



EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL

Directorate E – Food safety: Plant health, animal health and welfare, International questions
Unit E2 - Animal health and welfare, zootechnics

SANCO/1193/2001
KS/ks

WORKING DOCUMENT

Summary report for the first year
(2000/2001)
of the subgroup for sheep and goat brucellosis
of the Task Force for monitoring disease
eradication in the Member States

(As created in accordance with
Action N° 29 of the White Paper on Food Safety)

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I. Creation of the Task Force

I.1 Background

With the “WHITE PAPER ON FOOD SAFETY” (DOC/00/1-COM/99/719) measures are proposed aiming at a more co-ordinated and integrated approach to the organisation of food safety with a view to achieving the highest possible level of health protection. It is recognised that animal health is an important factor in food safety and it is stated that:

“Existing eradication and disease control programmes, such as those for tuberculosis and brucellosis, should be continued and where possible re-inforced; in particular, in those Member States whose status with regard to these diseases remains problematic. Particular attention should be devoted to the control of hydatidosis and *Brucella melitensis* in the Mediterranean regions.”

A number of actions are proposed to achieve this aim in the Annex of the White Paper. In the animal health sector (Action N° 29) an increase of budgetary allocation for actions provided for in Council Decision 90/424/EEC on expenditure in the veterinary field is foreseen with the objectives:

1. To enable actions necessary to improve animal disease eradication (brucellosis, tuberculosis etc.)
2. To create a task force for monitoring disease eradication in the Member States.

The task force as foreseen in the White Paper in Food Safety has been created in a meeting held on 15 March 2000 in Brussels.

I.2 Structure, mode of operation and management of the Task Force

The Task Force has been created in accordance with an action plan proposed by the Commission and agreed by all Member States (Document SANCO/738/2000 Rev.1). This action plan includes a description of the objectives, the structure, the mode of operation and the management of the Task Force.

The objectives of the Task Force are in particular

- (1) To improve animal disease eradication and
- (2) To improve the cost-benefit-ratio of animal disease eradication programmes co-financed by the Community.

The Task Force comprises of all Member States and of the Commission. Meetings are chaired by the Commission and take place in Brussels. Points on the agenda of the meetings shall be aspects relating to all or most programmes. These would be for example the standardisation of programmes and measures and the standardisation of evaluation methods such as reports or epidemiological investigations. In each meeting of the Task Force the programmes concerning one or two diseases shall be discussed in detail.

For some diseases (sheep and goat brucellosis, bovine brucellosis, bovine tuberculosis) subgroups of the Task Force have been established. The objectives of these subgroups are to support the Task Force and to support the Member States in their attempts to develop and to implement optimal disease eradication measures.

Each subgroup comprises of those Member States having a programme approved for the respective disease plus two to three other Member States and the Commission. The members of the subgroups have been nominated personally. A list of the members nominated for the subgroup for sheep and goat brucellosis is given in Annex I.

Meetings of the subgroups are being chaired by one of the Member States and take place on the spot in Member States with approved programmes.

II. Meetings of the subgroup for sheep and goat brucellosis of the Task Force

The meetings of the subgroup for sheep and goat brucellosis of the Task Force took place as follows:

Date	Location	Main subject
18/19 April 2000	Brussels/ Belgium	Current situation of sheep and goat bruc. in the MS with approved programmes Epidemiology in sheep and goat brucellosis Observations of the FVO in the Member States with approved programmes Sheep and goat brucellosis eradication programmes 2000/2001 General discussion of the current sheep and goat brucellosis situation: Legislative aspects, testing and vaccination aspects, and others
08/09 June 2000	Sophia-Antipolis / France	Evaluation of the programmes of the MS with special emphasis on the French programme
09-11 Oct. 2000	Thessaloniki / Greece	Evaluation of the Greek programme Discussion of a model for epidemiological investigation in infected herds and flocks Discussion of compensation rules
15-17 Jan. 2001	Palermo (Sicily) / Italy	Evaluation of the Italian programme with special emphasis on the situation in Sicily
27 March 2001	Brussels/ Belgium	Review of the year Further discussion of a model for epidemiological investigation in infected herds and flocks

Due to budgetary restrictions the third and the fourth meeting of the sheep and goat brucellosis subgroup was organised together with the bovine brucellosis subgroup of the Task Force. Many aspects of sheep and goat and of bovine brucellosis are similar and can be discussed together. In these meetings one day was dedicated to each of the diseases and on the third day aspects concerning both diseases were discussed.

As agreed with the action plan for the creation of the Task Force most of the meetings took place in MS with co-financed programmes and in areas with particular problems. This allowed contact and discussions with local veterinarians and producers and included

limited visits to relevant points of interest for the programme (farms, laboratories, local veterinary services, etc).

For each meeting a detailed report has been prepared. Copies of these reports are available in EU Directorate General Health and Consumer Protection, Unit E.2.

III. Results of the meetings

III.1 General remarks and overview over the disease situation

The agenda of the meetings included the evaluation of one or more programmes of the MS, the discussion of some general technical aspects and the discussion of financial aspects.

The evaluation was based in particular on

- The approved programmes (see the table III.1(1) below),
- Community and national legislation,
- Reports submitted by the MS in the context of the programmes,
- Reports of the Food and Veterinary Office of the Commission (FVO) and
- Information received during the meetings from the members of the subgroup.

Table III.1(2): Commission document numbers of sheep and goat brucellosis programmes approved for co-financing by the Community in 2000 and in 2001

MS	2000	2001
France	XXVI/3297/1999	SANCO/47/2001
Greece	XXVI/3295/1999	SANCO/45/2001
Italy	XXVI/3299/1999	SANCO/49/2001
Portugal	XXVI/3303/1999	SANCO/52/2001
Spain	XXVI/3296/1999	SANCO/46/2001

The presentations and discussions in the meetings focused in particular on the results of the control programme in each country, based on the sero-prevalence in herds and animals. Special reference was made to problem areas, to the situation of human brucellosis, and to measures of the programme including investigation of the origin of infection in herds, information on the diagnostic tests used, on testing protocols, vaccination, etc.

The disease situation in the MS with approved programmes is given in table III.1(2) for the years 1998 and 1999.

Table III.1(2) - Prevalence of sheep and goat brucellosis in herds and animals during the years 1998 and 1999, in countries of the EU with approved eradication programmes

MEMBER STATE	HERDS			ANIMALS		
	% infected*		Difference	% Infected*		Difference
	1998	1999		1998	1999	
Portugal	7.74	5.61	- 2.13	2.07	1.70	- 0.37
France	0.83	0.36	- 0.47	0.050	0.023	- 0.027
Greece**	3.35	2.34	- 1.01	0.87	0.50	- 0.37
Italy	3.21	4.71	+ 1.50	1.76	3.83	+ 2.07
Spain	17.59	18.99	+ 1.40	1.82	1.54	- 0.28

* Calculated from investigated holdings/ animals

** In Greece in 1998 vaccination in the mainland of the country commenced. The data given in this table therefore only refer to the eradication campaign (test-and-slaughter on the islands)

NA Not available

III.2 Aspects relating to all programmes

III.2.1 Epidemiology

One of the key points looked at by this subgroup is the necessity of epidemiological aspects, in particular epidemiological investigations.

The Italian member of the group gave a speech on this subject in the meeting on 18/19 April 2000 summarising the epidemiological aspects of sheep and goat brucellosis. Detailed information is available in the report of that meeting. Many of the points he referred to may be regarded as basic and not necessary to mention; the planning and the implementation of the programmes show, however, that these points are not respected and/ or tackled appropriately in all concerned Member States. Other points were subsequently agreed as recommendations made by the subgroup - and agreed by the Task Force itself.

Epidemiological investigation in infected herds and flocks and in possible contacts is a basic tool to find the origin of infection and possible spread of the disease. Not all authorities, however, use this tool. One of the reasons could be that there is no appropriate model available. For this reason it was decided to draft such a model. The work on this draft is ongoing. It has been decided that the model shall foresee the possibility of adaptation to different situations in the Member States, for example the level of prevalence or investigations in holdings with confirmed or with non-confirmed outbreaks. It should include two levels of required information: one with compulsory requested information on basic questions and one for supplementary detailed information. It should also foresee the possibility to investigate (monitor) the way of implementation of the programme by the authorities in order to improve the programmes.

III.2.2 General recommendations:

In the meetings of the subgroup for sheep and goat brucellosis a number of conclusions and recommendations were agreed upon. They are partly general points concerning all programmes and partly relate to special diseases. The general recommendations and conclusions are in particular the following:

1. Active co-operation of the farmers is regarded as essential for the success of the programme and new approaches for dealing with the lack of collaboration and the compliance with the rules have to be developed.
2. Data collection and presentation for the monitoring of programmes should be standardised in order to allow a common surveillance system. Indexes to evaluate the progress of the programmes should be defined. Evaluation and interpretation of these indexes should take into account the ecological aspects (drought period, etc.) and cyclic periods of the appearance of the disease.
3. Where not implemented yet, a control and a management of all animals' movements should be implemented step by step, the first step being the declaration of movements by the herd-owners and their registration by the veterinary services. The second step would be the management of movements in order not to mix flocks of different sanitary statuses.
4. A network of reference laboratories should be established in order to harmonise testing procedures and to improve standardisation of tests. The legal basis for the nomination of a Community Reference Laboratory for brucellosis should be established as soon as possible.
5. The usefulness of available tests should be defined for each given epidemiological situation.

6. In non-qualified areas and in particular in flocks living in or coming into or leaving infected areas or going for transhumance testing in a brucellosis-free holding for maintaining the BF status should surpass the requirements stated in Directive 91/68/EEC as such as all reproductive animals in the holding should be tested.
7. The slaughter policy following the outcome of tests performed should be harmonised once the opinion of the Scientific Veterinary Committee concerning sheep and goat brucellosis is available. However, at least in areas with less than 5 % herd prevalence any animal in infected herds reacting to Rose-Bengal-Test or to Complement-Fixation-Test should be compulsory slaughtered.
8. Animals subject to sanitary slaughter must be eliminated as quickly as possible.
9. In areas with high disease prevalence vaccination is recommended as a tool to reach a lower prevalence necessary to achieve eradication.
10. Most of the deficiencies detected by the Food and Veterinary Office in its missions on sheep and goat brucellosis eradication programmes have a real basis and should be taken into consideration in the future programmes.

III.3 France

A. Epidemiological situation

In France, there are 82,700 sheep flocks including 6,400,000 adult animals and 27,000 goat flocks including 1,000,000 animals. The National French programme started in 1966 and was generalised in 1977. It was reinforced twice, in 1987 and 1998 but adapted to the actual situation every year.

The programme is a great success since, in 1998, the disease was almost eradicated in most regions and on national level the prevalence rates of infected flocks were reduced to 0.67 % and 0.07 % in sheep and in goats, respectively. In the PACA region the prevalence rate of infected sheep flocks had decreased from more than 60 % in 1990 to less than 0.5 % in 1999.

The national French veterinary services explained this success in particular by:

- The existence of a national well co-ordinated surveillance and control network including the veterinary services, the laboratories and the GDS technical stockbreeders associations;
- A scientific and technical support of national research organisations;
- A centralised monitoring and evaluation of the programme.

