REPORT

EXECUTIVE COMMITTEE

OF THE EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Sixty-fifth Session

LEVERKUSEN MONHEIM

Germany

16 and 17 November

2000

Food and Agriculture Organization of the United Nations

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EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2000

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INTRODUCTION

The Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease (EUFMD) held its Sixty-fifth Session at Leverkusen-Monheim, Germany on 16 and 17 November 2000.

Members of the Committee present:

Dr R. Marabelli, Italy, Chairman
Dr L. Celeda, Czech Republic, First Vice-Chairman
Prof. Dr W. Zwingmann, Germany, Second Vice-Chairman
Dr E. Liven, Norway
Dr D. Panagiotatos, Greece
Dr L. Hallet, Belgium

Observers:

Chairman of the Research Group
Dr K. De Clercq, CODA-CERVA-VAR, Ukkel, Belgium

WRL
Dr A.I. Donaldson, Head of Laboratory, IAH, Pirbright, UK

EC
Dr Alf-Eckbert Füssel, SANCO Unit E2 EC, Brussels, Belgium

OIE
Dr Nicola T. Belev, Sofia, Bulgaria

FAO
Dr Y. Cheneau, Chief, Animal Health Service, AGA, Rome, Italy

Germany
Dr B. Haas, Federal Research Centre for Virus Diseases of Animals, Tübingen

Turkey
Dr Musa Arik, MARA, GDPC, Ankara

Secretariat
Dr Y. Leforban, Secretary, EUFMD, FAO, Rome
Dr J. Ryan, Associate Professional Officer, EUFMD, FAO, Rome
Ms J. Raftery, Administrative Assistant, EUFMD, FAO, Rome

On behalf of the German Government, Prof. Dr Werner Zwingmann welcomed the participants to the meeting and particularly to Germany. He stated that he was pleased that it was possible to hold the Sixty-fifth Session of the Executive Committee in Germany where as host he would be most happy to fully utilise his position to ensure a successful meeting and a pleasant stay for the participants. He thanked the representative of Bayer AG for providing premises for the meeting and for their hospitality. He was aware that involving industry in meetings of this type was sometimes questionable but as an operator of the German vaccine bank, Bayer was in a special position. Prof. Zwingmann apologised to the meeting for having been absent during the welcome dinner the previous evening. The issues at stake in Europe required that he and the Chairman, Dr Marabelli, attend an important meeting in Brussels at short

notice. Dr Hallet also attended the same meeting and in addition the King of Belgium would visit the Ministry on 16 November - for these reasons Dr Hallet would join the Committee later. Prof. Zwingmann informed the Committee that Dr Bernd Hass from the Federal Research Centre for Virus Diseases of Animals in Tubingen would also join the meeting as an observer.

Before giving the floor to the Chairman, Prof. Zwingmann extended congratulations and best wishes to Dr Belev on his 70th birthday which he had just celebrated and he wished him good health and happiness for many years to come. He informed the participants of the social programme which had been organized for their free time and then gave the floor to Dr Marabelli.

The Chairman, Dr Marabelli, expressed his pleasure that the Sixty-fifth Session of the Executive Committee was being held in Germany and on behalf of the Committee he extended thanks to Prof. Zwingmann and to the German Government for having offered host facilities for the meeting and providing interpretation facilities in the languages of the Commission (English/French). He welcomed the Committee members, the representatives of FAO, EC, OIE, the Chairman of the Research Group, the representative of the WRL, and the observers from Germany, and Turkey. He also welcomed the secretariat (Appendix 11). He stated that the situation of BSE over the last few days was creating many problems for veterinary services but despite the difficulties encountered because of the urgent meeting which had been called in Brussels it was decided not to postpone this important meeting of the Executive Committee which was the last meeting of the Committee before the Thirty-fourth General Session.

Dr Marabelli then invited the representative from Bayer AG to take the floor. Prof. Dr. Geilhausen said it was a pleasure for him and his colleagues to welcome the participants to the animal health section of Bayer and he wished them fruitful discussions.

The Chairman then presented the Agenda. All documents had been dispatched by DHL prior to the meeting. He stated that the situation of FMD was very serious over the past year. He invited the participants to note the information circulated about recent events in Japan, Korea, South America, and South Africa, and the presence this year of Asia 1 in Greece. He congratulated the Greek colleagues for their control measures which had averted further risks for Europe. He then invited the Committee to adopt the Agenda.
Prof. Zwingmann stated that he would like to see another issue addressed under Item 7 of the Agenda and that was the possibility in the long term of linking the work of the Committee with that of OIE. Efficiency would, of course, be a pre-condition he stated. This had been discussed about ten years ago and he proposed that it be discussed again at the end of this meeting.

Dr Marabelli thanked Prof. Zwingmann for raising this question and underlined the importance of looking into it before the General Session in March. Dr Leforban asked whether it might not be more suitable to discuss this matter with the members of the Committee only. Dr Marabelli felt that as OIE and other organizations are also concerned it should be discussed with their representatives. He then invited the meeting to adopt the Agenda with the inclusion of Prof. Zwingmann's proposal.

Item 1 – Adoption of the Agenda

The following Agenda was proposed to and adopted by the Committee:

Item 1. Adoption of the Agenda
Item 2. FMD situation:
- FMD situation in Europe and in other regions
- Situation of FMD in Greece
- Update from the WRL

Item 3. Report on the FMD situation and control Programme in Turkey:
- Report of Turkey
- Report of the Tripartite Group Meeting of 20 October in Turkey
- Report of the EUFMD mission to Thrace

Item 4. Situation in CIS countries:
- Report of the Mission to Caucasus in June - July 2000

Item 5. Report on the activities of the Research Group :
- Report of the Session of the Research Group in Borovets, Bulgaria, 5-8 September 2000
- Report of the Workshop on FMD risk analysis in Borovets, Bulgaria, 4-5 September 2000

Item 6. Financial Report
- Accounts 2000 (as at 30 September 2000) ; provisional budgets for the years 2001 and 2002
- Report on the EC/FAO agreement on the utilisation of the Trust Fund MTF/INT/OO3/EEC TFEU970089129

Item 7. Any other business
- follow up of the proposal from the 64th Session regarding reinforcement of the surveillance of exotic diseases in Balkan countries
- 34th Session of the Commission
- proposal to link EUFMD activities with the activities of OIE
- other

Item 8. Adoption of the draft report
Closing remarks

Item 2. FMD situation

FMD Situation in Europe and other Regions

Dr. John Ryan presented a paper and maps (Appendix 1) on the situation of FMD in Europe and other regions in 2000. In his presentation he pointed out that the occurrence of Asia 1 in the eastern part of Greece in 2000 was the first recurrence of FMD in Europe since one outbreak of FMD was reported in Bulgaria in 1996. He highlighted the fact that the year 2000 was an exceptionally bad one with outbreaks of FMD occurring in many countries and regions that were previously free of the disease (such as Japan, Republic of Korea, Russia, Mongolia, Greece, Uruguay, the state of Rio Grande do Sol in Brazil, etc.) and the movement of serotypes beyond their traditional zones (Asia 1 in Greece, SAT 2 in Saudi Arabia and Kuwait and O1 in South Africa).

