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REPORT ON THE

**TASK FORCE MEETING
OF THE
“BOVINE” AND “SHEEP & GOATS”
BRUCELLOSIS SUB-GROUPS**

Avignon, France, 26-28 March 2003

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REPORT OF THE

BOVINE AND SHEEP & GOAT BRUCELLOSIS SUBGROUPS OF THE TASK FORCE

MEETING HELD IN AVIGNON, FRANCE, ON 26-28 MARCH, 2003

Participants: see Annex 1.

Agenda: The meeting was held on 3 days (see Annex 2).

DAY 1

Included general information about brucellosis in animals and humans in France and comprised mostly the presentation of the Bovine Brucellosis eradication programme

1.1 Welcome (G. Coustel, Bureau de la Santé Animale (BSA))

G. Coustel welcomed the subgroups and gave an overview of the evolution of some relevant aspects on the control of brucellosis in France in the last 35 years.

He considered that mostly due to the joint efforts and mobilisation of the people involved in the eradication programmes (producers, veterinarians, administrators and laboratory staff) 2/3 of the regions of France achieved the brucellosis officially free status. Despite some technical difficulties, specially related to the specificity of the laboratory tests in these final stages of the eradication programmes, it seems possible that the disease is eradicated from France in the very near future.

1.2 Presentation of the Task Force. (F. Reviriego Gordejo and J.P Vermeersch, Commission)

F. Reviriego explained the background, purpose and operation of the Task Force and associated sub-groups. Later in the programme, J.P. Vermeersch presented summary data and comments on the progress in the member states (MS) with co-financed Bovine and Sheep and Goat Brucellosis eradication programmes.

1.3 The Disease Surveillance System in France (T. Badin de Montjoye, (BSA) and T Delcroix, Fédération Nationale des GDS du Bétail- (FNGDSB))

The French National Eradication has been designed taken into account the following stakeholders:

- I. *State Administration:* Ministry of Agriculture and Fisheries. Directorate-General of Food. Sub-directorate of Animal Health and Welfare, with responsibilities on the planning, programming and evaluation of the programme at national level.
- II. *Regional Administration:* Administratively, the territory is divided into 96 *Départements* governed by a *Préfet* (the local representative of the central government). Veterinary Services of the *Département* (DDSV = DVO) are responsible for the control of the implementation of the programme in its territory and are directly depending on the CVO.
- III. *Sanitary Veterinarians:* Private Veterinary Surgeons with official mandates for the implementation of official tasks, and reporting to the Veterinary Services of the

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Department. Official tasks, responsibilities and remuneration are regulated by an official act signed by the DDSV. Sanitary Veterinarians are appointed by the Authority according to the rules, but each breeder could decide for the particular appointed vet that is going to assist his holding.

- IV. *Laboratories*: the French National Reference Laboratory in France belongs to the French Food Safety Authority (an autonomous national agency under the supervision of Ministries of Health, Agriculture and Consumers Affairs). At local level there is a network of Laboratories with a dependency of the *Département* local authority (this authority called General council is locally elected and independent of the central level). All LVD must be authorised by the CVO for performing tests in the frame of national control programmes (authorisation based on the respect of specific duties including capability, competency and quality assurance).
- V. *Breeders and Breeder's Association*.. Breeders are associated in “groupements départementaux de défense sanitaire (GDS)”, GDS are federated a national level (FNGDSB). These associations have been promoted since 1950 with the aim of structuring the participation of breeders in tasks for the prevention, treatment and eradication of infectious diseases, particularly those officially regulated.

1.4 Information on Human Brucellosis in France – the role of the National Reference Centre for human brucellosis /N.R. laboratory for animal brucellosis (B. Garin-Bastuji, AFSSA)

The incidence of human brucellosis dramatically decreased from 900 cases/100,000 inhabitants in 1978 to 0.07 case/100,000 inhabitants in 2000. Since that date the incidence is stable (44 cases in 2000; 23 in 2001; 37 in 2002). However the disease is still believed to be under-notified, hence the incidence could be underestimated. The notification system has been recently improved and the history of the infected patients is better known. Almost all strains isolated and identified in 2002 by the NRC for Human brucellosis are of the *B. melitensis* species, and almost all patients have a history of a foreign origin (mainly Portugal, Spain, Turkey and Northern-Africa) or of a stay in endemic area (Central Africa, India, Arabic Peninsula).

The National reference lab. for animal brucellosis (NRL) main tasks are (i) a technical support and quality assurance of the routine veterinary (90) and dairy (22) labs., with, in particular, the management of proficiency ring-tests (annual or every 2 years) and the training the technicians from local labs ; (ii) the control of all batches of biological products used in the programme (antigens - ELISA kits - brucellin –vaccines); (iii) the reference diagnosis (cases assessment - strains typing); and (iv) the technical support of veterinary services with, in particular, the validation of new diagnostic tests and strategies.

As far as the *Brucella* typing is concerned, The main strains isolated in the past were:

- In cattle: *B. abortus* biovars 1 and 3 (in the whole country) *B. melitensis* 3 (in the South), and *B. abortus* biovar 4 (in the Massif Central area)
- In sheep and goats, *B. melitensis* biovar 3 in most cases and essentially in the South, the biovar 1 rarely and essentially in the North and North-East.
- *B. suis* biovar 2 in free ranging pigs, in wild boars and in hares, all over the country.