At the moment main point of discussion is when and under which circumstances to stop vaccination in the different regions. In two *départements* vaccination has stopped already in 1998 and since then no further outbreak has been recorded. It was concluded that the disease has been eradicated before stopping of the vaccination. This underlines that vaccination combined with test-and-slaughter can be regarded as a valuable tool in eradicating sheep and goat brucellosis. As a consequence it is foreseen to stop vaccination in the near future also in département N° 64 (Pyrénées-Atlantiques), where the disease situation is very favourable. The decision to suspend vaccination is always for a geographical (epidemiologically speaking) and never on a flock status basis (except for some flocks never in contact with other flocks and which do not transhume).

B. Control strategy

The programme is based on a test-and-slaughter strategy in most areas (where sheep and goat flocks are generally separated and sedentary) but is complemented by vaccination (Rev. 1, conjunctival route) of young animals in the south-eastern regions (Provence-Alpes-Côte-d'Azur [PACA] essentially). In this area the level of infection was very high in the 1980s (more than 60 % infected flocks) and where husbandry is mainly based on transhumance. Serological controls are performed on animals of more than 12 months of age in sheep and more than 10 months of age in goats. When animals are vaccinated the control begins at 18 months of age. Vaccinated animals are specifically branded.

Strategies are well defined for free areas and for infected areas:

In free areas, the protection and the certification measures are directed to certify flocks as officially BM free, with introduction of animals only from free areas. Vaccination is not allowed. The detection and eradication procedures include serology, investigation of abortion, epidemiological enquiries and depopulation of flocks in case of positive results.

In infected areas, the protection measures include vaccination of young animals. The objective is to certify BM free flocks. Introduction of animals is allowed from qualified flocks. The

eradication procedures include early serology. Depopulation is not compulsory.

When deciding to stop vaccination in the south-west of France the following elements were taken into account:

- Yearly prevalence of the disease in flocks in the region has to be less than 0.1 % for at least five years. In the area were mainly small farms (average 50 animals per farm) which are mostly flocks for milk production and with good possibilities for the control of movements (only minor transhumance within the same valley).
- The calculation of the prevalence in the area was done by counting the number of infected farms in the beginning of the year plus all farms which had been found newly infected during the year divided by the total number of farms (note: flocks that started the year as positive are always included in the numerator even if they turned negative before the end of the year).

B.1 Detection of infected herds

A flock is defined as being infected either if *B. melitensis* has been isolated from the flock or if a sero-positive sample is combined with epidemiological findings, which show that an infection cannot be excluded.

According to the national programme a flock is being defined as infected if over 2.0 % of the animals react positive to either RBT or CFT and, in case of rate of positivity under 2.0 %, if the epidemiological history and context is unfavourable. In some French *départements*, however, this definition has been amended in such way as here also flocks with more than 0.5 % seropositive animals are regarded as infected (1 seropositive animal in a holding with 150 animals). The definition “infected” results in all consequences as foreseen by Directive 91/68/EEC (*i.e.* slaughtering of the infected animal and re-testing of the rest of the flock within one month). However, in all cases where *B. melitensis* is isolated, the whole flock is usually depopulated. Removal of positive animals from the farm is usually achieved within 15 days (sometimes after the date of blood sampling, more usually after the positive result reporting by the laboratory to the veterinary services). From 1998, the suspension of qualification is foreseen when positive results appear in flocks with less than 0.5 % or 2.0 % (depending on the area) and when the epidemiological history and context is favourable.

B.2 Clearance of infected herds

From 1998 to 1999, positive animals in infected flocks were slaughtered and all animals retested within 4-6 weeks. If all results were negative, the flock was requalified. From 1999 animals found positive in such flocks can be isolated and retested and if results are negative the classification of the flock is not lowered. If the animal remains positive, it is slaughtered and several lymph nodes pairs are submitted to bacteriological examination and the rest of the flock is retested again within 4-6 weeks as above.

Under good conditions in the infected area in FR (big holdings, good co-operation of farmers and helpers[2-3 persons]) a veterinarian is able to take up to 2,000 blood samples from sheep per day.

The vet receives from the herd-owner in average 7 FF (about 1 EUR) per blood sample taken. The State gives 2.50 FF for sampling in the frame of surveillance (in addition support by the Region is possible) but the State pays the whole cost if sampling is done within the frame of eradication in an infected flock. In the frame of surveillance the breeder has to pay the vet's visit as well (100 FF to 600 FF according to the size of the holding).

For the vaccination of an animal the veterinarian receives 12 to 20 FF (the veterinarian decides on the price), and the States gives 7.00 FF. It must be taken into account that the veterinarian has to pay for the vaccine himself and that one dose of a vaccine cost about 4 FF.

B.3 Certification and protection of herds

With regard to financial aspects the farmers have to pay themselves for tests carried out under normal conditions (free regions). In case of suspicion of brucellosis the States pays the total price of subsequent analyses. In case of outbreaks and positive findings the State pays the whole costs. In the regions covered by the programme all tests are paid by the State.

One RBT cost the laboratory 4 FF and one CFT 17 FF. The State supports this by 2 FF per RBT and 10 FF per CFT outbreaks. In addition support by the Region is possible.

B.4 Monitoring of certain regions: Region of Provence-Alpes-Côte-d'Azur (PACA)

This region was particularly infected in the beginning of the programme. The main difficulties encountered were the size of the animal population, the movement of animals (more than 600.000 animals transhume each year) and the extensive way of husbandry. Therefore the efforts were focused on the technical harmonisation of monitoring the surveillance and control programme in all "départements" of the Region in order to control and to vaccinate the whole population. For this purpose an "Info-Centre" for BM eradication was created as well to provide technical support as to collect and analyse epidemiological data. In this Region, other tools are considered as having also largely contributed to the success of the programme:

- The essential key was the implementation of a close co-ordination between the national veterinary services (which are not decentralised in France), the laboratories, the sanitary veterinarians and (last but not least) the herd-owners sanitary organisations (Groupements de Défense Sanitaire). This co-ordination has allowed the management of transhumance, the control of animals' movements with the harmonisation of the sanitary status of pastures, the exhaustive identification of flocks and animals, with an active participation of sheep-herders. It has also allowed the standardisation of laboratory procedures, the rapid slaughter of infected animals and the compensation of owners.
- The importance of "progressive measures" was stressed: the adoption of basic rules with a reasonable and smooth attitude adapted to the local reality "une attitude raisonnée et souple adaptée à chaque situation". Due to a management based on confidence and consensus between all partners, a year to year reinforcement, step by step, the control, surveillance and eradication measures.

Examples:

- The decision taken within the last years to maintain the vaccination in the infected area, despite the very low level of prevalence of infected flocks. This was easily accepted by the sheep-herders, understanding easily on one hand the high level of protection given by the vaccine at the animal population level and on the other hand the risk due to the few infected animals remaining in the area.
- Conditions for transhumance: before 1998 flocks were only allowed to transhume if less than 1 % of the animals has shown positive serological results. In 1998 one negative control of the whole flock was requested and in 1999 two negative controls of the flock were necessary to receive permission for transhumance. Since the beginning of the year 2000 only herds recognised as free from *B. melitensis* (B3) are allowed to go for transhumance. Derogations

for these conditions are possible for flocks and areas of the same health status, but flocks are only allowed to transhume in definite areas where there is no BMOF flocks and the risk of contacts with other flocks (BMF) is extremely low and where no cattle is present. Those areas are visited for control and serological tests are applied when the flocks return. For these areas (“alpages sanitaires”) local routes are agreed with the municipalities and information is published.

- The use of the conjunctival route for Rev.1 vaccination in young animals, which induces a very short-lasting antibody production, therefore decreases largely the interference with the serology on adults; This vaccination scheme is nowadays still maintained despite the very low level of infection obtained, in order to maintain a certain level of protection and to impede large outbreaks.

Further points:

- The combined use of RBT and CFT in non-qualified flocks to identify infected animals, associated with a slaughter of all animals positive either to the RBT or the CFT. Test-and-slaughter policy has throughout the eradication campaign been carried out in the same way in vaccinated and in non-vaccinated flocks. Co-ordinating meetings and evaluation of the situation of the veterinary services and breeder organisations were particularly helpful for the programme as it is regarded as particularly important that the farmers feel responsible for the programme and are involved in the decision taking process from the beginning. However while these farmers’ responsibility and involvement appears essential, the veterinary services should keep the necessary authority in taking sanitary decisions.
- The management of animal movement, with implementation of testing previous to movement and authorisation for movement from veterinary services, acceptance of the department of destiny (with consequent responsibility transfer) and defined routes and places for transhumance.

One of the basic statements of the breeders’ organisations is that vaccination is essential for an eradication attempt of sheep and goat brucellosis. It was pointed out that in any case of an outbreak of BM in a bigger holding always at least one herd involved had not been strictly vaccinated. It was pointed out that according to the breeders’ opinion a number of points would need to be discussed intensely. All members of the subgroup supported all these points with emphasis:

- It is essential to convince the breeders that the fight would be their fight and that they would need to want to eradicate the disease. This would include training, which would need time, development, means etc.
- There must be a possibility to trace the animals.
- At the moment there is an insufficient control of traders. The control done by the veterinary services should be more frequent and more specific.
- A protocol to manage false positive reactions should be set up. Main question would be, what would happen to a herd with a false positive reactor: Would its status be suspended or would it be de-qualified; which measures would need to be taken to re-qualify etc.
- With regard to traceability it was explained that in FR at the moment ear-tags are used for identification of animals. To avoid possible infection occurring, particularly in the summertime, after tagging training of the farmers with regard to disinfection, hygiene etc would be necessary. It was explained that losing ear tags was not a particular problem in FR.

In his summary he pointed out that in view of the GDS the three most important points that helped the programme to be successful were

1. Compulsory conjunctival vaccination,
2. Systematic serology, specially the double testing methodology (testing with RBT and CFT and slaughtering of animals positive to any of these tests) and
3. Management of transhumance.

Other essential points would be:

- Transparency of measures and confidence of the farmers and services into each other's actions and into the programme.
- Creation of a space for dialog and resolution of conflicts: listen the people from the field; co-ordinate, harmonise, get together;
- Find operational solutions that respect people's pride and the social environment;
- Do epidemiological investigations and find sources of infection; research the problems and apply results to real practice.

Factors that would be negative for a programme would be:

1. Bad co-operation of farmers,
2. Bad identification of animals and registers in holdings and
3. Bad management of false positive reactors.