He continued by reporting that up to 01 November, 2000, 52 countries had officially reported outbreaks of FMD to the OIE, WRL or FAO. Thirty eight countries reported outbreaks of only one serotype - predominately type O - and 14 countries reported outbreaks of 2 or more different serotypes. Serotype O was reported in 34 countries, A in 11 countries, Asia 1 in 5 countries, SAT 1 in 6 countries, SAT 2 in 4 countries, SAT 3 in 1 country and C in 1 country.

He reported that outbreaks of FMD serotype Asia 1 occurred in Greece in July 2000. Twelve outbreaks were reported in the province of Evros close to the border with Turkey.

Two more outbreaks were reported in the Prefecture of Xanthi, but were linked epidemiologically to the Evros outbreaks (see Report of Greece).

Although there were no reported outbreaks of FMD in Turkish Thrace, nucleotide sequencing data suggest that Turkey was likely to be the origin of the Greek outbreaks. Outbreaks of FMD due to serotypes O, Asia 1 and two distinct strains of A (referred to as A/Iran/1996 and A/Iran/1999) have occurred this year in the Asiatic part of Turkey. The European Union (EU) supplied 1.3 million doses of trivalent vaccine containing serotypes O, Asia 1 and A for use in Turkish Thrace. An EU/EUFMD mission visited Thrace in October 2000 to assess the situation and the vaccination campaign (see Item 3).

An FAO/EC/OIE/ARRIAH mission to the Caucasian region carried out in June-July 2000 concluded that FMD is now endemic in Armenia, Azerbaijan and Georgia. Serotypes O, A (similar to A Iran 1996) and Asia 1 have been isolated from samples submitted to the OIE Regional Reference Laboratory, ARRIAH, Vladimir (Russia). In 2000, FMD type O outbreaks were reported in Georgia, Kazakhstan, Russia and Tajikistan. FMDV type Asia 1 was isolated in samples from Georgia and FMD type A was reported in Kazakhstan. The Russian Federation reported FMD type O in pigs in the far east of the country close to the Chinese border.

FMD remained endemic throughout much of the Middle East in 2000. In April 2000, Saudi Arabia reported outbreaks of FMD SAT2 in a dairy herd and in June 2000, Kuwait reported outbreaks of FMD type SAT2 in nomadic sheep. These are the first reports of the serotype SAT2 outside Africa.

He reported that the situation in Africa was still largely unclear because many African countries report FMD outbreaks 6 months to one year after the outbreaks have occurred. In September 2000, South Africa reported its first outbreak in the Free Zone since 1957. The primary outbreak was in pigs and the source of the virus was swill from visiting ships. This is the first outbreak of FMD type O in South Africa. There was also FMD type SAT1 viral activity detected in the FMD enzootic zone of the FMD-control area adjoining the Kruger National Park in South Africa. In August 2000, Namibia reported an outbreak of SAT1 in cattle, their first outbreak since 1994. FMD type C was reported from Kenya in 2000 although this serotype was not reported from any country in 1999.

FMD also remained endemic in much of Eastern, Southern and Southeast Asia in 2000 with serotype O predominant in the region. In February 2000, Taiwan Province of China reported outbreaks of FMD type O in cattle, in Yunlin and Chiayi prefectures and later that month in goats in Changhwa and Kaoshiung prefectures. In November 2000, Taiwan reported new outbreaks of FMD type O in pigs in the Taoyuan prefecture.

In March 2000, Japan reported FMD type O in cattle. This was the first outbreak in Japan since 1908. Four farms were affected, and the control measures applied were stamping out, intensive surveillance around the outbreaks, tracing of all epidemiological contacts and a national serological survey. No vaccination was applied and Japan has since regained its FMD free status. However, 1 million doses of ready to use vaccine reformulated from the EU antigen stock had been made available by EC to Japan at short notice.

In March 2000, The Republic of Korea reported outbreaks of FMD type O in cattle. This was the first outbreak of FMD in Korea since 1934. In total there were 15 outbreaks in March-April in dairy and beef farms. The control measures applied were stamping out of infected and neighbouring farms and emergency vaccination in the regions where

outbreaks occurred with ready-to-use-vaccines reformulated from the EU antigen stocks made available at short notice by EC.

In April 2000, Mongolia reported FMD type O in cattle, sheep, goats and camels. The last outbreaks of FMD in Mongolia occurred in 1973. There were large numbers of animals clinically affected in 26 herds. All infected animals were destroyed, strict quarantine measures were put in place and ring vaccination was applied around the outbreaks.

He reported that the situation in South America also deteriorated in 2000. In August 2000, Argentina reported the detection of FMD type A virus in a probang sample from one bovine from a group of 10 illegally imported cattle. The epidemiological contacts from this farm were traced and 2 more locations with seropositive animals were detected. All the animals in these 3 holdings were stamped out. In addition, a serosurvey was carried out in the entire country, with no further seropositives detected. No animal with clinical signs was discovered and Argentina remained on the OIE list of FMD free countries where vaccination is not practised.

In May 2000, Brazil ceased vaccinating in the southern states of Rio Grande do Sul and Santa Catarina. However, in August 2000, Brazil reported outbreaks of FMD type O in cattle and pigs in Rio Grande do Sul. The last outbreaks in this state were in 1993. Stamping out and movement restrictions were the control measures used and the ban on the use of FMD vaccines in the state remained in place. The topotype of this 0 strain has not yet been established.

In October 2000, Uruguay reported its first outbreak of FMD since June 1990. The outbreak occurred close to the border with Brazil. FMD type O was reported as the causal agent. The control measures used were stamping out and strict movement controls.

Situation in Greece

Dr. Panagiotatos presented a paper on the outbreaks of FMD Asia 1 in Greece in the summer of 2000 (Appendix 2). He reported that foot-and-mouth disease (FMD) had occurred 3 times in Greece in the last 7 years. The last episode which took place in the Prefecture of Evros in September 1996 was due to serotype O. FMDV type Asia 1 was last recorded in Greece in 1961 also in Evros Prefecture.

He reported that FMD was suspected on 10 July, and confirmed on 11 July, in the Evros Delta on the Greek -Turkish border. The estimated date of primary infection is 2 July ± 1 day.

He reported that the nucleotide sequencing data from the WRL demonstrated that the FMDV strain isolated in Greece was very similar to the FMDV type Asia 1 strains isolated in Asiatic Turkey in 1999 and 2000 and that he considered Turkey to be the origin of the disease.

In total, approximately 5,400 bovines, 2,300 sheep/goats and 300 pigs were killed and destroyed either in the outbreaks or in contact holdings.

According to the assessment of the Greek Authorities, there were three primary incursions of FMD along a 60-km front of the Evros river. In all cases the working hypothesis for transmission was direct or indirect contact of animals across the border. Spreading of FMD to Xanthi was due to the "human factor", as a result of either criminal negligence or premeditated action.

