRUCELLOSIS” TASK FORCE SUBGROUP 7<sup>TH</sup> MEETING HELD IN MIRANDELA, PORTUGAL, ON 26-27 NOVEMBER 2001

- **Task Force Sub-Group**
  - **Dr. B. Garin-Bastuji**                      **Chairman**
  - Dr. T. Badin de Montjoye**            **France**
  - Dr. A. Petrini**                            **Italy**
  - Dr. M. Durán Ferrer**                  **Spain**
  - Dr. A. Minas**                            **Greece**
  - Pr. Dr. Y. Vaz**                           **Portugal**
  - Pr. Dr. W. Schuller**                  **Austria**
  - Dr. E. Stifter**                          **Commission**
  
- **Portuguese Representatives (main list)**
  - **Direcção Geral de Veterinária** [*State Veterinary Service*]  
**Serviços de Saude Animal** [*Animal Health Service*]  
**Dr. A. Rosinha, Head**
  - **Direcção Regional de Agricultura** [*Regional Agricultural Board*] **de**  
**Trás-os-Montes**  
**Dr. F. G. Neto, Deputy-Head**
  - **Direcção Regional de Agricultura** [*Regional Agricultural Board*] **de**  
**Trás-os-Montes**  
**Direcção de Serviços de Veterinária** [*Regional Veterinary Service*]  
**Dr. A. Nunes, Head**
  - **Direcção Regional de Agricultura** [*Regional Agricultural Board*] **da Beira**  
**Interior**  
**Direcção de Serviços de Veterinária** [*Regional Veterinary Service*]  
**Dr. A. Pina Fonseca, Head**
  - **Laboratorio Nacional de Investigação Veterinária (LNIV), Benfica-**  
**Lisbon**  
**Dr. I. Travassos Dias**  
**Dr. S. Rodeia**
  - **Organização de Produtores Pecuários (OPPs)** (previously called the  
**Agrupamentos de Defesa Sanitária (ADSs)** [*Breeders Associations*] **de**  
**Trás-os-Montes.**

**AGENDA**

**OF THE “SHEEP & GOATS BRUCELLOSIS” TASK FORCE SUBGROUP 7<sup>TH</sup> MEETING HELD IN MIRANDELA, PORTUGAL, ON 26-27 NOVEMBER 2001**

**Monday, 26 November**

- 09:00 – 13:00      Welcome and introduction
- The national eradication programme for sheep and goats brucellosis in Portugal: Measures in place and epidemiological situation (Dr. A. Rosinha).
- The Brucellosis Laboratories Organisation System in Portugal (Dr. S. Rodeia & Dr. I Travassos Dias)
- The eradication programme for sheep and goats brucellosis in Beira Interior Region: Measures in place and epidemiological situation (Dr. A. Pina Fonseca)
- The eradication programme for sheep and goats brucellosis in Trás-os-Montes Region: Measures in place and epidemiological situation (Dr. A. Nunes).
- The *B. melitensis* vaccination strategy in Trás-os-Montes Region: (Dr. F.G. Neto).
- 14:30 – 18:00      Evaluation and discussion on the measures in force and the epidemiological situation in Portugal and in particular in Trás-os-Montes and in Beira Interior.

**Monday, 26 November**

- 08:00 – 13:00      Visit to two sheep/goats flocks and the corresponding Association of farmers (ADS/OPP).
- 14:30 – 18:00      Discussions and recommendations
- General discussion of the group
- Comments regarding the epidemiological questionnaire on brucellosis outbreaks
- Discussion on minimal epidemiological indexes