Application of the BMP in a laboratory

The main period for the lab would be December to April as this is the sampling period involving 5 people. About 5-6,000 analyses are performed per day during this period and results are usually provided to the Vet. Services within a week. Therefore the use of auto-samplers is essential. The routine work of the lab is the reception of samples (registration, quality control and identity), the preparation (centrifugation and conservation), the traceability (the spatial location of the tube and manipulation), the conservation, and the elimination of samples. During the campaign only the positive sera are centrifuged and stored frozen. Centrifugation and storage is performed as well in case of partial sampling in a flock, waiting for the whole flock's results. All samples entering the lab start the RB test. CFT is routinely performed for a flock whenever a RB positive sample is found and when requested by the Vet Services. Information on the flocks registered for serology is sent each morning from the lab to the Vet Service and after the necessary checks, they inform the lab which flocks must perform CFT. False positive reactions are generally just above the cut-off-point. In order to improve the reproducibility of results the laboratory uses the same batch of RBT antigen all along a yearly surveillance campaign. With regard to the CFT, the rate of anti-complementary sera is low except in shepherd dogs, who are controlled as well in case of suspicion. The results are signed by the director of the laboratory, but interpretation of positive results is done by the Director of local Veterinary Services taking into account the history and the epidemiological context of the corresponding flock. At the moment in addition to serology more and more bacteriology is being carried out. For this, abortion material, vaginal swabs or lymph nodes are needed. The methodology used is compulsory on a national level. However, main difficulties between laboratories and breeders are the systems and materials used by the laboratory. National rules require that participation on regular national proficiency ring tests is

obligatory to be allowed to carry out official tests. With regard to *Brucella* bacteriology and serology in FR it is forbidden by law the management of *Brucella* and the performance of serological tests if this is not specially allowed. Allowance is given only if special equipment is available. The lab, which was presented, depends, as all other veterinary laboratories in France, on the “départemental” government. The lab has a quality assurance system and refuses samples for which a too long time period between taking of samples and arrival in the lab has elapsed. In order to shorten this delay, GDS pays for the quick transportation of the tubes from the veterinarian to the laboratory. The accreditation of the samplers is under discussion (standard operation procedures for the veterinarians). It is already in place the feedback of information on quality of samples, a yearly meeting with the veterinarians where the issue is discussed and good practices are recommended. From a certain level of problems, a veterinarian is asked to repeat the sampling and is not paid for that (and has to explain the farmer why it must be repeated!).

Application viewed by a local representative of the FR national veterinary Services

The situation in this *département* was explained. It was again stressed the importance of “une méthode adaptée à un contexte”. The complexity and importance of transhumance movements was pointed out (lot of small flocks, flocks coming from different *départements*). A cross control is performed with the local services of Agriculture in order to check the accordance between the number of animals sampled and the number declared for the premia.

The basic rules are: the respect of regulations; a good knowledge of the field situation; the efficiency of the information system (internal [in the *département*] and external [with PACA and Italy]); documents inspection; control of the number of the animals (transhumance requests, declaration of premium); control of animal identity (at random); control of animals introduced in flocks. The most important difficulties are related to the production system (permanent nomadism); the socio-historical factors (the disease is not economically evident for farmers); to find the best solutions for transhumance; to mobilise money for testing; to co-ordinate the work and to stimulate peoples engagement in the programme.

C. Recommendations made to the French programme

CONCLUSIONS (French programme)

1. Necessity of a policy conducted and co-ordinated by the State (or the Region) in order to avoid disparities within the region but with the adequate financial support by the State and/or the Region (in France the “département”) to sustain the implementation of this policy.
2. There is a good structure of the French farmers. This is an essential basis for the success of the FR programme.
3. Farmers’ organisations are very effective to improve the programme. There should be a close interchange of information between farmers’ organisations and veterinary services. An incentive to implement such organisations in other Member States could be that compensation payments to farmers would be higher if the farmers were members of such organisations.
4. A close co-operation between all organisations, administration etc. is useful. In this respect long term planning is regarded as positive and it is essential that all people (including local politicians) and all organisations involved would have confidence that the rules agreed would last.

5. The constant evaluation of the disease situation, the actions and the effects of the programme are necessary and the feedback of success and failure of the programme is essential.
6. The possibility to crosscheck the different institutions (veterinary services/ premia) had positive effects on the FR programme.
7. A plan to control movements and transhumance had been agreed upon. It includes that farmers are made responsible for movements.
8. Within FR discussions should be started when and under which conditions vaccination should be stopped.

III.4 Greece

A. Epidemiological situation

In Greece, sheep and goat husbandry is an important part of livestock raising. At present in Greece are reared approximately 12,000,000 sheep and goats (7 million sheep, 5 million goats) in 119,000 flocks distributed in the 53 prefectures of the country. The majority of animals are reared in the mainland. Most sheep and goats are reared for milk production and the system of husbandry is semi-intensive. In the mainland, a large proportion of flocks practice transhumance. The movement of animals is therefore important.

The national control programme started in 1975 and was based on generalised vaccination of young sheep and goats. At that period, about 2000 human cases were reported. In 1991 in islands and 1994 in the mainland, due to the low level of animal infection reached (in 1985, 2-3% in the whole country, 0.8% in the islands – In 1993: 1.29% in the whole country) vaccination was ceased. The eradication campaign started in 1994-1995. In fact, the disease started from that time to be re-established in initial or higher levels of infection. Therefore, a new programme based on combined vaccination of young animals (restricted to areas with >2% prevalence) and test-and-slaughter of adults was implemented without success. During the 1997-1998 period, about 140,000 animals were slaughtered without any obvious effect on the prevalence, which reached 27% of flocks in 1998 in the whole country. The prevalence was extremely high in the mainland, but lesser (< 2%) in the islands. Repeated serological controls of flocks found always new positive animals making eradication impossible. The incidence in humans was increasing as well (more than 400 cases reported in 1998).

A big difficulty for the EL BMP is the enormous number of transhumance of flocks. About 5 Million animals (> 50% animals) are moved between May and October each year. Movements are mainly within the EL mainland. There are no contacts between EL herds and herds from former Yugoslavia (a huge mountain chain forms a natural border) and only minor contacts between EL and Turkey. These occur in a river bordering Turkey and EL, creating islands between the two countries.

The private vet service has 10 vets and the vaccination campaign has to be developed between October and April.

- . Objective for 1999: 776 flocks, 98.842 animals to vaccinate.
- . Accomplished: 136 flocks, 13.601 animals vaccinated.

B. Control strategy

The measures taken for the 1999 campaign were as follows:

- In areas with less than 2% infection, only test-and-slaughter policy was applied. The animals controlled are sampled in such a way to get a probability of 95% to find an infected animal in the sample with a prevalence of the disease of 4% within the flock. In these areas, the infection rate varies from 0.00 to 26.32%. In most areas the prevalence rate is low except Corfu, Lefkadia, and Crete Islands, Dodekanisa and Pireaus regions. A slight increase in prevalence rates has been observed as well in Crete and Dodekanisa.
- In areas with more than 2% of flock prevalence, the control program is based on female adult (except when females are pregnant) and young animals' vaccination. However BMOF flocks could be allowed not to vaccinate. Vaccinated animals are specifically branded (tattooing).

After the completion of vaccination in an area a serological survey is conducted for the assessment of vaccination coverage. Males are tested periodically and the seropositives are slaughtered. It is planned to complete the vaccination programmes within 4 years. A serological survey will be implemented after completion of vaccination. Thereafter, the vaccination will be ceased in adults and maintained in young animals. During 1999, the vast majority of infected flocks were vaccinated. A study of the antibody response to vaccination in 788 flocks showed 87.45% animals seropositives among animals vaccinated 40 days before. 88.57% samples coming from the vaccinated flocks contain more than 70% of seropositive animals. 60% of vaccinated flocks had 90-100% of positive animals.

B.1 Detection of infected herds

B.2 Clearance of infected herds

B.3 Certification and protection of herds

C. Recommendations

The Greek representatives of local and central veterinary services mentioned the following main difficulties:

- The lack of personnel and, more general, the organisation of the veterinary services: These are characterised by a tremendous deficit in the number of available staff. The employment/commissioning of private veterinarians is not allowed in EL at the moment. However, the political leaders of the Ministry of Agriculture have agreed on the idea (and accepted it) and the Veterinary Service was asked to make a proposal to the private veterinarians to be involved in the implementation of the programme. The project will be implemented in two or three prefectures, which will be pilots before the generalisation of the measure. It is, however, envisaged that this project will face difficulties in its materialisation when it comes to money.
- Difficult bureaucracy: The application for additional staff is finished around May, which is the time when the vaccination period against BM is almost finished. Additional staff is always employed for only eight months so that they carry out other tasks than the originally wanted ones during the first months of their contracts.
- The lack of professional qualification of veterinarians (some are from foreign neighbouring countries).
- The lack of vehicles and appropriate budget: There is a lack of cars for veterinarians. Vets use their private cars and there is a delay, sometimes more than three months to the payment of compensation for the used kilometres.
- The delay in receiving the vaccine, that could explain the low vaccination rate.
- The lack of co-operation and confidence with sheep-herders.

Recommendations made by the subgroup:

- a) A letter should be sent from the Commission to the Greek Minister asking him to improve the situation of the veterinary services, which is an essential factor for the success of all EL eradication programmes.
- b) On the islands all animals positive to RBT and/or to CFT should be slaughtered (it has been incorporated in the revision of the programme).
- c) Special efforts should be undertaken to reach step by step the islands in a status to be recognised as officially BM free.
- d) To motivate the veterinarians to take more blood samples on the islands they should receive extra money for each blood sample taken.
- e) Public awareness should be increased *i. e.* by television or radio campaigns. (it has been incorporated in the revision of the programme).

III.6 Italy

A. Epidemiological situation

In Italy, while significant progress has been made within the recent years in the Northern regions, a high prevalence of the disease remains in the Southern part and, to a lesser degree in some Central regions of the country (Sicilia and Puglia particularly, Basilicata, Calabria, Campania). The incidence of the disease in humans throughout Italy was 3 cases per 100,000 inhabitants in 1997, but around 20 cases per 100,000 inhabitants in Sicilia. The number of cases remained more or less constant revealing a small impact of the BMEP in reducing transmission to humans. Only BM was isolated from human cases, especially BM type2.

In the region of Sicily, the prevalence of infected flocks has increased from 28% to more than 34% within recent years. This was explained by a possible link to the higher rate of flocks controlled (from 56% to more than 72%), which appears to be the case for all provinces of Sicily.

The data, however, may not be correct, as there could be around 6000 “false flocks” in Sicily: Controls of the number of herds declared by animal owners according to the Directive discovered that 6.000 of these flocks/herds did not exist. Vaccination has been banned in Sicily since 1991, but no more than 30% of young females had been vaccinated before that date. Therefore there was no increase in the prevalence due to the vaccination stop.

Other than in Sardinia where flocks are generally sheep flocks, in Sicily most flocks are mixed sheep and goat flocks.

B. Control strategy

The programme submitted by IT for 2001 is divided into two main areas:

1. The northern part, which has a prevalence of less than 0.5 %. The objective here is to eradicate sheep and goat brucellosis by the end of 2001.
2. The area of middle to south IT where the prevalence is 0.5 % to 3.0 %. Here the number of testing shall be increased up to different levels but none of them up to 100 %. This area includes the regions of Calabria, Puglia, Sicily and Campania, which have submitted special regional programmes.

In the region of Sicily, the control programme is based on:

1. 100% of animals controlled;
2. Decreasing the delay for notification of infection to the stockbreeders;
3. Decreasing the delay for publishing the slaughtering certificates;
4. Slaughtering the animals in the Province of origin;
5. Ban on entrance of animals into the slaughterhouse if not tested within the year.