Eradication of FMD was achieved by applying a stamping out / non vaccination policy and verified by a serological investigation. In the light of experience gained during combating FMD, the following relevant actions have been undertaken by the Greek Authorities :

- The judicial principle of co-liability has been introduced
- Increased requirements for supporting documentation for payment of compensation
- Financial sanctions to beneficiaries have been introduced, in proportion to their established co-liability in spreading disease
- The entire legal framework of compensation procedures and conditions is being reviewed and suitable amendments are being planned for the year 2001
- The National Contingency Plan for combating FMD has been reviewed and enhanced
- The Athens Institute of FMD has been reinforced to increase the speed and reliability of diagnosis
- A new risk assessment study is being carried out
- A multi-disciplinary Seminar was organized with the various Services involved in combating exotic diseases to introduce the new Contingency Plan

Update from the WRL

Dr. Donaldson reported on the characterisation of FMD isolates carried out at the WRL in 1999-2000. He presented various dendrograms and maps (Appendix 3). He confirmed that the Asia 1 isolate from the Greek outbreak was almost identical to the Asia 1 strains circulating in Anatolian Turkey and Iran in 1999 and 2000. He proposed that the probable origin of this strain was India in 1995, which then spread to Pakistan in 1998 and from there to Iran and Turkey in 1999, and finally to Greece in 2000.

He continued by reporting the complex situation regarding the different type A strains circulating in Turkey and Iran. Research at the WRL has demonstrated that recent A strains in the region tend to replace the older strains. For example, the introduction of the Iran-96 and Iran-99 strains has resulted in the disappearance of older type A strains. At the moment both of these topotypes are present in Turkey and Iran, however, the re-emergence of an Indian/Middle Eastern (A_{22}-like) topotype in Iran must be considered as a new threat to Turkey.

He expressed his regret that the WRL has not yet received samples of the type O isolates from the outbreaks in Brazil and Uruguay and so he could not report on the characteristics of the strains involved in these outbreaks. He informed the meeting that the strain isolated in Argentina was an A_{24} strain very similar to A_{24}/Cruzeiro/BRA/55 a typical vaccine strain. He suggested that the origin of the outbreak in Argentina could therefore be related to a problem with vaccine quality in a neighbouring country or to a laboratory escape.

He continued by describing the situation in Asia where new outbreaks were caused by the O PanAsia topotype. This topotype was responsible for outbreaks in 2000 in Russia, Mongolia, Republic of Korea, Japan, Taiwan POC and South Africa. He also reported that the same topotype had varying pathogenicity for different species and breeds of animals.

Discussion

Dr Marabelli was disappointed at the lack of reporting of FMD outbreaks and serotypes to OIE from many countries.

Dr. Leforban pointed out that Argentina did not lose its FMD status although virus was isolated from one probang sample. Dr. Donaldson reminded the meeting that the EUFMD had endorsed a definition of an outbreak following the recommendations of the Session of the Research Group held in Vladimir, Russia in 1995, and that under that definition, when evidence of active infection is demonstrated, as in the Argentinean case, an outbreak should be declared.

In response to a question from Dr. Liven asking him to explain why the FMD situation had deteriorated so markedly in 2000, Dr. Donaldson speculated that with increased global trade there was pressure to buy animal feedstuffs from the cheapest source and, for example, this led to Japan purchasing fodder from China when the price of hay in Canada had increased. He reminded the meeting that there is circumstantial evidence that FMD could have been introduced to Australia with a shipment of hay from the UK in 1872. He continued by suggesting that prices are an extremely important determinant of animal movement, both legal and illegal, for example, from Afghanistan to Turkey. He also suggested that price differentials may have been the basis of live animal movement into Argentina and Uruguay. He continued by outlining that veterinary services were in decline in many areas of the world and that in the South African outbreak the authorities faced a very sensitive political problem in the implementation of the slaughter policy in communal areas.

In response to another question from Dr. Liven about the improvement in the situation in North Africa, Dr. Leforban explained that the situation had been progressively improving since 1999 and that vaccination programs had been implemented in these countries. Significant improvement of the surveillance has been obtained in Algeria with the assistance of FAO.

Dr. Marabelli attributed the problems to increasing global trade and the fact that veterinary expertise was not getting a voice in the major trading decisions. He regretted that economics were getting priority over safe animal health conditions applied to trade and that many poorer countries could not afford to maintain veterinary services and guarantee the quality of the output of those veterinary services.

Dr. Liven summarised by highlighting the fact that the world was changing, that trade will continue to increase and that the FMD situation had deteriorated and that these facts must be included in all future strategic thinking.

Dr. Celeda supported the dissemination of maps and information on the reporting of FMD on the Commission web-site.

Prof. Zwingmann pointed out that the maps presented do not give an accurate picture of the situation and risks in many countries because they do not indicate the vaccination and control policies in operation.

In response to questions from Dr. Donaldson and Dr. De Clercq, Dr. Panagiotatos reported that Greece had considered other potential sources of the Asia 1 virus such as the Middle East via ports or airports, but that this hypothesis had been rejected due to the closeness of the relationship with the Turkish strains and the unlikely entry of animals through ports or other border crossings.

Dr. Leforban added that deficiencies found by the joint EC/EUFMD mission were rectified after the mission and that the Greek Veterinary Service had been efficient in controlling the disease.

Dr. Marabelli supported Dr. Panagiotatos' demand that some concrete programme should come from this experience and that it should be a central aspect of the future work of the Commission.

In response to a question from Dr. De Clercq on how the type O virus could have travelled such distances from Korea to South Africa, Dr. Füssel responded by highlighting the special legal provisions that allowed ship suppliers to source food from any source and to use Free-Port areas to store and transport goods without the control of the Veterinary Services. He also pointed out that rules on treating swill were not always applied. Dr. De Clercq responded by suggesting that the increased cost of oil and fuel made heat treatments more expensive.

In response to a question from Dr. Füssel, Dr. Donaldson explained that the O and Asia 1 strains in the European Vaccine bank would cover the currently circulating O and Asia 1 viruses.

Conclusions

The Committee recognises that the FMD situation in the world deteriorated dramatically in the year 2000 with enormous financial and trade consequences. Many countries with long histories of freedom from disease and with sophisticated veterinary services and control measures have had outbreaks of FMD that have cost billions of dollars in lost trade and control measures. This has occurred not just in isolated areas but in a ring all around the traditional boundaries of FMD: Mongolia, Russia, Republic of Korea, Japan, South Africa, Uruguay and most important for Europe, Greece.

The Committee welcomes the latest legal, financial and technical improvements that Greece has introduced in its control programme and congratulates the Veterinary Services on their prompt and efficient stamping out of the outbreak of Asia 1.

Recommendations

The Commission strongly recommends that:

1. all countries and organisations recognise the increase in trade, both legal and illegal, and the deterioration of the FMD situation world-wide and that they should reappraise their strategies and operations to account for these new realities.
2. the EU and other European vaccine banks include strains A/Iran/96 and A/Iran/99.
3. the definition of an outbreak of FMD as laid down by the Research Group of EUFMD should be forwarded to OIE as a suggestion to amend OIE's definition.

Item 3. Report on the FMD situation and control Programme in Turkey:

Report of Turkey

Dr Musa Arik presented a report on the situation of FMD in Turkey for the last 10 months (Appendix 4). 100 outbreaks had been reported mainly due to type Asia 1, 52 outbreaks, to type O, 43 outbreaks and four were due to type A. Type A has not been reported since April

2000. He also presented maps with distribution of FMDV in Provinces by types. Types Asia 1 and O are widespread all around the country while Type A occurred only in three provinces.