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1.5 Bovine Brucellosis in France: Results and role of the partners (B. Dufour, AFSSA)

The Bovine Brucellosis eradication programme started in 1968, when the herd prevalence was 50%, the animal prevalence 25% and 50% of abortions were due to Brucellosis. It became compulsory in 1975 and applied to all herds. .

During the 1968 - 1984 period there was compulsory vaccination with B19 of all female animals between 4 to 6 months. In beef herds, all bovines greater than 18 months were subjected to annual serological testing using the SAT or RBT as the screening test. A monthly milk ring test (MRT) was carried out in dairy herds, and heifers over 18 months were subjected to annual blood testing. Infected herds were partially/fully depopulated and the disease free status of clear herds established.

By 1990 the herd prevalence was less than 1%. Controls were reinforced. The SAT was replaced by the RBT. There was a better control of animal movements and a reinforced post movement test (RBT+CFT) was introduced. Since 1997 vaccination has been prohibited. Infected herds are totally (especially in case of abortion) or partially depopulated (total depopulation is not legally compulsory and, for this reason, needs the previous agreement of the breeder), and farms disinfected. Epidemiological investigations are carried out in herds linked to disease outbreaks (trace on, trace back, neighbouring herds). Infected dairy herds and herds in areas with recent infection are subject to a monthly MRT test. If not totally depopulated, infected herds are cleaned up with the parallel use of RBT and individual iELISA. In free areas, (77) MRT is performed every three months in dairy herds, the pooled iELISA or the RBT is used in beef herds. And the Brucellin skin test is used in herds when there are suspicions of false positive serological reactions (FPSR). The post- movement control is done with the RBT and CFT (or iELISA).

In 2002, there were 38,817 notified abortions of which only 5 were due to *Brucella* (4 in the same herd). There were 11 infected herds out of 312,000 controlled. There were 4 newly infected herds (before June 2002). The point prevalence on the 31/12/02 was zero. There were 362 animals slaughtered under the programme during the year.

There are four partners, each with a well-defined role, involved with the organisation of the Brucellosis control programme.

The **central veterinary administration (DGAI)** organises the consultation of the different partners, regulates the surveillance and control systems, and completes the national epidemiological surveillance with the help of AFSSA. The **local veterinary administration (DDSV)** implements the control/surveillance in the “*département*,” performs the epidemiological surveys and manages the financial compensation.

The blood sampling is carried out by **private veterinarians (Sanitary Veterinarians)**, who also brand infected animals.

The serology and the bacteriology is performed in the LVD, **local veterinary laboratories** (90), while the milk testing is carried out in the in the **dairy laboratories** (22) and some LVD (18).

The **farmers’ sanitary associations (GDS)** make farmers aware of the disease risks contribute to compensation arrangements, and represent farmers’ interests in discussions with other partners.

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The success of the programme is due to adaptation of control measures in response to changes in the epidemiology of the disease and active participation of all the people involved.

1.6. The French Bovine Brucellosis eradication programme (T. Badin de Montjoye, Bureau de la Santé Animale)

The general principle of the eradication programme is to acquire the sanitary status of Officially Brucellosis Free (OBF) to herds and areas.

Vaccination is not allowed and the eradication programme is based on a test and slaughter policy, investigation of abortions and animal movement control.

For the maintenance of the OBF status:

-in milk herds it is established the use of milk ring test on a monthly basis whose frequency can be reduced to a quarterly basis in *départements* with a prevalence of brucellosis lower than 1% for at least 2 years.

-in beef herds it is established the annual serological sampling of bovine older than 12 months, being possible to increase this age up to 24 months in the prevalence rate is lower than 0.2% for at least 4 years.

The tests used for bulk milk are the MRT confirmed by ELISA or only ELISA and for the serology is the RBT or alternatively the ELISA on pools of 10 sera (if positive ELISA should be completed by RBT on the ten individual sera making the positive pool). If there is at least one animal RBT in a herd, the whole herd is also tested in CFT, for helping in decision.

Abortions should be compulsory notified by the producer. The accredited veterinarian should collect blood and placental swabs from these animals for serology and bacteriology.

The animal movement is conditioned by the OBF status of the herds of origin and destination and to a post-movement negative serology using 2 tests in parallel (RBT+CFT or RBT+ ELISA [confirmed by CFT if positive]).

As a rule an animal is considered infected and slaughtered whenever there is isolation of *Brucella* or there is positive serology with RBT.

In some situations where false positive reactions are expected, protocols are established and take into account:

-the epidemiological situation in the region and the epidemiological questionnaire on the herd

-the results of the serology undertaken in a 4 to 6 weeks period, the brucellin skin test and bacteriology of slaughtered animals.