B.1 Detection of infected herds

B.2 Clearance of infected herds

B.3 Certification and protection of herds

C. Recommendations

The Italian representatives of local and central veterinary services explained the absence of significant progress in the Southern areas by:

1. The lack of political will to eradicate/control the infection. Large numbers of animal owners are also unwilling to eradicate/control the infection.
2. The impossibility of national veterinary Authority to control and correct veterinary actions implemented at local level not complying with the plans presented and approved.
3. A high density of animals and flocks with problems on registration of flocks and identification of animals.
4. An important movement of animals and flocks scantily controlled.
5. A non-exhaustive and irregular vaccination of flocks up to the time in which all vaccination was banned and eradication programs began (this explained why the level of prevalence has not dramatically increased when vaccination was banned at the national level in 1991).
6. The rate of flocks effectively controlled is largely lower than 100% in most areas.
7. The difficulty of enforcing the regulations in infected areas, the minimum required being considered to be the terms of the European Directive 91/68/EEC. When outbreaks are investigated the non compliance to regulation in force is a regular finding.
8. People in these areas are more sheep-keepers than real stockbreeders. The counter-example is Sardinia with more than 3 million sheep and two sheep per inhabitant but where farmers are real stockbreeders and where eradication is almost achieved.
9. For the year 2000 in addition to the National programme, Regions with high prevalence of infection might present regional programmes containing additional measures and in some cases also financial resources for the eradication of the infection (with apparent no possible control of the State on their implementation)
10. The delay between the sampling and the tests results is sometimes long (up to two months). Animals have generally moved in the meantime.
11. The delay in slaughtering infected animals is abnormally long.
12. In addition, in Sicily the following problems occur:
 - Lack of respect and application of the regulations. Even if the principle "no compliance = no compensation" exists in the legislation, it is never or exceptionally applied.
 - High level of reimbursement of animals which might be higher than the real price of animals slaughtered. In fact, having brucellosis does not have a negative financial impact for the farmers: they usually do not have abortions and they are also allowed to continue producing ripened cheese. Up to 1997 animal owners received a compensation from the Sicilian regional Government integrating the one provided for by the National Government.

The following remarks were made on the main programme submitted for 2001:

1. In herds recognised as *Brucella melitensis* officially free (BMOF) the testing may be reduced to 25 % of the animals (Directive 92/68/EEC). This is regarded as too quick, in particular if the holding is located in a province, which is not recognised as free. Moreover, if transhumance is carried out.
2. The programme does not address the problem of identification and registration. Holdings with less than four sheep and goats have not to be registered according to Italian legislation. The legislation, however, asks compulsory for testing of all holdings.
3. According to the programme a computerised information system is being organised to manage the disease. The programme does not include a description of what is particularly intended in this respect.
4. The programme foresees the status of herds of *B. melitensis* free. By definition herds of this status include animals which have been vaccinated. Such herds should not exist in IT as vaccination is not allowed.
5. Italian legislation foresees the possibility to “push” farmers to implement the programme. No information is available, if, to which extent and how this possibility is being used.
6. In Italy flocks with less than 5 % seropositive animals are not put under restrictions. This was explained as having historical reasons: when in the beginning of the 1990s vaccination had been forbidden flocks with a small number of seropositive animals were regarded as positive to vaccination and therefore not infected. However, as vaccination has been forbidden for the last years this measure should not be applied any more.
7. In the last inspection report of the FVO on this disease an improvement of administrative procedures had been requested. This point is not addressed.
8. With regard to the heat treatment of milk from infected holdings there is no information available on how it is carried out and if there exist an organisation responsible for this.
9. According to the programme “Mobile disinfection Units” exist. It should be explained how many of such Units exist in each region and how the logistics of their use are organised .
10. Please quantify the targets set for the programme for each region (*e.g.* by estimating the herd prevalence) to be achieved in the end of 2001 and in following years.
11. With regard to the region of Abruzzo the plan foresees as objective and target that “freedom shall be achieved in the future”. This should be specified. Furthermore it was explained that in Abruzzo the manpower would be available to perform 100 % testing of the herds.
12. It was explained that the scientific opinion had changed since the implementation of the sheep and goat brucellosis trade Directive. Contrary to the Directive it is now regarded as necessary that animals having results to RBT and/ or to CFT “not zero” should be slaughtered. The Directive should be amended in this respect, because it is used as guideline for national eradication programmes while initially it was edited for inter Member states trade.
13. The Ministry in Rome should declare sheep and goat brucellosis as a priority. This should be followed by the regions and would open up the possibilities for the IT services to evaluate the work of the field services.

The following remarks were made on the regional programmes from Campania and Calabria submitted for 2001:

14. With regard to the registration of flocks the programme states that the IT legislation will be applied. This legislation foresees, however, that flocks with less than four sheep and goats may not be registered. If the programme will be adopted, the recommendation of the last FVO mission will be denied.
15. Reference is made to the IT law 19/54 concerning nomadic sheep. This regulation foresees that sheep may be moved if they were “negative to the last control”. This means that a herd will be tested, the positive animals will be slaughtered and the rest of the herd may be sent for transhumance immediately. No further investigations or restrictions due to possible contacts are applied.
16. The time between notification of positive results and the slaughter of positive animals should be speeded up.
17. A crisis unit for the follow-up the disease situation should be instituted.

The following remarks were made on the regional programme from Puglia submitted for 2001:

18. See point 12 (above)
19. The plan foresees particular measures for lambs: There shall be an obligation installed for testing them in case of movements from flocks recognised as free from *B. melitensis*. This means that there is a disadvantage of being recognised as BMF/ BMOF.

The following remarks were made on the regional programme from Sicily submitted for 2001:

20. It is foreseen to establish a checklist for minimum requirements for slaughterhouses allowed to slaughter positive animals. However, Sicily foresees to have only one such slaughterhouse on the island for this purpose. The value of the checklist is therefore not clear.
21. The plan foresees to have a plan on transport and movement of animals. However, there is no information available on how this plan shall be applied.
22. It is envisaged to put up an organisation for the carrying out of disinfection. Specification of this organisation should be requested.
23. As requested by the Commission, Sicily with its new plan includes the possibility of vaccination. However, this shall be established on the basis of the voluntary wish of the flock owner of vaccination of lambs used for re-production. The members of the subgroup expressed their views that such voluntary vaccination would be of negligible use. The use of the vaccine should be restricted to the competent authorities and it should be used following either a compulsory approach or under the epidemiological evaluation of the situation of the respective flock or area. Furthermore, as it is foreseen to vaccinate the whole population and there are about 1 Million sheep and goats in Sicily in total, the estimation of 500,000 needed doses seems to be extremely high.
24. IT intends to start a campaign of consumers: Here is it foreseen to suggest to buy only milk which has been produced in an accordance with Directive 92/46/EEC (the IT legislation on this). This is regarded as not being enough.

III.7 Portugal

A. Epidemiological situation

The BMEP does not seem to have achieved the expected results in reducing the prevalence in flocks or animals over the last 10 years in the 7 main regions of PT. On a countrywide basis, the prevalence rate of infected flocks was 5.61% in 1999 (compared to 8.93 in 1990) but rates vary from 5.61 to 9.37% depending on the year with no steady decrease from 1990 to 1999. Depending on the region, prevalence rates vary from 2.46% to 31.63%. The number of reported human cases is slowly decreasing since 1994 (1.241 cases) with 816 cases in 1998. The incidence of reported human cases is 8 per 100,000 inhabitants. In 1999, 174 *Brucella* strains were isolated (51 only in 1997). The strain isolated in Portugal has been *B. melitensis* biovar 3 for many years.

At the national level vaccination has been almost stopped in 1993, but two regions (Trás-os-Montes and Beira Interior) are still using vaccination (local decision) but only in limited areas of very high prevalence. It is performed by the sub-cutaneous way.

At the local level most of the practical work related to the activities of the eradication programmes is done by "OPP's" which are private livestock producer's co-operative structures. These OPP's are supervised by local official veterinary units depending of the Regional Vet. Services.

Basically the control policy is test-and-slaughter.

In Region 1 (Entre-Douro e Minho), the prevalence rate of infected flocks was 3.45% in 1999 (no change from 1998). Vaccination is planned in two infected areas (14 and 5.7% of infected flocks). About 10% of flocks are not qualified BF or OBF.

In Region 2 (Trás-Os-Montes) with more than 30% of infected flocks and more than 87% flocks non-qualified, due to low payment, 6000 reactor animals are waiting for slaughter. In this region lack of personnel is one important constraint.

In Region 3 (Beira Litoral) the prevalence rate is relatively low (2.46%) and reactors are slaughtered rapidly.

In Region 4 (Beira Interior): This very arid region has a population older than the national mean, with a permanent population drain (1981-1991 variation rate of resident population = - 8.3%, active population = - 4.9%, active agricultural population = - 44.2%). Holdings are generally divided (many separated parcels of pastures) and 40% of farmers are more than 65 years old. Small ruminants represent the main production but the population of sheep and goats has decreased from 1989 to 1995 of 2% for sheep and more than 20% for goats. In this region, where prevalence of infected flocks was 5.50% in 1999, vaccination has been decided at the regional level, but implementation was only possible in certain areas, with good results. The combined use of RBT and CFT in non-vaccinated flocks has also helped to eradicate more rapidly the disease.

In Region 5 (Ribatejo e Oeste) were prevalence rate of infected flocks is about 10% the slaughter is delayed sometimes up to 5 months, infected animals staying in the flocks in the meanwhile.

In Region 6 (Alentejo), the situation is improving but still 5 % of flocks are infected.

In Region 7 (Algarve) the prevalence rate is high with more than 25% infected flocks although the problem is localised in 3 counties.

The Regions of Azores and Madeira are not included in the BMEP. BM has never been isolated in the islands.

The main problems in Portugal are due to the absence of centralisation of the programmes, the

lack of financial means and personnel.

B. Control strategy

In PT 90 % of the farmers are members of the GDS and only 10 % have to be dealt with by the veterinary services. Apart from the veterinary services all veterinarians involved are private. These private veterinarians receive around 0.6 EUR per blood sample. The payment is made through the GDS, which collects the blood samples from the veterinarians to transport them to the laboratory. The close contact between all veterinarians and the GDS is regarded as necessary. The follow-up of positive findings and epidemiological inquiries are the responsibility of the official veterinarians.

B.1 Detection of infected herds

B.2 Clearance of infected herds

B.3 Certification and protection of herds

C. Recommendations

The following differences between the programme approved for the year 2000 and the programme submitted for 2001 were listed. Some of these issues were already implemented although not stated in the programme.

1. A national co-ordinator for the BMP (located in Lisbon) has been established as well as a co-ordinator for the programme in each region. The national co-ordinator shall visit each region at least once every two months.
2. The regional veterinary services have a function of training veterinarians working in the campaign. Similarly the veterinarians working with the GDS have to train the farmers.
3. To improve the delay in slaughtering animals the veterinary services have created a transport service to transport the animals to the slaughterhouses in two regions with high prevalence of the disease (Trás-os-Montes and Beira Interior).. A formal agreement with the abattoirs was also implemented (new legislation) to better organise the work and speed up the process.
4. Animals slaughtered due to the programme (infected or contact animals) will not be used for human consumption.
5. To speed up the payment of compensation a computerised system has been established.. The slaughterhouse data will be submitted to the regional services, which put the data into the computer system in order to provide a speedier access of the service responsible for compensation, which directly pays the farmers.
6. A new identification system has been implemented. The flock passports had only been issued by the veterinary services and will now also be issued by the GDS.
7. Dogs with possible contacts will be checked on a regular basis.