He also presented the spring and autumn vaccination programs for 2000. In the present situation and due to the lack of vaccine the vaccination programme was as follows:

Spring vaccination campaign 2000:
- Thrace Provinces (Edirne, Tekirdağ, Kırklareli, European part of Istanbul and Çanakkale) and the Marmara Sea Provinces (Balıkesir, Yalova, Bursa, Kocaeli, Sakarya, Bilecik Bolu and Anatolian parts of Istanbul and Çanakkale): vaccination with bivalent vaccine (A and O types),
- Black sea region: strategic vaccination with type O. Disease has not been reported for many years in the region,
- In the other regions: Monovalent vaccination (O type),
- In the case of A or Asia-1 type outbreaks, additional ring vaccination with monovalent vaccine nation wide.

Autumn vaccination campaign 2000:
In Thrace and the Anatolian parts of Istanbul and Canakkale Provinces, all large and small ruminants would be vaccinated with trivalent (O_1, A_{22} , Asia1) vaccine supplied by EU.
In Anatolia all large ruminants would be vaccinated with trivalent (O1 Manisa, A Aydin 98, Asia 1) vaccine.

A total of 8 948 000 doses of (monovalent, bivalent or trivalent) FMD vaccines have been produced at the Sap Institute in 2000.

The spring vaccination was completed in two months (February and March). In Thrace 74 and 51 % of large and small ruminants have been vaccinated respectively. In Anatolia vaccination covered 51 % of large ruminants and 8 % of small ruminants.

For the autumn campaign 1.3 million of trivalent vaccine (O, A22, Asia 1) have been provided by EU from the EU bank for vaccination in Thrace. Out of this vaccine 750 000 doses have been delivered to the provinces, the rest (543 000 doses) being kept at Pendik Institute. So far (beginning of November) 80 % of large ruminants and 31 % of small ruminants have been vaccinated in Thrace and the Anatolian parts of the Provinces of Istanbul and Canakkale. However, there are discrepancies between provinces where maximum and minimum for large and small ruminants are respectively 88-71 % and 11-62%. Following the vaccination a serosurvey will be conducted. The serosurvey will be modified according to the recommendations of the EUFMD Secretariat. Turkey requested assistance with the supply of 3ABC ELISA reagents.

In Anatolia vaccination is concentrated on cattle. The vaccination campaign started from the eastern provinces of Turkey from the border to the interior. Trivalent vaccine locally produced has been used in Eastern and central provinces and 750 000 additional doses of imported vaccine (from Intervet) have been used in Western Anatolia.

Active surveillance has been carried out especially along the borders in eastern provinces. Training of staff and awareness campaigns has been organised. Farmers were also encouraged to slaughter their animals in slaughterhouses in Eastern Anatolia instead of transporting them to the west. The Minister of Agriculture has circulated instructions to the Governors of provinces along the border for emergency actions to be taken. Dr Arik explained that Turkey has made serious effort to improve FMD control: this includes the training of Veterinarians (from public and private sectors), the re-furbishment of and the purchase of new equipment

for the Sap Institute, awareness campaigns, and support to animal markets. At the end of his presentation Dr Arik presented the priority actions to be supported in Turkey:

- The European Union may contribute to the efforts of Turkey through the installation of filtration and concentration system for vaccine production
- Direct assistance for FMD vaccine production in Turkey
- Quality assurance and quality control of the vaccine produced in Turkey
- Improvement of Road Inspection Posts
- Improvement of Border Inspection Posts
- Improvement of Animal Markets
- Identification of Cattle
- Supply of reagents for 3 ABC ELISA

Report of the Tripartite meeting

Dr Leforban presented briefly the conclusions and recommendations of the Tripartite Group meeting held in Istanbul on 20 October (Appendix 5). The meeting was attended by representatives of Bulgaria, Greece, Turkey, EC, OIE, and EUFMD. The situation of FMD in Greece and Turkey was presented and the origin of the Asia 1 outbreak in Greece was discussed at length. The representative of Greece had no doubt that the origin was Turkey and most likely Turkish Thrace whereas the representative of Turkey confirmed that there was no evidence of FMD in Thrace. The Secretary regretted that the regional meeting between Greece and Turkey at the time of the EC/EUFMD mission between 24 and 28 July could not be accepted by Turkey.

Dr Leforban explained that Bulgaria continues to carry out serosurveillance on its border with Turkey and that 20 000 sera had been tested in 1999 with negative results.

In general the Tripartite meetings for the Balkans have been useful. However, the participants in these meetings felt that there was no mechanism for following up the recommendations of these meetings and, therefore, the implementation in the field had been limited. Based on this situation the Tripartite Group had requested the Secretary to prepare a framework for a regional programme. Countries and international organisations have added their contributions to the document which was circulated to the participants and will be discussed by the next meeting. The Secretary informed the meeting that the NSP ELISA had been validated in the three national laboratories and there is now a need for the countries in the region to be encouraged to use the NSP test for their serosurveillance. The series of technical meetings between the laboratories should be continued and the next meeting in 2001 should be devoted to comparing the results obtained in serosurveillance with the NSP ELISA.

The Tripartite meeting also discussed the situation of exotic diseases other than FMD in the region (Bluetongue, sheep and goat pox, PPR) and Greece raised the issue related to restriction of trade between countries related to the disease situation in the region.

Report of the EUFMD Mission to Thrace

In response to the Asia 1 outbreak in Greece, the EC provided trivalent vaccine to Turkey for use in Thrace in September 2000. An EC mission was sent to inspect the vaccination campaign and the EUFMD expert accompanied this EC mission in order to offer advice on vaccination and serosurveillance, to assess the progress of the FAO TCP project and to evaluate the implementation of the previous joint EC/EUFMD mission to Thrace in 1998. Dr Ryan presented the background, terms of reference, itinerary, conclusions and recommendations of his mission (Appendix 6).

The mission took place from 2 to 6 October and the team visited the Pendik Institute, Istanbul, and the Provinces of Edirne, Kirklareli, and Tekirdag, the FAO Representation in Ankara, the SAP Institute and the HQ of GDPC, MARA.

Regarding the role of Pendik Institute, he concluded that Pendik was a very important institute in the region but that all FMD laboratory activities and expertise were centralised in the SAP Institute. He recommended that Pendik continue and strengthen its current co-ordinating, training, advisory and support role to the FMD control activities in Thrace.

Regarding the visits in Thrace, he concluded that there was no evidence of clinical FMD in Thrace in the recent past, but that the possibility of silent or sub-clinical infection remained especially in small ruminants. He recommended that Turkey demonstrate that Thrace was free from disease by active clinical surveillance at the time of vaccination and by conducting well planned serosurveys using the NSP ELISA test.

He identified the following improvements since the last mission in 1998:

- vaccination now starts from the Greek and Bulgarian borders
- the campaign lasted less than 2 months
- vaccine losses appear to be reduced due to the use of 50 dose bottles
- more complete tagging of the animal population
- vaccination teams have better information on livestock populations at the beginning of the day
- written protocols on vaccination and disinfection are distributed to the vaccination teams

He pointed out that there were no improvements since the 1998 mission in the following areas:

- no recording of identification tags
- absence of auditable documentation on vaccine usage, storage and wastage
- deficiencies in the maintenance of the cold chain and absence of temperature recording
- no clinical examinations
- sub-optimal vaccination hygiene and procedures

He continued by reporting that in general farmers supported the vaccination campaigns and had a healthy respect for and fear of FMD. He reported that the level of tagging of bovines was high, but that this resource was under-utilised for the planning of vaccination campaigns, for the control of animal movements and for the control of disease.