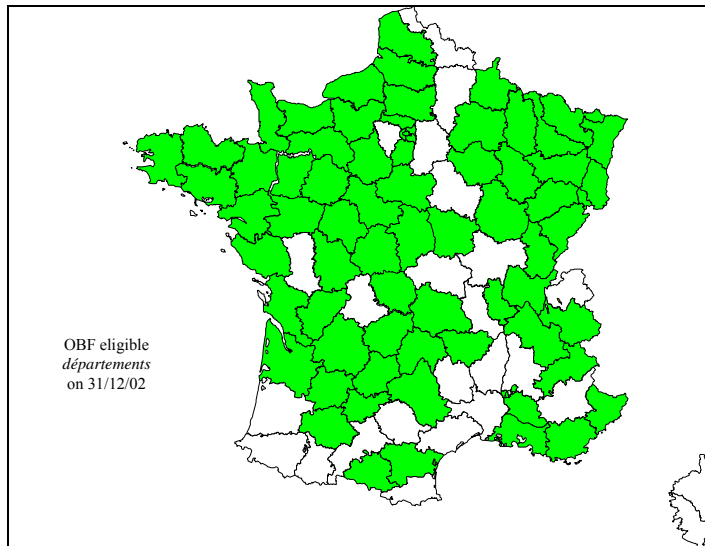
In the infected herds in addition to the slaughter of the positive animals the stamping out of the herd can be proposed by the DDSV.

Most of the *départements* are already able to be qualified as OBF and the veterinary authorities aim at achieving the OBF status to the whole country (see fig). The future perspectives of the veterinary authorities are to release pressure on the controls on serology, increase the stamping-out of positive herds and reinforcement of the epidemiological evaluation of the area neighbouring the outbreaks.

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1.7. Recent outbreaks in the Massif Central South-eastern area (A.-M. Rème, Direction Départementale des Services Vétérinaires de l’Ardèche (DDSV) and T. Delcroix, FNGDSB)

The area is a plateau of volcanic origin, at an altitude that varies from 1.000 to 1.300 metres. It belongs to three departments: Haute Loire, Lozère and Ardèche. From the historical point of view, the zone has a cattle-breeding vocation; with a 90% of the land surface used for agricultural purposes.

From 1988 to 2000 the number of herds has decreased from 5.635 to 3.501 (-37,9%) in Haute-Loire, in Lozère the decrease has been from 2.155 to 1.652 (-23,3%), while in Ardèche from 1.095 to 820 (-25,1%).

On the contrary, during the same years the number of heads has been almost the same in two departments (from 214.708 to 204.709 in Haute-Loire and from 50.993 to 40.669 in Ardèche), while in the Lozère department this number has increased from 103.518 to 134.849 (+ 30,3%).

The intensification of bovine production has increased the production of forage during the winter around the farms of origin, and for this reason the farmers had to search new pastures further away from their premises that in the past.

As a consequence, herds move in the direction of the so-called “estives”, that are pastures over 1.000 metres of altitude with regular growth of grass during summer. This movement starts in May and ends in the middle of October. These pastures are mainly “individual” (more than 75%), with breeders that bring their own animals on rented or owned land.

There are also “common” pastures (less than 25%), for 2 or 3 herds together.

The first outbreak of brucellosis was in 1996 in the Langogne municipality (Lozère *département*), and was of unknown origin. From this point, the disease spread through the plateau in the neighbouring municipalities and after that, the disease spread in the Ardèche *département* through the “estives” practices. From year 1996 to year 2001, the total number of outbreaks was 34. The outbreaks were concentrated in these zones, while

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no outbreaks occurred in other departments. During this period, all the strains isolated were *Brucella abortus* biovar 4, except in one case in 1997, in which biovar 3 was the isolate.

The problems encountered by the veterinary services during these outbreaks were related to three factors:

- 1) the outbreaks were located in three different departments of three different regions, this requested a major effort in activities coordination ;
- 2) since no brucellosis outbreaks had occurred before 1996, it was difficult to change the habits of farmers on bull controls and animal movements, and it was also difficult to improve the total depopulation of infected herds.
- 3) the presence of “estives” raised the risk of brucellosis spreading related to animal movements.

In this area a specific programme was launched that included reinforced controls (twice a year, before and after transhumance, more strict control of movements to specific areas, more severe decision tree and on several occasions bacteriological follow up of all calvings). The last breakdown was reported in 2001.

1.7. The management of false-positive serological reactions in bovine brucellosis – A local experience (F. Pouilly, DDSV Saône-et-Loire and P. Very, LVD Saône-et-Loire)

The *Département* of Saône-et-Loire has been one of the areas the most affected by the False positive serological reactions, after their spread in France in the 90s. It is the place where most of the experiments were performed in order to characterise the problem and implement strategies of decision, including the use of different tools as serology and allergic skin test.

This area includes 6200 herds with more than 600,000 cattle, 90 % of them being beef cattle (traditional Charolais extensive breeding system). Therefore the surveillance is only based on blood testing (400,000 per year). The highest herd percentage of FPSR was 11.2% in 1992-1993.