8. The system of certification of holdings has been changed and insofar simplified:

Now there exist only three different categories:

B2 – Non qualified. This summarised all former B1, B2.1 and B2.2 holdings.

B3 – BMF

B4 –BMOF.

9. Movement restrictions have been strengthened and from now on between the collection of blood and the availability of results no movement of the flock will be allowed.
10. Within two weeks after the availability of results an epidemiological inquiry must be carried out.
11. As from the new programme the handling of milk, manure etc. has to be done as foreseen in the Directive.
12. Testing has to be done in accordance with the status of the holding as usual but the 2001 programme foresees extra testing also flocks in contact with positive flocks and in flocks returning from transhumance and if abortions occur.
13. Stamping out shall be carried out in problem flocks, which do not improve during the year. If stamping out has been decided two months have to elapse before restocking. Disinfection has to be carried out and new animals may only be bought from B3 or B4 herds.
14. In two regions vaccination is now foreseen (Tras os Montes, Beira interior) in females 3-6 months of age. In the rest of Portugal vaccination shall be allowed if there is a personal agreement between the veterinary services and the farmer. The programme foresees the isolation of vaccinated females (especially from the males) up to 30 days after vaccination (!).
15. With regard to testing the following is foreseen: in non BMF flocks all animals positive to RBT shall be slaughtered. In regions with more than 5 % positive flocks and with a long disease history (flocks infected for at least two years) CFT is carried out in RBT negative samples and all CFT positive are also slaughtered. All the BMF flocks are tested with RBT and confirmed with CFT and only CFT positive animals are slaughtered.
16. New compensation rules have been established. All animals are paid 40% of its market value (officially determined on a weekly basis). Breeding animals (females from 1 to 8 or 12 years and entire males with more than 1 year) are paid an extra 50% if the flock is BMF or BMOF; for non-qualified flocks (B2), breeding animals have an extra 25% of the price. This extra payment will be removed if the flock fails to qualify within 1 year (breeding animals will be paid like non-breeding animals, i.e. only 40% of market price). An extra 30 EUR / animal is foreseen for subsidise the purchase of replacement animals from BMF or BMOF flocks (within 1 year); an extra 15 EUR / animal will be paid for a farmer to breed his own replacement animals; in the case of stamping out an extra payment of 10 EUR / slaughtered animal is foreseen obliging the producer to keep the farm without animals for 2 months.
17. For the first time objectives have been laid down in the programme: Freedom of Brucellosis of the region of Alentejo shall be achieved in “the short time period”; the other regions shall be free in the medium term.

III.8 Spain

A. Epidemiological situation

In Spain, the control of *Brucella melitensis* infection in sheep and goats by vaccination was initiated during the late seventies. Massive eradication actions constitute a national programme since the beginning of nineties. During this last decade, figures of *Brucella*-free flocks and seropositive animals have had a very positive evolution, while the whole census of susceptible small ruminants have been gradually incorporated to the programme (small ruminant population in Spain: 24 million sheep and 3 million goats). Nowadays (data of 1999), 85.98% of flocks are free from brucellosis, and only 1.46 % of the tested animals remains seropositive.

As a consequence, human brucellosis has steadily decreased during the last periods. Figures of human brucellosis have significantly dropped from about 16 cases in 1986 to less than 4 cases per 100,000 inhabitants in 1998.

Nowadays, brucellosis remains as a threat for the Public Health for its potential to originate local epidemic in rural areas. Currently, human brucellosis is indeed mainly a professional disease affecting farmers, abattoir workers, veterinarians, etc. Accordingly to figures given by the Commission's document "Trends and sources of zoonotic agents, feedstuffs, food and man in 1997" (Doc. N°. VI/8495/98), Spain contributed in 1997 with almost a half (2,145) of the total cases of human brucellosis reported in the E.U. (5,082). In 1998, 1.545 cases were officially reported (3.93/100,000). In Spain, the main aethiological agent responsible of human suffer is *Brucella melitensis* (99 % of cases).

The fight against small ruminants' brucellosis in Spain has some social and economical determining factors that should to be borne in mind:

- The Central Administration is responsible for establishing, planning, programming and co-ordination of actions related to animal health. Autonomous (regional) Administrations are responsible for the implementation of animal health policies.
- As a general rule, sheep and goats, for its features of rusticity and resistance to adverse environment conditions, are essential for fixing human population to territories and also for maintaining the ecological balance. The farming economy of these regions concerning small ruminants is linked to the production of lambs and kids as finest food, and in certain areas, cheese. Resources for feeding are seasonal, and the management of flocks should be based on exploitation on sub-products of the agriculture linked to land cultures, and also on transhumance.
- Concerning descriptive epidemiology: Andalucía, Aragón, Castilla-La Mancha, Castilla-León and Extremadura regions sum up about 70 % of Spanish territory but only harbour the 30 % of human population, and they approximately maintain the 80 % of small ruminants census. These regions also report the 80 % of cases of human brucellosis.

On the other hand, the remaining regions (30 % of the Spanish territory), where the 70 % of human population lives, hold the 20 % of small ruminants census and suffer the 20 % of cases of human brucellosis.

Accordingly to data of 1999, the situation in Spain with regards to sheep and goats brucellosis by *B. melitensis* is the following:

- Islands: Canary Islands is officially free (Council Decision, 1997) and Baleares Islands has 99.81 % of free flocks and 0.00 % of positive animals.

Most of the regions of the Cantabric Cornice have more than 99 % of *Brucella* free flocks: Galicia (99.82 %), Asturias (99.80 %) and País Vasco (99.88 %).

- Northern regions of Cantabria (97.45 % of free flocks) and Navarra (95.22 % of free flocks) have also achieved a very favourable situation.
- Western region of Extremadura has also recently reached to very positive figures (93.53 % of free flocks).
- With 80-90 % of free flocks are the Regions of Castilian Meseta (Castilla-León, Madrid and Castilla-La Mancha), and La Rioja.
- The less favourable figures are registered in the Mediterranean basin regions (Cataluña, Valencia, Murcia and Andalucía), and Aragón, with less than 80 % of *Brucella* free-flocks. The structure of the ovine and caprine sector and the ecological conditions in such regions are predisposing factors for the slowly decreased of *B. melitensis* infection.

The main objectives of the 2001 programme are

- To investigate the whole national sheep and goat population
- Within the next five years to qualify 90 % of all flocks as BMF or BMOF (now 65 % are qualified: 22 % as BMF and 43 % as BMOF).

B. Control strategy

Features of the National Eradication Programme are the following (Royal Decree 2611/1996):

1) Co-ordination between central level (Subdirección General de Sanidad Veterinaria, Ministry of Agriculture, Fisheries and Food) and regional level (Official Veterinary Services of Autonomous Communities), and also with farmers and professional associations, is made under the National Committee for Co-operation and Monitoring of National Eradication Programmes.

2) Eradication is based on test and slaughter policy, according to Council Directive 91/68. A net of *ca.* 50 official laboratories makes diagnosis, co-ordinated and harmonised by the Brucellosis National Reference Laboratory for Animal Brucellosis Santa Fe, Granada. Slaughtering of positive animals and complementary measures are applied within 30 after the official communication. Policies of farmer associations for the health defence (ADS = Agrupaciones de Defensa Sanitaria) and qualification of flocks regarding the status to *Brucella* infection is currently strengthened.

3) In regions with 99 % of *Brucella* free flocks Rev-1 vaccination was withdrawn. In these regions, sanitary prophylaxis and test and slaughter policy are implemented. Additionally, in the remaining regions, a compulsory Rev-1 vaccination is conducted, administered to young replacement animals. Mass vaccination of adult animals is made exceptionally under situation of sanitary emergencies (high incidence of human brucellosis or isolated areas with a high risk of epidemic transmission of the etiological agent).

B.1 Detection of infected herds

B.2 Clearance of infected herds

B.3 Certification and protection of herds

C. Recommendations

IV. Subjects to be followed-up in the future

- Further evaluation of the progress of sheep and goat brucellosis eradication in the MS.
- Discussion of possibilities to further improve tests and testing procedures.
- Harmonisation of the slaughter policy following the outcome of tests performed.
- Vaccination against sheep and goat bovine brucellosis.
- Harmonisation of epidemiological inquiries.
- Possible financial incentives and/ or punishments to farmers and to veterinarians not complying with the rules of the eradication programme.
- Further discussion of compensation rules and procedures resulting in a proposal from the group to the Commission and to the MS on how to harmonise compensation for losses connected to sheep and goat brucellosis.

V. Conclusions

1. The work of the subgroup on sheep and goat brucellosis of the Task Force for monitoring disease eradication in the Member States has in its first year commenced in a very positive and constructive way. Particularly important for this were the basic objectives of the groups:
 - Establishing a group, which would deal as well with general as with specific questions and difficulties of sheep and goat brucellosis eradication and the way to achieve eradication;
 - Discussion of difficulties in the programmes and in their implementation in an open way with the aim to help the Member States in finding solutions to their special problems;
 - Motivation of the people involved in the programmes, in particular the local veterinarians and the industry (farmers, transporters etc.), by having the meetings in the Member States concerned and preferably in the most difficult areas.
2. Most of the concerned Member States were grateful for the help provided and reacted by considering the recommendations made. In this context it must be pointed out that this reaction may in the short and medium term lead to an increase of infected animals and holdings mainly due to increased testing and more severe interpretation of testing results. This increase should not be interpreted as a failure of the programme.
3. In the evaluation of the situation in the Member States it became obvious that the difficulties in some programmes is often due to the lack of political support, which results in basic problems for the veterinary services.

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4. Brucellosis

- 4.1 A network of reference laboratories should be established in order to harmonise testing procedures and to improve standardisation of tests. The legal basis for the nomination of a Community Reference Laboratory for brucellosis should be established as soon as possible and a Community Reference Laboratory to co-ordinate the diagnosis for brucellosis in the Member Countries should be created.
- Meeting SG bB on 17/04/2000, SG Bm on 18-19/04/2000; TF on 27/07/2000 -
- 4.2 Need for harmonisation and for validation of tests, for proficiency testing and for accreditation of the laboratories in the Member States.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -
- 4.3 For epidemiological purposes it is necessary to increase efforts to isolate *Brucella*, to type the strains isolated and to keep serum and culture banks.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -
- 4.4 The usefulness of available tests should be defined for each given epidemiological situation.
- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -
- 4.5 Certification for testing regarding animal movement should be harmonised.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

The SG bB had also recommended using ELISA as the test of choice, at least for intra-Community trade. This test was the “most sensitive test available although it is the less specific test and frequently leads to false positive reactions”. The TF regards this statement as very strict and favoured further discussion on this subject.