He stated that the Turkish veterinary services had planned to undertake a serosurvey after the vaccination campaign and that the secretariat had made some suggested modifications to this plan in order to increase the chance that the serosurvey would detect virus circulation through the use of the Non-Structural Protein (3ABC) ELISA. To verify the absence of circulation of virus in Thrace using the 3ABC ELISA would require a very large number of samples and is not a feasible goal for this survey.
He recommended that Turkey pursue a policy leading to a declaration of Thrace as a zone free of FMD, initially with vaccination and then later on without vaccination.

Discussion

In response to Prof. Zwingmann's question about the absence of evidence of FMD in Thrace, Dr Arik explained that the Ministry had sent special instructions to the Governors of the Provinces of Thrace to conduct this surveillance and that in general these provinces are rich, and well equipped. He assured the Committee that the surveillance had been thoroughly carried out in Thrace.

Dr Celeda suggested that even if there are still weak points, Turkey should be encouraged to seek OIE official status for Thrace (free with vaccination in the medium term).

Dr Cheneau recalled to the Committee that a large programme had been prepared by Turkey three years ago. Since then limited support has been provided to Turkey for protecting Europe. He was of the opinion that the policy and support to Turkey must be consistent. Europe did either too little or too much. There are now more than a 100 outbreaks and 3 types circulating. Consideration should be given to the enlargement policy of the European Union.

Dr Panagiotatos questioned the level of vaccination coverage in Edirne Province and Dr Arik replied that the percentages are 83% and 28 % in large and small ruminants respectively.

Dr Liven asked the representative of the Research Group and of the WRL which percentage of coverage was considered as sufficient to protect a population. Dr Donaldson answered that 80 % is considered as the lower limit but distinction must be made between vaccination and protection. 80 % protection (LPBE titre> 100) should control clinical disease but is not sufficient to ensure a sterile immunity in individual animals.

Dr Liven also asked Dr Arik what are the constraints to achieving a better vaccination coverage. Dr Arik answered that figures for livestock are over estimated and therefore the coverage is higher than indicated (probably 95 % in cattle). But he admitted that certain farmers refused to vaccinate ewes as they were in-lamb and this explains the lower figures in sheep. Dr Liven considered that this low coverage of vaccine in certain areas in Turkey has no effect on protection and therefore it is a waste of money.

Dr Füssel asked Dr Arik how he could explain the 1.3 million doses of vaccine requested for vaccination in Thrace if with 757 000 doses used so far they have completed the campaign. Dr Arik replied that only the first round of the campaign had now been completed and that nearly all cattle had been vaccinated in this round, but that the second round of vaccination would cover the unvaccinated cattle and sheep. This second round is currently in progress and at the end of the second round a full report will be sent to the EC. In addition Dr Arik explained that certain discrepancies may be due to the fact that the animal population has decreased in Thrace due to the sale of breeding animals to Anatolia since the last census in 1998.

Dr Füssel stated that according to his calculations the number of doses of trivalent vaccine used for vaccination in Anatolia was only 3,225,000 doses, and the number of large ruminants in that area is 10.8 million.

Dr Panagiotatos stated that there was a need for concrete action in Thrace in addition to the vaccination and suggested that an ongoing surveillance be put in place in the three countries on the model of what has been done in Greece through the Evros program. He also informed the Committee that an outbreak of Sheep Pox had occurred in Orestiada recently.

Dr Belev stated that the Government of Turkey must be convinced at the highest level by all means possible of the importance of FMD control.

Conclusions

Dr Marabelli concluded that the objectives of EUFMD for the last years which were to protect Europe had been partially fulfilled and few outbreaks had occurred in Europe during this period.

The question of the quality of FMD vaccine was essential and all vaccine produced locally should be controlled in an Official Institute.

Recommendations

1. A comprehensive evaluation of what has happened in Turkey during the last decade and of the projects undertaken to combat FMD in Turkey should be prepared by one expert under the supervision of the EUFMD Secretariat and presented to the 34th Session. This should permit the identification of the bottle necks and provide a guide for future strategy.
2. A new situation has occurred with Turkey becoming a candidate to accession to EU and a new long-term strategy must be defined taking into consideration the new status of Turkey vis-à-vis the EU.
3. Turkey should make an official approach to the EC (Directorate General for Enlargement) requesting support for the costly and long-term actions that they have mentioned in their report: identification of animals, BIPs, road inspection posts, etc..
4. Turkey should prepare two different evaluations one for Thrace and one for the whole of Turkey which should be submitted to the EUFMD Commission. Meanwhile Turkey should also provide a clear picture of the real situation in respect of virus circulation in Thrace and in Anatolia obtained through the serosurveys.
5. The EUFMD Commission must continue to guide Turkey in short term activities related to the control of the border areas between the three countries of the Balkans and on a global approach to FMD control in Anatolia. Based on that, the Commission will decide what Europe should do regarding Turkey in 2001-2002: whether Europe continues to deal only with the western part and mainly with Thrace or if a support to a nationwide control programme can be envisaged.
6. On-going surveillance programmes should be put in place in the three countries of the Balkans at the border areas in Thrace.
7. Technical meetings between national laboratories in the region should be arranged and the next meeting will be devoted to a comparison of NSP ELISA results.

Item 4. Situation in CIS countries:

The Chairman asked Dr Belev to present the general situation of FMD in the region.
Dr Belev explained that he had presented to the CVOs of CIS the conclusions and recommendations of the EC/EUFMD mission to the Caucasus prepared in English and in Russian (see below and Appendix 7). He informed the Committee that a Meeting of Prime Ministers of CIS will be held on 16/17 December to which he will also address the importance of a Buffer Zone and of FMD control in the region. He explained the difficulties of the countries of the region to obtain sufficient quantities of vaccine. Azerbaijan and Turkmenistan can only buy 15 to 20 % of their requirements. It must also be understood that the interest of certain countries is to protect themselves and not to protect Europe.

Report of the Mission to Caucasus in June - July 2000

Dr Leforban presented the report of the European mission which visited the Transcaucasian countries from 24 June to 9 July 2000. The mission was organised by EUFMD and sponsored jointly by EUFMD and EC. One expert from ARRIAH, Vladimir, Russia, also participated in the mission. The mission visited successively: Azerbaijan (mainly Nachichevan), Armenia and Georgia.

The terms of reference of the mission included: the assessment of the current situation of FMD in the region and of the activities carried out by ARRIAH in the region in 1999 and 2000 under the Letters of Agreement (LOA's). An additional objective was to update the evaluation of the risk of introduction of FMD into Europe from the region. At the end of the mission, a final meeting was organised in Tbilissi, Georgia, where the conclusions and recommendations of the mission were presented and discussed between the experts and the CVO's of two of the three countries (Appendix 7).