The characteristics of FPSR as demonstrated by the research work in AFSSA were:

- Geographically randomly distributed
- All brucellosis serological tests concerned
- 30-50% cases are animals less than 2 years old
- Intra-herd prevalence very low (1.1-1.7 % (maximum 14)
- Transitory event (less than 2 months in 80% of cases)
- No brucellosis risk factor identified

The strategy used in Saône-et-Loire for decision-making was based on national guidelines (age of the animals, kinetics of serological results and brucellin skin test) and also took in account the titre of the CF test. The AST is performed when other factors don't give a clear answer (immediately when at least one animal with a CF titre ≥ 320 IU and more than 5 animals positive or when an aborted female is seropositive). Within more than 10 years only two false positive AST results were reported (including one animal S19 vaccinated more than 10 years before). This strategy worked very well and the only outbreak identified in 1999 was rapidly detected (1 female aged > 2 years, with a calf dead at one month of age, CFT ≥ 320 IU, AST positive, culture positive on lymph nodes after slaughter).

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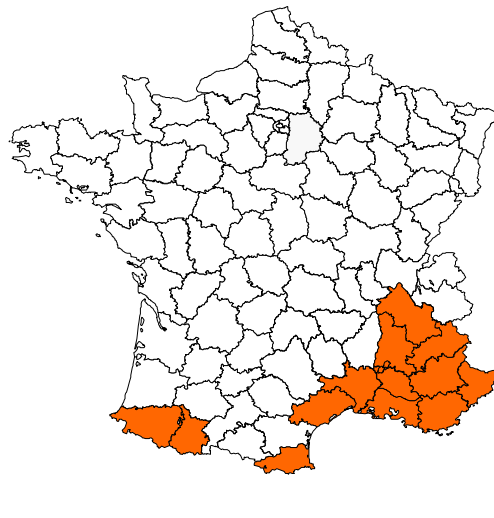
Finally the introduction in 2002 of the ELISA on 10 pooled together with the change in the minimal age of testing (24 months in place of 12 months) sera led to a dramatic decrease of the FPSR detected, then to be managed at the DVO level.

DAY 2

The second day concerned mainly the sheep and goat brucellosis programme but also included aspects of the bovine programme and a visit to a transhuming sheep flock

2.1. The French Sheep & Goat brucellosis eradication programme (T. Badin de Montjoye, BSA)

The French Sheep & Goat brucellosis co-financed eradication programme is implemented in 15 *départements* as shown on the map.



In these *départements*, as well as in all French *départements*, sheep and goats flocks must obtain and conserve a « free » or « officially free » status.

Statuses are obtained according to the annexe A of the directive 91/68/CEE.

In the *départements* concerned by the co-financed programme, flocks conserve their « officially free » status if all animals more than 6 months old are tested yearly by RBT. Furthermore, in case of positive reaction to the RBT, all the sera of the flock are tested by CFT.

In 10 of the 15 *départements*, vaccination is compulsory in flocks moving for transhumance in the Southeast area. In these flocks, vaccination is implemented in young animals before 6 months of age by conjunctival route. Nevertheless, vaccination is prohibited in flocks with only goats. Vaccinated sheep are tested after 18 months of age and vaccinated goats after 12 months of age.

Only « free » or « officially free » flocks are allowed to move for transhumance.

Declaration and investigation of abortion cases is compulsory.

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In flocks where positive reactors are detected by RBT, complementary investigations are implemented including CFT, brucellin skin test (especially in non vaccinated animals) and slaughtering for bacteriological examination. The status of these flocks is suspended until infection could be confirmed or invalidated.

In infected flocks, slaughtering of positive animals to any test is compulsory. Moreover, total depopulation could be decided, especially when *Brucella* is isolated, in accordance with the owner.

Financial aspects

The French government takes in charge part of the cost of the vaccination and of the routine serological screening (1,07 € per vaccinated animal and 0,30 € per blood sample).

Furthermore, it takes in charge the total cost of sampling and testing in suspected or infected flocks.

The compensatory payments for slaughtered animals are from 45,73 € to 76,22 €. However, in case of total depopulation, animals are paid at their replacement value.

2.2. The Sheep & Goats Brucellosis eradication programme in Corsica (C. Bouvier, DDSV Haute-Corse).

Sheep-farming in Haute-Corse *département* comprises 335 flocks with 100.000 heads, while in Corse du Sud *département* the flocks are 279 with 40.000 heads. The mean size of flocks is about 200 animals.

Goats' farming is less important; it comprises 143 flocks with 25.000 heads in Haute Corse *département* and 134 flocks with 15.000 heads in Corse du Sud *département*. During the last years, the total number of goat flocks has decreased, but the size of flocks has increased.

Identification of animals presents some difficulties because breeders do not understand its utility, because the extensive breeding, because of the weak reactivity of the identification service, and the problems of loss of ear tags. Identification, however, has been improved in relation to Blue Tongue epidemic in year 2000 and 2001.

Brucellosis prophylaxis in Haute-Corse *département* is conducted by vaccination of sheep at six months of age with Rev-1 vaccine, while for goats there is a test-and-slaughter policy since year 2000. Sheep over 18 months of age and goats over 6 months of age are bled for brucellosis serological control with RBT. In Corse du Sud *département*, there is a test-and slaughter policy both for sheep and goats since year 1993, and sheep and goats over 6 months of age are bled for brucellosis serological control with RBT and CFT.

In case of positive results, animals must be slaughtered within 15 days; qualification is restored after two negative controls, the first within 2 months and the second within 6 months.