- 4.6 Pre-movement animal testing should be a rule and pre- and post-movement testing should be required if animals come from infected areas.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

The SG bB had recommended post-movement testing as a rule. In the meeting of the TF all but one Member States favoured pre-movement tests.

- 4.7 Sero-positive female animals and their calves are regarded as particularly dangerous in the spread of infection and should, therefore, be slaughtered immediately after positive diagnosis.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

- 4.8 In non-qualified areas and in particular in flocks living in or coming into or leaving infected areas or going for transhumance testing in a brucellosis-free holding for maintaining the BF status should surpass the requirements stated in Directive 91/68/EEC as such as all reproductive animals in the holding should be tested.
- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -

*Greece and Spain had reservations in the TF with this recommendation because
- an important incentive for positive herds would not exist any more and
- this would result in very much increased work for the official veterinarians for taking and investigating samples
and in an increase of total costs of the programme.*

- 4.9 In an infected herd, every animal positive to RBT, serum ELISA or any other approved serological screening test should be considered as infected and therefore slaughtered, without waiting for results of confirmatory tests.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

4.A Bovine brucellosis

- 4.A.1 For cattle the use of B19 vaccine is recommended in high prevalence areas/ herds to reduce the incidence to levels in which a bovine brucellosis eradication programme, based on a test and slaughter policy, can be initiated.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

- 4.A.2 Testing procedures, including the tests to be used for screening and for confirmation of positive results and the testing intervals in dairy and beef herds have been defined by the SG bB in detail. Different scenarios including procedures in brucellosis-free holdings, in low-risk and risk areas and in infected holdings have been considered.
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

- 4.A.3 Research regarding the validation of testing and the implementation of new tests and the study of new vaccines and vaccination regimes should be carried out (cost-effective research areas were identified by the SG bB).
- Meeting SG bB on 17/04/2000; TF on 27/07/2000 -

4.B Sheep and goat brucellosis

4.B.1 Where not implemented yet, a control and a management system of all animals' movements should be implemented step by step, the first step being the declaration of movements by the herd-owners and their registration by the veterinary services. The second step would be the management of movements in order not to mix flocks of different sanitary statuses.

- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -

4.B.2 In areas with high disease prevalence vaccination is recommended as a tool to reach a lower prevalence necessary to achieve eradication (sheep and goat brucellosis).

- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -

4.B.3 The slaughter policy following the outcome of tests performed should be harmonised once the opinion of the Scientific Veterinary Committee concerning sheep and goat brucellosis is available. However, at least in areas with less than 5 % herd prevalence any animal in infected herds reacting to Rose-Bengal-Test or to Complement-Fixation-Test should be compulsory slaughtered.

- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -

4.B.4 Animals subject to sanitary slaughter must be eliminated as quickly as possible

- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -

4.B.5 Most of the deficiencies detected by the Food and Veterinary Office in its missions on sheep and goat brucellosis eradication programmes have a real basis and should be taken into consideration in the future programmes

- Meeting SG Bm on 18-19/04/2000; TF on 27/07/2000 -

V. Measures taken

V.A Measures taken by the Member States

Many recommendations of the Task Force and of the subgroups have been taken into account for the programmes submitted for the year 2001 or have directly been incorporated in the implementation rules of the running programmes during the year 2000.

V.B Measures taken by the Commission

In accordance with the recommendations, in particular the following actions were taken:

1. Once a month in a meeting of the Standing Veterinary Committee (Animal Health) Member States were requested to provide information (in oral and in written form) on diseases co-financed by the Community.
2. Harmonised models for reports to be submitted by the Member States on their programmes to the Commission have been agreed upon (Commission Decision 2000/322/EC).
3. A ring trial involving all National Reference Laboratories (NRL) for bovine and for sheep and goat brucellosis has been carried out (technical organisation by the NRL of the UK in Wheybridge, Dr. A. MacMillan).
4. A meeting of all National Reference Laboratories for bovine and for sheep and goat brucellosis took place on 13/14 December 2000.
5. Draft models for epidemiological reports for bovine and for sheep and goat brucellosis have been established (first drafting and co-ordination of the work done by the chairman of the sheep and goat brucellosis subgroup, Dr. B. Garin-Bastuji).
6. Preparations for the drafting of possible harmonised rules for compensation of farmers (drafting done by the chairman of the bovine brucellosis subgroup, Prof. F. Boinas).

(m PT):

2. GREEK PROGRAM (Annex 6)

Presented by Dr Anastasios Minas.

2.1. General Balance of the Greek situation

2.1.1. Field actions

The participants considered that although not specifically included in the programme for 2001, the results of all Nomos should be evaluated, as the country has to be considered as a whole!

The group considers that this needs further clarification as a herd cannot hold its status if not tested during the year.

It is recommended, in the short term, to authorize and establish contracts with private veterinarians to carry out routine tasks such as taking of samples or carrying out of vaccination. This could strengthen the efficiency of the implementation of the eradication program. This would allow the official services to dedicate more time to actual disease outbreaks (epidemiological follow-up) and to strategic tasks. The programmes could be better co-ordinated and supervised and available data could be more effectively evaluated. If private veterinarians were engaged in the programme it would be recommended to promote monthly meetings of the veterinarians of the Nomos with a Veterinary Officer to discuss the epidemiology of the disease, to discuss the performance of tasks, to evaluate the progress of the eradication programmes in the area and to stipulate targets and methods for the reduction of the prevalence and the incidence of the disease.

The epidemiological evaluation can be facilitated if the reporting of the District Veterinary Officers is strengthened using standardised forms that were developed for data collection in 1999 and for the presentation of reports.

(m EL):

Day 1

1.1 Opening Session (Dr M. Patikas, Director of the Veterinary Services of Thessaloniki)

Dr. M. Patikas, the Director of the Veterinary Service of Thessaloniki, welcomed the participants. He briefly presented the main problems of the area: traditional stockbreeders and husbandry systems, animal movements in mountains, absence of premises..

The results obtained with the programme up to the present time were not the best but it was expected that a better control of brucellosis through an exhaustive control of the animals, especially cattle and an improved situation would be achieved in 2001. The priorities were to implement identification of cattle and to massively vaccinate all sheep and goats herds in the mainland.

1.3 Structure of Central and Local Veterinary Service (Dr N. Kostomitsopoulos, Ministry of Agriculture, and Dr M. Patikas)

The Ministry of Agriculture (MA) at central level has 3 Departments:

- Animal Health
- Public Health and Zoonoses and
- Veterinary Drugs and Applications

The Department of Animal Health has the responsibility of any factor affecting the health of animals (including fish and wild animals). This includes also the responsibility of diagnosis, therapeutics, prophylaxis, etc.

The Department of Public Health is in charge of meat inspection in slaughterhouses and in meat processing plants, of the control of abattoirs and in the protection against food-borne diseases. There is a close collaboration between the Dept. of Animal Health and the industry.

The Department of Veterinary Drugs and Applications controls the laboratories of the pharmaceutical industry, drugs and additives and also reproductive diseases, artificial insemination, etc.

In each of the 54 Prefectures (Nomos) there is a Prefecture Veterinary Directorate with three departments corresponding to the three national departments.

The Prefecture Veterinary Directorate in each Nomos is under the "command" of the Ministry of Internal Affairs and not to the Ministry of Agriculture.

Within the Prefectures there are in total 347 Rural Veterinary Services, called Field Veterinary Clinics (FVC), which belong to the administration of the prefectures – and therefore the Ministry of Internal Affairs. The FVC are not linked to and not under the command of the MA. The organisation of the FVC correspond to the structure of the MA.

The eradication programmes and all corresponding decisions are defined by the MA. They have to be implemented without changes or adaptations at local level by the FVC. The MA also finances the programmes (movement of staff, material, compensation etc.).

The data from the FVC are sent to the Department of Animal Health of the MA, which controls the implementation.

In 1980 there were 1270 official veterinarians and presently (2000) there are 600 of which 200 are near retirement. This results from the policy of the Ministry of Internal Affairs, which has not employed new veterinarians for the past 15 years. The MA employs temporary staff for short periods of time, 8 to 12 months, after a long and complicated admission process.

The veterinarians working in the FVC have multiple tasks including:

- Meat inspection
- Implementation of the eradication programmes including its survey, testing, vaccination, identification of animals, registration of animals for movement control, compensation payments, etc.
- Animal clinics and therapeutics: provided as a veterinary service free of charge (as determined by national law).

- Control of drugs

Due to the shortage of staff, priorities are defined for field veterinarians with the following rank: 1st for meat inspection, 2nd for veterinary practice and 3rd the implementation of the programmes.

Private veterinarians are not allowed to work for the eradication programmes; the only veterinarians authorised for this task are the official staff of the FVC.

The subgroup discussed that the free veterinary practice provided by the official veterinarians was one of the factors interfering most with the implementation of the programme. Carrying out of diagnosis and treatment of animals leaves only little time for official tasks. Furthermore, as this is carried out free of charge, private practitioners have no chance to build an own practice because of lack of clients.

In addition, even without this difficulty the official staff would not be able to perform all their duties due to their small number. Therefore more official staff should be contracted and/or private veterinarians should be appointed for official tasks under the programme.

The Greek authorities know that Greek farmers are not satisfied with the present sanitary system especially because of the lack of available veterinarians.

Another problem identified was that by Greek legislation only official drivers are allowed to drive official cars. However, this rule seems not to be implemented under all circumstances and in all provinces.

In Greece there are 15 veterinary laboratories, 2 veterinary institutes and 12 border inspection services. The laboratories belong to the MA and analyses are performed free of charge. There is also a shortage of staff in the laboratories.

The Milk factories are not allowed to carry out official milk tests. Two perform the MRT for private purpose. The subgroup discussed the advantages of the collaboration of the co-operatives in performing the official tests.

Some aspects of the Greek legislation that could be modified / adapted to facilitate the implementation of the programmes were discussed. These included in particular the tasks of the official veterinarians and the organisation of the laboratory investigations.

2. Bovine brucellosis eradication program in Greece: strategy, current situation, implementation of the program, operational and implementation problems

2.1 National overview (Dr Anastasios Minas) (see Annex 3)

The bovine brucellosis eradication programme in Greece started in 1981 and is based on the testing of all cattle over 12 months of age and on the slaughter of positive ones.

The results are considered good, especially in dairy cattle, due to the structure of the husbandry in Greece (good separation of farms that do not mix on pastures).

The following national statistics were presented for the first six months of 2000:

- N° of Animals/herds:	669,759	/	31,538
- Animals herds in the program	569,015	/	29,400

- Animals/herds planned to be controlled:	557,44	/	28,306
- Animals/herds controlled:	111,232	/	8,104
- Animals/herds controlled %	19 %	/	27 %
- % of positive animals/herds:	2,63 %	/	6.0 %

There are 19 Prefectures with less than 1% infected farms. Although no data is presently available to confirm this (these data are being collected at the moment) it is planned to propose some of these 19 regions to the CEC to be considered as brucellosis officially free areas (see also Section 2.5). The Greek subgroup member present in the meeting explained the Greek view: according to Directive 64/432/EEC, no matter of how often the herds have been tested, if there are less than 0.2% infected herds for 5 years, absence of abortion and no isolation of *Brucella*, there is evidence that brucellosis does not occur in the area. This was a matter of discussion as the other sub-group members understand that, according to the same Directive, a herd has to be controlled yearly for area recognition.