The mission concluded that FMD is rarely reported in the three countries but there are indications that FMD is endemic in the region. This had been confirmed by the serosurvey carried out by ARRIAH (using the 3ABC ELISA). FMD virus circulates in the region. Types O and A have been identified respectively in Georgia (in May 2000) and in Armenia (in July 1998). The mission team visited one FMD outbreak in Georgia at the border with Armenia where they collected samples from which virus of Asia 1 type had been isolated at the ARRIAH. Animal epizootic diseases including FMD are controlled according to the former USSR regulations in the three countries. The current FMD measures include quarantine, control of movement, ring vaccination with bi or trivalent vaccine. However, due to a lack of resources these measures are not properly implemented. National plans for yearly preventive vaccination are prepared in the three countries but the plans are not implemented and not controlled by the National Veterinary Services. In principle vaccination campaigns are carried out in spring and autumn but in fact the vaccination continues from October to April, depending on vaccine availability. The mission also noticed an anarchic utilisation of different vaccines from ARRIAH, Shalkovo and locally produced lapinised vaccine.

ARRIAH supplied 1 million doses of bivalent vaccines (against types O and A) to the countries in the region in accordance with the Letter of Agreement signed in 1999 with FAO. This vaccine has been used for the autumn vaccination campaign in Nachichevan and along southern borders in Armenia and in Georgia. ARRIAH organised a serosurvey in 1999 and the results of the serosurvey were presented to the Research Group meeting in Borovets. While this supply of vaccine has been useful in helping the countries to get FMD vaccine, the mission considered that the objective of establishing a buffer zone at the southern border has not been reached. Another LOA for the year 2000 was signed with ARRIAH with the same program as the one for 1999. The mission team visited the place of storage of vaccine in Baku, Yerevan and Tbilissi. The vaccine provided for the year 2000 was received from ARRIAH in early June 2000. It was still in the cold room in Yerevan and Tbilissi while in Azerbaijan it had been distributed to the Veterinary Districts in Nachichevan but not used at the time of the visit.

Under the LOA's, ARRIAH should have also reinforced the diagnostic capabilities in the region and provided training to the staff in laboratories. Referring to the findings of the mission, this part of the project has only been partially implemented. FMD diagnostic capabilities are still very weak and none of the FMD laboratories in the region carry out serology. Virulent material is rarely sent to the laboratories (only one sample received

within two years in Tbilissi laboratory, no sample received in Baku). Progress should also be made in reporting to OIE and international organisations.

Dr Leforban stated that the question was whether the project should be continued and under which form. Considering the findings of the mission it was recommended by the mission team that if the project should be pursued it should have more realistic objectives:

- introduction of basic measures for surveillance and control of FMD
- re-examine the input of ARRIAH in the surveillance
- examine the possibility to establish a vaccine bank for the region

Dr Leforban also reminded the Committee that it was not possible to continue to pay under the FAO/EC Trust Fund as has been the case for the years 1999 and 2000 due to depletion of the funds following disbursement against the relevant letters of agreement. (US$680,000 over 1999 and 2000).

Discussion

Dr Liven stated that the question was not whether to vaccinate or not but that a prerequisite for efficient action was not present in the Caucasus.

Dr De Clercq said that it was not realistic to expect improvement of the Veterinary Services in the region in the short term.

Prof. Zwingmann explained that in the absence of a clear strategy by the countries themselves, nothing can be efficient in the project. Therefore, they must express their own interest to combat the disease and Europe should restrict its support to those countries which commit themselves. The vaccine bank will not solve the problem in the absence of interest. Globalisation of trade makes improvement of the animal health situation in CIS important to Europe. As they are potential trading partners it is important to support them. This question will be addressed at the next OIE Conference.

Dr Belev supported this view and recommended that the CVO's of CIS visit veterinary services in EU countries to learn how they should work in future. He regretted that out of millions of dollars allocated by EU to Armenia and Georgia no funds had been used to improve the Veterinary Services. Dr Füssel explained that TACIS supports the Veterinary Service in many countries in the region; in the case of Kirgizstan it was up to 70 % of the veterinary budget. He agreed that the interest of TACIS is focused more on social and economic aspects such as small farmers rather than on combatting animal diseases. However, as was seen during the mission, it is the economic situation in the countries that makes disease control difficult if not impossible. In this case the establishment of a real farming community would be helpful also for disease control. The requests to TACIS for supporting the Veterinary Services and animal health must be addressed by the countries themselves.

Dr Belev admitted that since 1990 the discipline which had previously existed in USSR had disappeared and even ARRIAH has difficulties in working with the countries of the region. Countries must be forced to take the appropriate measures which will be decided by their Ministers. This is the reason why important policy matters like the buffer zone must be addressed directly to the Ministers.

Expressing the opinion of his hierarchy, Dr Füssel informed the Committee that based on the conclusions of the report, the EC was reluctant to continue the project in the

Caucasus. The EC is also of the opinion that given the permanent shortfalls in vaccines in these countries, the operation of a common vaccine bank would be difficult to control.

Dr Marabelli explained that the decision for the programme in CIS was taken two years ago in a context where the veterinary services of the countries was improving. However, since then the general situation had worsened and this has had a negative impact on the animal disease situation. Nevertheless, he considered that the project in Caucasus had positive impacts on the Veterinary Services indicating to them that Europe takes interest in their situation. The project also provides a true picture of the real situation which is important for Europe and its future inputs in the region. He agreed that specific constraints like the weakness of the veterinary services and the constant change in the CVOs jeopardised the impact of the project.

Recommendation

A clear message should now be addressed to the CVOs of CIS:
- they must make their own evaluation on the basis of the mission report and prepare their own programme
- they should be invited to the 34th Session of the EUFMD Commission in March 2001
- European countries could consider support for the CIS countries in FMD control when the structure of the Veterinary Services has been stabilised

Item 5. Report on the activities of the Research Group :

Session of the Research Group of the Standing Technical Committee of the European Commission for the Control of Foot-and-Mouth Disease, Borovets, Bulgaria, 5-8 September 2000

Dr. De Clercq, Chairman of the Group, reported to the Committee on the Session of the Group held in Bulgaria (Appendix 8). The Session was attended by the members of the Group and 53 observers from 22 countries. He presented the main conclusions and recommendations of the Session to the Committee.

The pandemic strain of FMDV serotype O with variable pathogenicity and the FMD situation in Turkey is a major threat to Europe.

The deterioration of FMD control procedures in Transcaucas and Central Asia has increased the risk particularly for the Russian Federation. *The RG strongly recommended that ARRIAH sends the FMD virus isolates, which it receives from the ex-USSR countries to the WRL.*

A series of recommended actions and strategies were presented which aim to achieve particular control and eradication objectives under different circumstances in which sheep are a major component of the livestock population.

Measures to reduce the risk associated with trade in intestines for sausage casings should be discussed soon.

An overview was given of the new developments in FMD diagnostics:
- immortalisation of primary cells for virus isolation
- type independent detection of FMDV antigen by ELISA
- combination of immunocapture PCR with PCR-ELISA to increase the capacity

- chromatographic strips as a pen-side preliminary diagnosis
- quantitative diagnosis of FMDV and models to predict airborne spread based on the minimal aerosol infective doses of FMDV for pigs

From Phase XVI of the Collaborative Laboratory Study it was concluded that:-

The reference sera (O_1 Manisa, A_{22} Iraq and C_1 Oberbayern) should be recommended to OIE as the international reference standards. The next FAO Phase XVII Collaborative Laboratory Study should supply candidate reference sera for the O PanAsia, A Iran '96 and Asia 1. Some of these sera should be post-infection which could be tested for the presence of antibodies to non-structural proteins as a first step towards identifying reference sera.
- A comparison should be made between low titre serum produced naturally and that produced artificially.
The RG recommended that the solid phase competition ELISA should be tested by national laboratories of member countries to replace the LPB ELISA.