The problems encountered by the veterinary services in the improvement of eradication programme are related to the following factors:

1) disaffection of breeders to vaccination;

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- 2) existence of two lambing seasons that require two vaccination interventions, with problems in gathering animals;
- 3) lack of information from farmers to DVO in case of cessation of their breeding activity;
- 4) wandering of males between flocks during the reproductive season.

In Haute Corse region, the prophylaxis activities have found 3 sero-positive cases in sheep in year 2000, 15 in year 2001 and 19 in 2002. Only four goats have been found positive and only in year 2002.

In Corse du Sud *département*, one sheep has been found positive in year 2002, while there has been no case of positivity in goats.

2.3. The Sheep & Goats Brucellosis eradication programme in Provence-Alpes-Côte d'Azur (PACA) Region (F. Barthélemy – DDSV Hautes-Alpes, E. Coulibaly – DDSV Alpes-Maritimes, Y. Cornille – Fédération Régionale des GDS (FRGDS) PACA)

1 -Disease control methods in PACA Region

Animal identification

Since 1997, animal ID is based on the national law. A Tip-tag is applied to the new-borns, with the number of the farm. Later a orange official tag is applied. When the tag is lost, another tag with a different number is applied, due to the absence of double tag and database.

Since 20/12/2002, new permanent ID for small ruminants is foreseen but not yet applied.

Prophylactic measures

The implementation of the programme is done according with the national rules, specially with respect to the definition of Free and Officialy Free status.

Classification of surveyed flocks are:

- qualified (Free, Officialy Free)
- non qualified (new flocks or flocks never qualified)
- disqualified – infected or suspended (flocks losing their qualification by sanitary or administrative reasons such as delay on control or introduction of animals without serology)

Vaccine is used on young ewes (2-6 months of age). Only goats present in sheep flocks are vaccinated.

Animals are controlled by serology, every year (over 18 months in vaccinated flocks and over 6 months in non-vaccinated flocks). Qualified flocks are surveyed with RB while the others are surveyed with RB and CF (parallel).

Serology is also applied for control of introduction of animals in a flock and for control prior to transhumance.

On infected flocks, the frequency of testing is in accordance with the national rules:

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- the flock is retested 60 days after the slaughter of positive animals, up to the first negative result (Cleaned up flock named in French “assaini”);
- the flock should have a second negative test, 60 days after;
- a third negative test is required 6 months after, for the re-qualification.

Management of False Positive Serological Reactions (FPSR)

On the routine serology of qualified flocks, a positive reaction to the RB, implies the examination of all sera with CF. If more than 5% of positive results to either tests are found (0.5% in vaccinated flocks), the flock is considered infected. If less than the positive results are less than 5% (0.5% in vaccinated flocks, or only 1 animal in small flocks), the flock is suspended (Note: the use of suspended status only applies to Qualified flocks) and the epidemiological investigation tries to find the possibility of infection. All the flocks in contact are surveyed. If no link could be established, the positive animal is tested 4-6 weeks later. If the animal is negative, the flock is qualified. If the animal is positive again, it is slaughter and bacteriology is performed in lymph nodes and genital organs. All other animals are surveyed with Brucellin Skin Test. Results of bacteriology and of Brucellin Skin Test help to define the situation of the flock (qualified or infected).

Regional Coordination

In PACA region, the Administration (DSV) and the breeders (GDS) work together on the brucellosis eradication programme. There are meetings at least once-a-year to discuss the measures to be taken and the control of transhumance and to decide upon the regional rules to be issued.

Since 1996, an “Infocentre” was created to collect data from all Departments.

2 - Results

The coverage of the programme is estimated in 97%. Animals not covered by the programme are usually in small units (gardens, limited areas) and do not pose major problems. Most of the covered population are vaccinated.

There are 2,112 flocks (642,206 animals) declared for premia but tested in the programme 2,740 flocks (636,791 animals – less animals because only over 18 months are included). In the last 10 years, the number of flocks decreased in 15% while the number of animals is stable.

Vaccination covers 50% of flocks and 15% of animals (replacement rate in the region varies between 15 and 20%). Some flocks are not vaccinated, namely those producing lambs for meat production, which buy vaccinated females. This means that coverage of vaccinated flocks is higher than 50%. This rate is now smaller than in 1994-1999.

Routine serology is performed from October to October. In 2001/2002, 595,650 animals were tested with 113 positive results (0,02% including the retest of animals), with the following results: 86 positive only to RB; 5 positive only to FC; 22 positive to both tests.

The rate of positive serological tests has been decreasing)1999/2000 – 0,08%; 2000/2001 – 0,04%; 2001/2002 – 0,02%. In 1993/94, ten years ago, it was 1,21%.

Slaughters of animals from 85 suspended flocks were 107 animals.

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There was no partial depopulation following infection. There was 1 total slaughter (40 animals) following infection but without isolation of Brucella.

Ten years ago 1993/94, 17,624 animals were slaughtered.