The data presented show that the herds / animals are not examined every year (as can be seen in the comparison of the 2 tables “Implementation of bovine brucellosis program from 1-1-2000 to 30-6-2000” and “Epidemiological situation at 30-6-2000” in Annex 3). For example in the Nomos of Achaia there are 49 herds and 794 animals investigated in this period and there are 285 B4 herds and 2969 B4 animals existent (B4 = officially brucellosis free herds/ animals). It can also be observed that there is a relevant delay in the implementation of the programme up to the end of the first semester. There are some areas highly infected (e.g. Thessaloniki and Athiki).

In the regions of Thessaloniki, Larissa, Trikala and Pieria *B. melitensis* has been isolated in cattle in 29 out of 33 *Brucella* isolations (88%). This is considered to be due to the herds of cattle and small ruminants grazing together

The Brucellosis programme approved for co-financing by the Community in 2000 includes only 8 Nomos. The campaign in the rest of the country had not been requested to be financially supported and will therefore be financed only by the Greek Government.

According to the programme ELISA milk test shall be performed 3 times a year in dairy herds with B4 status. When a positive reaction occurs serology is performed with RBT for screening and confirmation of positive results is done either with CFT or serum ELISA or both tests.

False positive milk ELISA tests have been observed mainly towards the end of the lactation period.

The field veterinarians do not decide about the sanitary status of the herds and do not define the testing protocol. This is the responsibility of the diagnostic laboratory that serves the area; it decides after the evaluation of the available data. When RBT is positive and CFT is negative the laboratory performs a herd investigation and the herd keeps the free status after negative evaluation of:

- The epidemiological situation of the farm, namely the chance of contact transmission;
- No introduction of animals from other farms. Local veterinarians are inquired to confirm if there was an illegal introduction of animals.
- No clinical signs. As in Greece only around 50 abortions are reported and investigated per year, incentives are being considered as to increase the producers reporting.

In these RBT+ and CFT- herds the serological control is repeated after 1 month. If a bovine presents 2 consecutive RBT positive results, the farmers are strongly advised to slaughter the animal and the rest of the herd is again checked with RBT, and confirmation done with CFT and

ELISA.

In this situation slaughter of the RBT+ is not compulsory as the provisions of Directive 64/432/EEC are used as the technical rules for the eradication campaign (obligatory confirmation with SAT, CFT or ELISA). According to the Greek representatives compensation payments in these situations have been denied by FEOGA. The members of the subgroups consider that if these cases were specifically proposed in the official programme the producers are entitled to receive the compensatory payment.

In infected herds there is no standardised way of using tests for the eradication of the disease: The Greek members of the subgroup consider the provisions of the Directive as sufficient. The main priority is to reach 100 % herds with a sanitary status; the possibility to concentrate eradication effort area by area is not considered.

New veterinary legislation to be approved is previously sent to the laboratories and to the central and local veterinary services for discussion before being adopted.

The penalties to non-co-operating farmers can be up to 1m. DCR (3,000 €) accompanied by a ban of selling the milk.

Infected herds have a limitation in trading live animals, except for slaughter. The delay of sending animals for slaughter can have penalties of up to 50% of the compensation (see minutes of the meeting of the subgroup held in Portugal, 14 & 15 June 2000).

In the past during some time all milk from infected herds was destroyed according to the interpretation of the Directive 92/46/EC. The members of the subgroup agreed on the present policy, which considers that the milk from the infected cow is discarded while the milk from the rest of the herd may be used after heat-treatment. This heat treatment must be carried out under the supervision of the competent authority.

2.2 Implementation of the bovine brucellosis eradication program in Thessaloniki (Dr M. Patikas)

The Thessaloniki Prefecture has 15 field veterinary clinics of which 14 are active (see map in annex 4). A pilot project was made to centralise these activities into 2 large FVC, one located on the mountains and 1 in the city of Thessaloniki. The advantages were a better processing of the data collected and an improved control of the implementation of the programme. This project was abandoned due to the logistic problems posed on the producers and on the field veterinarians by the distance between the FVC and the farms.

In Thessaloniki there are 58 veterinarians among the 92 staff working for the Veterinary Services in the Prefectures. 29 veterinarians work in the FVC of which 17 are working on the food inspection department (6 veterinarians are engaged all day with meat inspection in 3 industrial slaughterhouses, 5 small slaughterhouses, 1 pig and 1 poultry processing plants) and 12 are District Veterinary Officers.

During the first semester of 2000, there were 199 herds and 5,503 animals tested for brucellosis and this accounts respectively for 13,2% and 7,6% of the existing herds and animals. The prevalence of the disease in this sample is 17,51% of the herds and 6,03 % of the cattle tested. 3,000 animals and 50 herds were not included in the data presented, as they are included in the Rev. 1 vaccination programme.

Although it is considered that in the Nomos of Thessaloniki there is no shortage of staff to implement the eradication programme they only performed the testing in a small percentage of herds.

There was a diagnostic laboratory, dependent on the MA that stopped activities temporarily and now the laboratory of Larissa performs the brucellosis diagnosis.

Milk samples are being sent to the Laboratory of Larissa for analysis by MRT and ELISA. A greater co-operation of the farmers is obtained with the increase of the control by testing of milk, as it avoids catching the animal for serology tests, and it is considered that this can help speeding up the eradication of the disease.

The industry receives a list of farms from which they should not collect milk as a way to put pressure on farmers to improve the herds status. Comments to this were that in that way the control over contaminated milk is lost, it can go to other routes and penalising farmers requires the capacity of veterinary services to perform a close follow-up of farms to eradicate the disease.

2.3 Implementation of the bovine brucellosis eradication program in Achaia (Dr A. Papagiannis)

Achaia is not included in the EU-approved bovine brucellosis eradication programme and the measures are therefore not supported by EU funds. Most of the territory (4/5) of this Nomos consists of mountain and the remaining 1/5 consists of plain.

In Achaia there are 33 people employed (including 11 on short-term contract) of which 12 are veterinarians and none of them is working for the FVC. There are 9 FVC, most located in the mountain areas, with only 3 FVC presently working.

There are 300 herds in the Nomos with dairy cattle (3,232 animals) and 207 herds with 2,800 animals under "free" conditions for meat production. Only 49 herds out of a total of 507 herds (9.8%) were investigated during the first semester of 2000, 5 herds (10.2% of herds investigated) with positive animals. These 5 herds were not followed-up after 2 months, as foreseen by the official programme. The priority was given to the control of *Brucella melitensis* by vaccination of sheep and goats with the allocation of 70% of the veterinary resources. The campaign of vaccination resulted already in a decrease of the incidence of human brucellosis infection.

The statistics presented 285 herds as B4 status even if they were not tested in the current year and sometimes not for about 10 years. This refers mostly to dairy herds while the remaining 200 herds are suckler herds, which are the ones more frequently infected.

It was discussed that the maintenance of a herd sanitary status depends upon the twice yearly herd test according to the Directive 64/432/EEC and, if this frequency is not fulfilled, another classification should be used to define the suspended status.

The major shortcoming for a good implementation of the programmes is considered to be the lack of personnel.

Programming of activities of the field veterinarians is very difficult because of the multiple activities in which they are involved and also because strict protocols for activities are not defined. As an example if half of the herd grazes together with sheep and goats sometimes the survey is only done in the small ruminants, as catching is easier. These difficulties are also felt in the identification of cattle with ear tags.

2.4 Implementation of the bovine brucellosis eradication program in Etoloakarnania (Dr A. Kotsoni)

This Nomos, located in West Greece, is mostly mountains. It is the largest in area and has the highest population of sheep and goat (11,364 flocks and 1,000,000 animals) but not of cattle (826 herds and 28,601 animals). Most of the farmers are dedicated to agriculture and not to livestock production.

There are 9 FVC in Etoloakarnania with 1 of them being closed. It is considered that there is lack of staff with only 14 veterinarians and the auxiliary staff is under temporary contract.

There are 16 slaughterhouses working almost every day. They are small and provide meat for local consumption and are considered as too many but stopping activity and concentrate it in large abattoirs is not accepted by the local people, specially the producers that refuse to travel a long way with the animals for slaughter.

Also in this Nomos, the emphasis of the programme was given to the Rev. 1 vaccination of cattle and of sheep and goats with an intra-conjunctival dose of 10^8 CFU of young and adult non-pregnant animals.

Only a small number of bovine holdings were investigated during the first semester of 2000: 5 herds out of the 806 existing. Of the 806 herds, 108 had only 1-2 animals. The remaining 700 include the free-ranging cattle in which the programme has never been implemented except when it is possible to catch and vaccinate the animals. Identification is also implemented as this is linked with a premium.

The shortage of staff explains the low performance of the programme in cattle, especially in the B1 herds.

The small milk herds in the program that have B1 status use the milk for fattening calves and not for human consumption.

2.5 Implementation of the bovine brucellosis eradication programme in Cyclades islands (Dr I. Bogiantzidis)

This archipelago has 36 small islands of which 24 are inhabited. The Prefecture sets in Syros.

There are 12 FVC of which 2 are presently closed. There are 13 veterinarians and Dr Bogiantzidis considers that 21 veterinarians are needed as already required to the MA in 1988 but there was no reply to this. Veterinarians are occupied with a range of activities (see Section 2.1) and cannot pursue with the execution of the programme.

The major difficulties verified in this Nomos are the lack of personnel, the geography of the area and difficulty of transportation.

There are 16,720 cattle in 1,922 herds and all are classified as B4 even though not all of them have been tested within the last year. Due to the statistics presented 49 herds (197 cattle) were investigated in the first semester of 2000 and one positive animal found was related to a mistake of a veterinarian sampling a 2-month-old animal. Historically there are no cases of Bovine brucellosis in animals in the area.

Up to 1997 the programme was implemented in the herds but, due to the shortage of staff, priorities were given to the implementation of the *B. melitensis* programme.

According to the planning the bovine brucellosis programme is implemented once every 2 years: 50% of the farms are investigated in one year and the remaining 50 % in the following year.

Dr Bogiantzidis considers that the maintenance of the status of the B4 herds can be more easily done pursuing and re-enforcing the use of analysis in milk samples.

As no positive cases occurred for more than 5 years, the Greek Official Services intend to send a request to the Commission to approve this area as well as others in similar situations (Section 2.1) as officially brucellosis free. Due to the interpretation of the Directive regarding the suspended status of herds not all participants agreed that the conditions set by the Directive for such recognition of freedom were fulfilled. It was concluded that the validity of this request should not be subject to discussion of this subgroup.

There is a restriction of movement of animals from the mainland to the islands. Animals should come from B4 herds and are subject to pre-movement testing. The percentage of animals that come from the mainland are around 10% of the cattle population and most are sent to the slaughterhouse with a special movement certificate.

The Laboratory of Athens performs the diagnosis of brucellosis. New forms were devised during the current year to send serum and milk samples for the diagnostic work.