The RG thought that research on methods to obtain a higher immune response after vaccination through different ways should be encouraged. Also the feasibility of developing a practical PD_{50} test in pigs should be considered.

From the risk analysis by an Expert Elicitation Workshop
The RG recommended that further methods should be examined for analysing the risk of introduction of FMD to Europe involving the gathering in advance of relevant data in relation to trade prices, volumes and movements.

At the Closed Session members of the Group expressed their concern:

- regarding the level of protection against A Iran '96 after vaccination in Thrace with a trivalent vaccine, which includes the A22 strain [Note: A Iran96 was at that time not available in the EC antigen bank].

- on the depletion of the EU bank following the supply of FMD vaccine of O type to Japan, the Republic of Korea [Note: These quantities of antigen are replaced since October 2000] and Turkey [Note: These quantities are going to be replaced in the framework of a tender recently submitted for approval by the EC budget authorities.]

It was suggested that another Workshop on NSP ELISA be organised if necessary.

The Group was informed by the Secretary about the ongoing discussion between the EUFMD/FAO and EC for the signature of a new four-year agreement on the utilisation of the Trust Fund.

The lack of protection against A Iran 96 in Thrace after the current vaccination is of concern as well as the depletion of the EU vaccine bank.

Report of the Workshop on FMD Risk Analysis in Borovets, Bulgaria, 4-5 September 2000

Dr Ryan presented the results of the Expert Elicitation Workshop on the Risk of Introduction of FMD to Europe held in Borovets, Bulgaria, immediately preceding the Research Group Meeting (Appendix 9). The objective of this workshop was to examine

the risk of primary introductions of FMD to Europe by using the elicitation of expert opinion to answer the following 3 key questions:

Which part of Europe is most likely to be affected?
Where outside Europe is the disease most likely to come from?
How or by what route is the virus most likely to be transmitted?

In order to reduce the complexity of the workshop, European countries were placed into 5 groups and countries that represented possible sources of FMD were placed into 8 source or external groups. A limited list of 15 routes of introduction were used.
The workshop method itself used a modified Delphi Technique, where two iterations of the same questionnaire took place with lengthy discussions on the results of questionnaire one taking place before questionnaire two was completed. The questioning method used was a direct elicitation of conditional probabilities.

There were 4 levels of questioning:

1. For each of the European Groups - what is the probability of a primary introduction of FMD in the next 5 years from any source and from any route.
2. For each of the European Groups (assuming an introduction has taken place) - what is the probability that each source group was the source.
3. For each European group - source group pairing (assuming an introduction between the pair) - what is the probability that each route was the route of introduction.
4. Finally, each expert was asked to predict the minimum, most likely and maximum number of primary outbreaks in each European group over the next 5 years.

There was good convergence in the results of the different experts. Although there were 20 experts participating from many countries across Europe, there was no "weighing" of the experts' opinions.

The results indicated that the Balkans is perceived to be the area most at risk from introductions of FMD, Eastern Europe was second, with Southern Europe a distant third.
The results indicated that Turkey is perceived to represent the greatest risk to Europe, with the Russia/Eastern Europe Group, Middle East Group and Caucasus/Central Asia Group perceived to represent similar risks for Europe but a much reduced risk compared to Turkey.
The results indicated that the most likely routes of introduction of FMD to Europe were through illegal import of live animals, meat or other animal products or through the activities of tourists and immigrants.
The results will be very useful in directing the attention of decision makers and risk managers to the main risks of introduction of FMD. The results of a workshop like this are certainly an improvement on other methods such as informal analysis of risks by an individual or by a small group from only one country.
The problems encountered were that no formal data presentation step was included, it was very long and very difficult for the experts, not enough time for discussions, the profile of the participating experts could have been widened to include epidemiologists and Veterinary Service Staff and policy makers, it was not computerised and some risks did not fit in the framework such as laboratory escapes.

The feedback from the participating experts was good, and it was concluded that it was an interesting and useful exercise, that a lot of methodological lessons were learnt, and

that it was extremely cost effective to utilise the gathering of experts for the Research Group.

A number of possibilities for future work in this area were presented.

Discussion

The Chairman congratulated Dr De Clercq, Dr. Ryan and the Research Group for their excellent work.

Dr. Cheneau congratulated both speakers on their presentations. He expressed his satisfaction at the excellent guidelines prepared by Dr. Donaldson on the various control strategies to be used to combat FMD in small ruminants in different scenarios. He stressed the fundamental importance of good decision aids for policy makers and he expressed his belief that the expert elicitation exercise was a useful model to provide answers to complex questions. He also suggested that future expert elicitation sessions should involve epidemiologists and people from industry. He expressed his support for continuing activities in the area of risk analysis and expert elicitation.

Dr. Hallet also congratulated both speakers. He stressed the need to respond to the findings of the risk analysis and the importance of gathering information on the movements of international travellers. He reported that in his experiences of international travel, there were few good examples of controls applied to travellers in airports. He suggested that it would be useful if airline companies announced to the passengers prior to landing that they must declare all foodstuffs to the authorities on arrival in Europe.

Dr. Marabelli agreed with Dr. Hallet on the lack of strict controls on travellers at airports and suggested that Europeans were in general too polite to enforce strict controls or restrictions on the movements of people. He suggested that more information in-flight and by posters in the airports would be useful, but that penalties should also be enforced for non-compliance as the USA does.

Prof. Zwingmann stressed that the quantities of food carried with travellers were very large and that information campaigns alone would not be sufficient. He reported that an eminent German scientist had expressed the belief that there were regular introductions of FMD virus to Germany, but that fortunately this contamination had not reached any susceptible animals so far. He continued by expressing his belief that measures at airports should be improved, that strong legal controls were necessary and that the EC should do more to support the veterinary services in implementing these measures. Dr. Marabelli agreed with this proposal and suggested that the Food and Veterinary Office of the EC in Dublin, Ireland could carry out inspections of the measures taken in ports, border posts and airports.

Dr. Leforban reminded the participants that this issue had been raised at previous meetings and that he had presented a qualitative risk analysis on the risks from tourists and transport to the Executive Committee meeting in Oslo in 1998. He added that based on recommendations from that meeting, the secretariat had prepared and distributed information for public awareness in most European languages. He further suggested if the committee feels it appropriate that EUFMD-FAO could design and print large quantities of these leaflets in many languages for distribution throughout Europe.

Dr. Liven suggested that in the future, epidemiology in its widest sense should be applied to the management of risk. He believed that this should involve not only the identification of the risks, but the management of and communication on those risks also. In terms of risk communication, he suggested that traditionally, veterinarians were poor at communicating risks both to decisions makers and especially to the public and that this was a priority for change. He also stressed that resources must be allocated to risk analysis, risk communication and risk management both within the member countries and within the Commission.