In September 2002, PACA Region had the following situation:

- Infected flock - 0
- Suspended flocks – 191 (7%)
- Free or Officially Free flocks – 2,549 (93%)

Regarding the combination of tests, the following results were obtained:

		Epidemic period (1996)	Near eradication (2001)
RB+	CF-	14,5%	48,2% (false positive reactions)
RB+	CF+	23,6%	31,9%
RB-	CF+	61,2%	19,2%

Note: this data is based on several thousands samples in 1996 and only few samples in 2001.

3 – The control of transhumance E.Coulibaly – (Direction des Services Vétérinaires Alpes Maritimes)

Introduction

The *département* of Alpes Maritimes is 87% mountainous and 13% are littoral plains (which has 92% of the human population). The region is characterised by the pastures used by transhumant flocks (“alpages”), both in summer (in altitude) and winter (on low land). Sheep population is mainly reared for meat (95%) and the rest is for milk production (5%) and gardening (few animals). There are a lot of flocks under 29 animals. The production system is extensive or nomadic and this region received animals from other regions and from Italy, duplicating the number of animals during the summer. Images on the main routes of transhumance were shown. The history of the struggle against brucellosis indicated the use of vaccination with H38 before 1985, the use of sub-cutaneous Rev-1 from 85 to 98 and the use of Rev1 conjunctival starting in 95 but in force from 1998. Serology shows an acceleration period from 1990 and from 1995, CF started to be extensively used. Infections showed a decreasing tendency from 1992 (with a peak in 1995 when CF was introduced) and steadily decreasing from 1997. In 1998, the majority of seropositive animals were 18-24 months old (many of them vaccinated with sub-cutaneous Rev1). In 2000, the problem with false positive reactions started. Some examples were shown. To deal with this problem, it is necessary to respect regulations (for example age at testing), to know the terrain and to have a good control on the introduction of animals.

Prophylactic measures

Test and slaughter is applied to sheep (dairy) and goats not moving. Test and slaughter combined with vaccination is applied to all transhuming flocks. Sanitary police includes the suspension of suspected flocks, the implementation of epidemiological investigation and the following measures, has been explained before.

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Transhumance

Transhumance is considered a “long trip” (by car or by foot) that is usually from north to south and from down hill to up hill. For sanitary purposes and management, transhumance is considered a change in Municipality (“Commune”).

Transhumance is controlled by the DSV with:

- . inspection of documents (cross check of data from DSV and premia)
- . rules on transhumance (DSV of destination manage the sanitary compatibility of flocks sharing the same pastures)

There is an information system, with a geographical basis, managed by the DSV and shared between the Municipalities, the organisations responsible by the “alpages” and the farmers. A scheme on the functioning of the information system was shown and explained. All farmers wanting to move the flock should ask for a permit 40 days before. The information system allows for the rapid identification of in contact flocks in case of a sanitary problem in a flock.

4 - The role of GDS in the transhumance control (Y.Cornille – Federation Régionale GDS PACA)

The FRGDS has 25 years experience in dealing with brucellosis control, in the daily life and pragmatically (taking into account the difficulties and even changing regulations when necessary).

The most important tools for success, on the point of view of the stock breeders associations were:

- The Rev1 vaccine (conjunctival) (real immunisation, decrease of excretion, increase confidence between farmers sharing the same pastures) (2,300 million doses were applied in the last 13 years (1 million conjunctival))
- The use of RB and CF in parallel (8,475 million bloods were tested by RB and 2,368 million by CF in the last 13 years)
- The implementation of epidemio-surveillance systems (a GIS internet based was created and developed)
- The joint efforts of the Administration and the Farmers (organised in associations) to “speed the boat”.

In the Region there are at least 1,600 flocks in transhumance (more than 745,000 animals). The distribution of flocks by Department in winter and summer was shown as well as the distribution of the number of farmers sharing the same pasture: only 1 farmer 38%; 2 to 5 farmers – 51%; more than 5 farmers – 11% (average 3 flocks per pasture).

Regarding the number of fields used by one flock in a year, 76% use only 1 unit; 17% use 2 units and 7% use from 3 to 5 units.

25% of farmers (33% of animals) go to a Department different from the one of origin.

The main problems identified in the management of transhumance were:

- lack of centralisation of information from all Departments;
- changes in the pasture units (mistakes of denomination, change of owners, etc.)

There is a “regional level” of information and a “local level” of information

The use of the GIS allowed for the identification of “who is where” and “where is who” all the time (municipality, pasture, owner, number of cattle, sheep, goats, horses, etc.;

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measure of distances, creation of buffer zones around a given unit, list of units, vegetation coverage).

The identification of the pasture units was performed with a regional collaboration project and the innovation of using the internet was supported by the APEM.

For the future, it is foreseen the improvement of the GIS and the inter-relation with the interface SIGAL of the Agriculture Ministry.

2.4. The Sheep & Goat Brucellosis eradication programme in the Pyrénées (D. Grenouillat, DDSV Haute-Garonne)

The Pyrénées' Region is integrated by the Administrative *départements* of Pyrénées-Atlantiques, Hautes Pyrénées, Haute-Garonne, Ariège, Aude and Pyrénées-Orientales.