6. Ovine and Caprine brucellosis eradication program in Greece - Strategy , current situation, implementation of the program - Operational and implementation problems

6.1 National Overview (Dr. A. Minas) (see Annex 7)

There are 90,000 flocks (9 millions sheep & goats) in the mainland and 30,000 in the Islands (3 millions animals). For further details see the attached documents. The production system is mainly oriented to milk production, there are low technical inputs, (no building, 90% milking by hand). There are two lambing seasons (September-December, January-March). Animal nutrition is based essentially on grazing (5 months transhumance) but concentrates are given as well. In 1998, there were about 27% positive flocks with a growing tendency.

The strategy is mass vaccination in the mainland (pregnant animals are vaccinated after lambing), test-and-slaughter in the islands. The flock vaccination takes place especially between February and April (before many animals migrate for 5 months for the summer pastures in the mountains).

Vaccinated animals are identified with a tattoo comprising of a "V" and the last 2 digits of the year in the ear of the animal. Priority on vaccination is given to areas with human cases, with a high number of infected flocks, flocks with unknown status and flocks that move for transhumance.

Blood collection previous to the vaccination is only done in some areas and it is not established as a routine. Control of vaccination by blood testing is performed in some flocks, 50 days after vaccination.

The islands appear free from sheep and goat brucellosis except Crete (0.4 % and 0.1 % of reactors in 1999 in Heraklio and Lasithi respectively) and Dodekanisa (0.5 % in 1999). However, only 3,074 flocks were investigated from 1/01/00 to 31/06/00, compared to 20,057 existing flocks in the area (15.3 %).

During the discussion the following questions were raised:

- Why are there only around 15% flocks vaccinated? According to the Greek subgroup member, apart from shortages in the available staff the main difficulty is the availability of vaccine doses. The MA is in charge of buying the vaccine, twice a year, taking into account the number of vaccinated animals foreseen and the expiration date for the use of the vaccine.

- Despite the fact that control of vaccination aims at improving the work of field veterinarians, the group wonders how this control (by post-vaccination blood testing) is organised, considering the time and money spent, while there is not staff and time enough to vaccinate all flocks?
- How are flocks chosen that are to be tested in the Islands?
- What is the ratio: No slaughtered animals/No positive animals in the Islands? [According to the Greek subgroup member all seropositive animals are slaughtered. There are very few delays but in the area where eradication campaign is implemented all the positive animals have been slaughtered.](#)

A national database is being implemented (i.e. in the laboratory of Larissa) to collect all the data.

6.2 Implementation of sheep & goat brucellosis eradication program in Thessaloniki (Dr M. Patikas) (see Annex 8)

In this area, there are 349,000 animals in 1,585 flocks (831 sheep, 462 goats, 292 mixed flocks). 30,000 animals are transhuming.

In 1998, the last year of implementation of the non-vaccination policy, positive reactors were found in 247 flocks out of 1600 controlled ones (15.4 %).

Existing population:

Sheep		Goats		Mixed		Total	
Flocks	Animals	Flocks	Animals	Flocks	Animals	Flocks	Animals
831	133,965	462	143,937	292	71,565	1585	349,467

Vaccinated population in 1999:

Sheep		Goats		Mixed		Total	
Flocks	Animals	Flocks	Animals	Flocks	Animals	Flocks	Animals
209	19,656	137	20,104	80	15,842	426	55,802

Vaccinated population in 2000:

Sheep		Goats		Mixed		Total	
Flocks	Animals	Flocks	Animals	Flocks	Animals	Flocks	Animals
195	16,596	99	21,405	64	9,869	358	47,870

Vaccinated 99-00	Non-vaccinated
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Flocks	Animals	Flocks	Animals
784	103,672	801	245795

The conclusion taken from the figures presented is that it takes 2 years to vaccinate half of the population. Therefore it would take 4 years to vaccinate the whole population, not taking into account that each year the renewing animals (about 10% - 15% of the animals) should be vaccinated in all flocks every year as well (the young animals vaccinated are included in the numbers above).

In 1999, it is estimated that 92,000 vaccine doses were received and 69,385 animals were vaccinated. In a control survey it was shown that 85 % of the vaccinated animals reacted positive to the investigation. Females accidentally vaccinated after 2-3 months pregnancy present a high rate of abortion (60%). From 120 females vaccinated in the 1st month there were no abortion reported.

There is a great problem of vaccine supply due to a long delay in submitting the vaccine to the regions. According to Dr. Patikas in the region of Thessaloniki 100 % of the flocks could have been vaccinated if there would have been enough doses of vaccine available. The policy of the MA is, however, to send less doses than needed to the regions in order to avoid that vaccine runs out of validity and have to be thrown away because the regions can not fulfil their targets. The group considered that it would be useful if the Ministry would send as many doses of vaccine to the regions as needed after having negotiated with them the realistic targets.

For Greece the priorities in vaccination are:

- First to vaccinate flocks moving for transhumance and flocks/ animals to be sold to other areas
- Then the flocks unvaccinated the previous year
- Finally the flocks considered free in 1998.
- The easy collaboration with farmers is another criterion to favour vaccination before test-and slaughter policy.

Up to now, the rate of vaccinated flocks reaches 85 % in the region of Thessaloniki.

6.3 Implementation of the sheep & goat brucellosis eradication programme in Achaia (Dr A. Papagiannis) (see Annex 9)

In this area there are 6,078 flocks with 433,116 sheep and goats. 19.3 % of the animals and 14.4 % of the flocks were found infected in 1998.

In the plain part of the region, the access to flocks is easy, however it is far more difficult in the mountain area, while the most part of the animal population lives in the mountains.

In 1998, the target to vaccinate 15 % of the ewes (the existing female animals) was achieved by 58.3 %. In 1999, 155.6 % (105.875 animals) of the target number of animals had been reached and in 2000 already at the time of this meeting the number of vaccinated animals was more than 144 % of the targeted number. Since the beginning of 1999, 41 % of all flocks have been vaccinated. These data show the special effort made by the region to implement the programme. The efforts were possible and were underlined by the actions listed below.

- Post-vaccination serological control has been implemented and showed 91% positivity, which demonstrates the good application of the vaccine.
- Extra fees were mobilised for the campaign.
- Specific software has been used to monitor the programme.
- The local vet. service has been able to use cars from other services of the prefecture and were able to employ extra staff.
- Meetings have been organised in local bars to inform the farmers about the vaccination programme prior to its start.
- Guidelines for the mass vaccination in sheep and goat holdings have been prepared, sent to the farmers and explained in the above meetings prior to the start of the campaign to help in the education of farmers (vaccination organised by areas; priority for flocks not in isolation)
- Animal movement to outside the Prefecture is not allowed without a certificate. Movement to the islands is forbidden.
- The work of the team vaccinating the animals has been monitored: The monitoring team was in close contact with the people actually vaccinating the flocks on a daily basis. If the targets were not achieved the DVO sent remarks to the vaccinating person.

The main problems are:

- Lack of staff
- Insufficient monitoring of the implementation of the programme from the central services.

6.4 Implementation of sheep & goats brucellosis eradication program in Etoloakarnania (Dr A. Kotsoni) (see Annex 10)

In this area there are 11,364 flocks with more than 1,000,000 sheep and goats. The lambing season lasts from September to March. This makes the vaccination campaign difficult.

In 2000, only 887 flocks (7.8 %) and 95,152 animals (8.8 %), thereof 84,000 adult and 11,000 young ones were vaccinated. However, a special effort has been made in the past weeks as in the first half of 2000 (January to June) only 331 flocks and 35,500 animals (31,000 adult, 4,500 young ones) had been vaccinated.

As in other regions the main problem appears to be the lack of staff as well as the lack of transport. Sometimes the vets have to use their own car or the car of the farmer.

6.5 Implementation of sheep & goats brucellosis eradication program in Cyclades Islands (Dr I. Bogiantzidis) (see Annex 11)

An eradication program based on test-and-slaughter policy has been implemented in this region since 1991. From 1985 to 1991 the programme was based on vaccination. Nowadays, only a fraction of the flocks is controlled by serology. There is only one veterinarian and one assistant. As since 1991 there is no evidence of *Brucella*, neither abortion nor human case reported and there was no CFT-seropositive animal found (RBT-positivity occurred), the Greek authorities consider this region – as well as the islands of Chios and Samos - as “officially” free from brucellosis, although the requirements of the Directive for this status are not fulfilled. It is

foreseen in 2001 to test all the flocks at least once. Issuing of results to blood testing takes 7-10 days.

On other islands, the situation is also favourable, except in Crete, Lefkada and Dodekanisa. In Crete, a slight increase in the number of infected flocks has been observed in the Heraklion area, due to a local habit of stealing animals from other flocks and illegal exchange of animals and changes in identification of animals. An electronic identification of the animals is foreseen to better control the situation. Stamping out of infected flocks is the rule. In Lefkada (where no case was detected in 1999 but 14 flocks identified as infected in 2000, despite only 1/5 of flocks controlled) it is considered that the island being close to the mainland coast, illegal movements of animals could explain the contamination.

6.6. Discussion on the Greek sheep & goats brucellosis eradication programme - Recommendations

The Greek representatives stressed on the difficulties in recruiting seasonal staff. The administrative procedure is heavy, time-consuming and has to go through 3 different ministries. Nevertheless, the Greek representatives from the regions regarded this as the most necessary recommendation. The District veterinary officer has sent respective requests to the Ministry including the request for the possibility to employ private veterinarians for tasks under the programme.

A problem also in Greece is the quality of ear-tags, which can be easily lost or cause gangrene or a drop in milk production.

Concerning the risk of human brucellosis due to consumption of milk products, the pasteurisation of the milk used for the production of feta cheese and its two-month long maturation at pH < 4 in salt solution guarantees the safety of the product. No human case was reported in Greece due to feta consumption. However, the non-pasteurised home-made cheese can be dangerous. The national legislation forbids putting this kind of cheese on the market. [Some human cases](#) appear in big cities, after Christmas or Easter, [because some people receive unmaturing feta cheese as gift when they are visiting their villages for celebrating these holidays.](#)

In the region of Larissa, more than 95 % of human cases are encountered in farmers or butchers.

Recommendations

1. VACCINATION PROGRAMME

1. It is fundamental to speed up the coverage of the vaccination programme increasing as much as possible the number of vaccinated flocks
2. Special care should be taken in the vaccination of young animals every year in flocks where adult vaccination has already been performed

Test and slaughter

3. In those islands where there are small numbers of infected flocks and where the veterinary services plan to proceed with stamping out, this should be executed without delay as well as the serological testing of all the other flocks in the area.

2. GENERAL

4. The development of a common information system that is already in preparation will provide a large quantity of data. These data should be analysed to assess the evolution of the programme and be used for reformulation of the policies.

Expertise with epidemiological background should be provided for this purpose.

5. Exchange of experiences, successes and constraints between the veterinary services would be of great advantage.
6. The previous recommendation can only be accomplished if enough manpower and resources (for field and laboratory work) are provided to the veterinary services in the near future. It is fundamental to find means for provision of human resources.

Some of the ways used by other member states to deal with this problem are:

- To strengthen the veterinary services, increasing the number of official veterinarians
- To give authorisation to private veterinarians to perform the activities of the animal health programmes (and other activities) under the control of the veterinary services (and with the training of these veterinarians).