Geographically and topographically speaking, is a very mountainous area at the border of Spain, with a husbandry system of livestock based of transhuming practices. Sheep and goats population is around 1 million animals, reared in approximately 11,000 flocks. Notably, the meat and milk are the main outputs and is remarkable the small average size of flocks, in some areas less than 20 heads. It was highlighted the social and economical weight of transhumance in the region (97% of movements are within the own department) and also a list of sanitary problems linked to this practices, mainly due to the mixture of flocks during the common grazing season (May-October).

Historically, brucellosis has represented a major sanitary problem, with a direct link between human and animal brucellosis. At the beginning of eighties, a 25% of reported small ruminants' abortions were incriminated to *Brucella* infection and according with sero-surveillance programmes more than 30% of flocks were infected.

Strategies of control and eradication have been diverse, and temporarily adapted to the particularities of each *département*, basically, a combination of sanitary and medical (vaccination) prophylaxis in most of the departments. The vaccination has been withdrawn since year 2,000. A *départemental* act, issued annually, regulates actions to be implemented, according to the epidemiological context.

Specifically, the following topics are remarkable:

- The very satisfactory outcome of the prophylaxis strategies.
- There is a lack in the reporting of abortions by the breeders.
- The final decision of stamping out is based on the abortion rate, the percentage of positive animals, epidemiological context (contact with other flocks, transhuming, practices, genetic value of animals), and the breeders' opinion.
- The sanitary management of transhumance, including a bilateral co-operation with Spanish authorities in the case of flocks sharing grazing areas in both countries.
- The complexity of the management of flocks with suspicion of false positive sero-reactors. Complementary tools as skin tests are put in place.

As conclusions:

- At the date, there is not any infected flock in the region, and 99% of holdings have the sanitary status of BMF or BMOF.
- The balance with regards fight against brucellosis is very satisfactory but, it is needed the maintenance of an effective epidemio-surveillance system, a better

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harmonization of departmental policies, and the enhance of co-operation with Spanish authorities.

2.5. Identification & control of cattle movements (I. Pion, MAAPAR, BICMA)

Identification of cattle in France is based on a number of principles. These are that

- each animal born since 1998 must be identified by having an orange plastic tag in each ear (i.e. 2 plastic tags). Each animal has a unique identification number with the FR national code included (normally this comprises of FR plus a ten digit code).
- all cattle must be identified (tagged) within 7 days of birth
- births, deaths and movements are notified within 7 days of each event taking place
- each herd keeper is responsible for maintaining a cattle register relating to the animals on farm
- any animal moving to a new herd must be accompanied by it's relevant passport

Each animal passport consists of two parts, namely the identification document (DAB) and the sanitary document (ASDA). Each movement of an animal is recorded on it's passport. When an animal moves to a new herd a new sanitary document is printed after sanitary control i.e. following the completion of the post – movement testing of the animal (within the month following introduction of the animal to the herd). The passport must accompany the animal when it moves to a new herd.

The BDNI National Computerised Data Base

The Data base to store the information in relation to cattle identification and movement control is structured at two levels. At a regional level there is a responsibility to record / register holdings and animals along with the recording of births / deaths and movements of cattle in the region and there is a responsibility to provide the relevant cattle passports. At a central level the National Computerised Data base acts to coordinate the information held at regional level.

DAY 3

Started with a brief visit to a local diagnostic laboratory and finished with the final discussion and recommendations to the French Authorities of the sub-group experts.

3.1. Visit of the local veterinary laboratory (A. Villon, LDA Vaucluse)

There are 85 Departmental Laboratories in France that were mostly created between 1950 and 1965 and are financed by the State and the local *département* Authorities (called *General Councils*).

They are authorised (more and more are now accredited according to ISO 17025) to do serology and, in some cases perform bacteriological analysis for the Brucellosis campaign, as it is the case of the lab. visited that sends to AFSSA for typing the strains isolated and suspected to be *Brucella*. The strains isolated in the last decade in this laboratory were *B.abortus* 4 in cattle and *B. melitensis* 3 mostly in sheep and goats. No *Brucella* was isolated since 2001 up to the present.

The lab. sends the results of the analyses to the DDSV that interprets them, on the light of the epidemiological context, and act accordingly.

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3.2. Final Meeting – Conclusions and Recommendations

General Conclusions

The subgroup members considered that there was an excellent level of implementation of the brucellosis eradication programmes in most of France and as a consequence total eradication is foreseen in the near future. There has been an internal evaluation of the possible improvements for its implementation and some of the recommendations made by the subgroups are already foreseen in a new project of regulation. Recommendations were also made to improve the implementation in some specific areas.

Some specific problems in the control of the disease verified on the last phase of eradication enforced the establishment of protocols for the follow-up of False Positive Serological Reactors and a tighter control of transhumance. These tools that were developed were considered as very important and can be adapted to some of the eradication programs in progress in the EU. The group considers that the development of a GIS to improve the transhumance control can be of great help in the border areas.

Recommendations

• Stamping-out

The breeder has to agree on the stamping-out of his herd and the veterinary services have added costs on further laboratory testing to achieve what is presently legally considered. To stop the risks of spread of infection posed by this situation the vet services should be able to speed up the stamping-out of the herd.

It is recommended the re-enforcement of the legal powers of the veterinary services.

• False positive serological reactions

A standardised scheme for all the regions should be defined and include a further emphasis on the bacteriology as a complement of the testing.

• Bacteriological investigation

Materials resulting from abortions and from organs (lymph nodes) of seropositive slaughtered animals should be tested by bacteriology. The epidemiological investigation could be improved if isolation and typing of the isolated *Brucella* were always performed. Linked to this, the management of abortions in Corsica should be improved to confirm the reality of FPSR and to avoid unnecessary risks for the animal and human health.

• Identification of the origin of the outbreaks

Presently, 50% of the origins are identified by epidemiological investigation. Nevertheless it is recommended to re-enforce the epidemiological investigation in newly infected herds. To achieve this it is considered necessary to supply the necessary means to the veterinary services.

• Vaccination management

The traditional use of Rev 1 vaccine specially in regions where transhumance occurs does not allow to achieve to goal of the veterinary services of attaining the OBF status.

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Risk assessment should be carried out before stopping vaccination aiming at an officially free status in some of the regions.

- Control of transhumance

The development of a GIS to improve the transhumance control can be of great help in the border areas with Italy and Spain as it can improve inter MS collaboration. The experience already made in the southeast could be extended to the southwest of France.

- Maintenance of the Officially Brucellosis Free Status

-Additional stringent measures should be applied to residual cases of infection in order to achieve eradication in those areas.

-Fulfil the EU requirements for maintaining the OBF status in herds taking into account the area prevalence for defining the serological programme..

Bovine and Sheep & Goats Brucellosis Subgroups of the Task Force for Diseases Eradication

Avignon, France, 26-28 March 2003

Provisional Agenda

Wednesday 26 March

- 9.15 : Welcome (G. Coustel, BSA, MAAPAR)
Presentation of the Task-Force (F. Reviriego-Gordejo – DG SANCO)
9.30 : The Disease Surveillance System in France (T. Badin de Montjoye, BSA; T. Delcroix, FNGDSB)
10.00: Information on human brucellosis in France – the role of the NRL (B. Garin-Bastuji, AFSSA)

Bovine Brucellosis

- 10.05 : Bovine Brucellosis in France: Results and role of the partners (B. Dufour, AFSSA)
10.45 : Coffee Break
11.15 : The French Bovine Brucellosis eradication programme (T. Badin de Montjoye, BSA)
12.00 : Recent outbreaks in the Massif Central South-eastern area (A.-M. Rème, DDSV Ardèche ; T. Delcroix, FNGDSB)

13.00 : Lunch
14.30 : The management of false positive serological reactions in bovine brucellosis– A local experience (F. Pouilly, DDSV Saône-et-Loire; P. Very, LVD Saône-et-Loire)
15.45 : General Discussion
16.15 : Coffee Break

Sheep & Goats Brucellosis

- 16.45 : The French Sheep & Goats Brucellosis eradication programme (T. Badin de Montjoye, BSA)

Thursday 27 March

Sheep & Goats Brucellosis

- 9.00 : The Sheep & Goats Brucellosis eradication programme in Corsica (DDSV Haute-Corse)
9.45 : The Sheep & Goats Brucellosis eradication programme in Provence-Alpes-Côte d'Azur (PACA) Region (B. Jourget – DDSV Hautes-Alpes, E. Coulibaly – DDSV Alpes-Maritimes, Y. Cornille – FRGDS PACA)
11.00 : Coffee Break
11.15 : The Sheep & Goats Brucellosis eradication programme in the Pyrénées (D. Grenouillat, DDSV Haute-Garonne)

Bovine Brucellosis

- 12.00: Identification & control of cattle movements (I. Pion, MAAPAR BICMA)

- 13.00 : Lunch
14.30 : Visit of a transhuming flock

Friday 28 March

- 9.00 : Visit of the local veterinary laboratory (A. Villon, LDA Vaucluse)
11.00 : Expert sub-groups meeting
12.00 : Expert sub-groups recommendations
12.30 : Miscellaneous - Closing

Abbreviations:

AFSSA:	<i>Agence Française de Sécurité sanitaire des Aliments (French Agency for Food Safety)</i>
GDS :	<i>Groupements de Défense Sanitaire (Technical sanitary association of breeders)</i>
FNGDSB:	<i>Fédération Nationale des GDS du Bétail (GDS National Federation)</i>
FRGDS :	<i>Fédération Régionale des GDS (GDS Regional Federation)</i>
LVD :	<i>Laboratoire Vétérinaire Départemental (Département Veterinary Laboratory)</i>
MAAPAR:	<i>Ministère de l'Agriculture, de l'Alimentation, de la Pêche et des Affaires Rurales (Min. agriculture, food, fisheries and rural affairs)</i>
DGAL:	<i>Direction Générale de l'Alimentation (CVO in MAAPAR)</i>
BSA:	<i>Bureau de la Santé Animale (MAAPAR Bureau of Animal Health)</i>
BICMA:	<i>Bureau de l'Identification et du Contrôle des Mouvements d'Animaux (MAAPAR Bureau of identification and control of animal movements)</i>
DDSV :	<i>Direction Départementale des Services Vétérinaires (DVO)</i>