Dr. Ryan suggested that it was not just veterinarians who were concerned by the introduction of exotic organisms, but that medical doctors, agriculturists and environmentalists were also facing at the same issues and problems. He suggested that a combined approach to the control of introduction of exotic species by travellers at ports, airports and border crossings would be more productive. New Zealand's combined approach to Biosecurity may provide valuable lessons for Europe.

Dr. Füssel reminded the meeting that the risk of disease transmission by travellers was known for a long time, but that there were political and practical problems in trying to control movements. In terms of practical problems he suggested that controlling travellers would cause delays and chaos at large airports. He suggested that the controls would have to take place in the country of origin and for example that the US insists on confiscation of food from travellers from some developing countries before they board the aircraft and that they subsequently distribute the confiscated food to the poor. In terms of political problems, he informed the meeting that restricting the movement of people was a very sensitive issue and would be unlikely to succeed. He continued by highlighting that the legal powers to stop and control travellers at the borders was a job for the customs officials and that customs laws were fiercely defended by member states. To get harmonisation of customs laws on these issues would involve agreements on legislation to be agreed at a very high political level.

Dr. Hallet reminded the meeting that governments were under pressure to facilitate open borders and the movements of people and that in this context the risks of disease introduction were increasing.

Recommendations on the Report of the Research Group

1. The proposed series of recommended actions and strategies aiming to achieve particular control and eradication objectives under different circumstances in which sheep are a major component of the livestock population, should be considered as important guidelines by the Member countries.
2. Measures to reduce the risk associated with trade in intestines for sausage casings should be worked out.
3. Further research is encouraged on the epidemiology of FMD, FMD diagnostics and reference sera including sera for NSP ELISA. Contacts with the EP and EMEA should be continued and finalized. OIE should be informed.
4. Risk analysis should be developed further and future elicitations should include experts from the livestock and meat industries and veterinary experts in the control of trade. Another Workshop on NSP ELISA for other Member States can be organised.

The conclusions and recommendations of the Research Group were endorsed by the Committee

Conclusions on Risk Analysis Workshop

1. The Committee concluded that expert elicitation workshops are a useful decision support tool for the identification of the risks of introduction of FMD in Europe.
2. The Committee concluded that the risks identified by the expert elicitation should be responded to, especially in relation to the risks from tourists, immigrants and travellers where it was believed that current control measures are inadequate.
3. The Committee concluded that stronger Europe-wide legal measures were required to control the risks from tourists, immigrants and travellers.

Recommendations on Risk Analysis Workshop

1. That the secretariat continues to use expert elicitation to study the risks of introduction of FMD to Europe.
2. That in all future expert elicitation workshops, epidemiologists and experts from the livestock and meat industries are included.
3. That measures to control the risk of introduction of FMD by tourists and travellers at airports, ports and border crossings be strengthened through better information campaigns and stronger legal provisions.
4. That information on the risk of introduction of diseases to Europe be directed to the governments of member countries and the EC with a view to introducing strict legislation on the control of tourists, immigrants and travellers.

Item 6 Financial Report

Accounts 2000 (as at 30 September 2000); provisional budgets for the years 2001 and 2002

Ms Joan Raftery presented the provisional accounts as at 30 September 2000 (Appendix 10) for the Trust Funds monitored by the Commission: TF904200 MTF/INT/011/MUL (TFAA970089122), TF911100MTF/INT/001EEC (TFEU970089129), TF909700 MTF/INT/004/MUL (TFAA970089127) and TF081159 TEMP/INT/974/MSC (TFAA970099064).

She drew the Committee's attention to the interim nature of the report insofar as it did not reflect all expenditures incurred up to 30 September. She stated that all actual expenditures would be included in the Closure of Accounts for the year 2000 which would be prepared by the Organization's Finance Division in January 2001 and this would be submitted to the Thirty-fourth Session scheduled to be held in March 2001. Regarding the outstanding contributions at 30 September, the Secretary had reminded the member countries concerned by fax to meet their financial obligations to the Commission; the response was positive and contributions have since been received from Austria, Bulgaria (partial), Greece, Portugal and payment from Belgium and UK was under way. In the case of Yugoslavia, Legal Counsel had informed the secretariat that the FAO Council meeting in Rome on 20 November would take a decision on the way forward. This issue will be submitted to the Thirty-fourth Session.

She then presented the revised budget for TF904200 for the year 2001 and the proposed budget for the year 2002. Proposed budgets for the years 2001 and 2002 for TF's 911100 (as per the FAO/EC project doc) and TF909700 were also presented. The Committee was informed that budget proposals for the year 2003 would be submitted for adoption to the 34th Session and in line with current rules and procedures of the

Organization the budgets for the biennium 2002-2003 would thereafter be submitted to the Finance Committee in September 2001.

Report on the EC/FAO Agreement on the utilisation of Trust Fund MTF/INT/003/EEC 911100 (TFEU970089129)

Dr Leforban presented the progress made in the discussions between EC and FAO/EUFMD for establishing a new framework for the utilisation of the EC/EUFMD Trust Funds. Following the meeting held in Rome on 25 February, it was proposed that the Trust Fund should be managed jointly by the EC and the EUFMD under the form of a project with a specific budget. The implementing agreement is being finalised by the two organisations and the details of the agreement were presented. The purpose of this agreement is to establish financial rules for the EC Funded Permanent Activities carried out by the FAO European Commission for the Control of Foot and Mouth Disease. The two organisations have agreed on a 4 year project with a total cost of 1 million Euro paid by EC: the balance of the existing TF (US$ 226 404 as at 30 September 2000) is included in the project and it is proposed that a first payment to replenish the fund up to US$ one million should be made by EC. Dr Leforban informed the Committee that the exchange rate between the Euro and the US Dollar may affect the level of the fund in US$. For example one million Euro which was the equivalent of more than US$ one million in March 2000 now represents US$ 850 000.

It is proposed that:

- the project cover the period 2001 - 2004 instead of 2000-2003
- future reports of the Executive Committee meetings and of the Sessions of EUFMD be considered by EC as official technical and financial reports
- reimbursement of expenses up to a ceiling of one million Euro is made every year
- FAO should inform EC of any contract with third parties

Prior agreement of EC on all expenses is requested.
This is acceptable to EUFMD if there is a deadline for the answer from EC. The Secretary also suggested that standing permission be given to utilise the fund for specific activities listed up to a certain ceiling. The two latter proposals have not yet been agreed by EC.

Discussion

Dr Füssel regretted that discussions had not progressed more quickly. He explained that the Agreement should go through cumbersome procedures and clearances and was initially rejected on the basis that it did not follow the agreed EC/FAO rules of other existing projects. He agreed that the Euro/US$ could be a problem and EC is open to rebalancing the budget for the project. There is even a possibility that an important increase of the budget be considered especially if there are activities foreseen in Turkey under the project.

Following this presentation, the Committee instructed the Secretariat to pursue the discussions with EC on the utilisation of the Trust Fund. The view of FAO that a deadline for reply from the EC be included in the Agreement and that the utilisation of the fund for regular activities up to a certain ceiling be agreed was also supported.

The question related to the replenishment of the non-EU Trust Fund (TF909700) was raised during the discussion and the Secretary explained that this fund was not currently replenished.

After a discussion on the subject, it was agreed by the Committee that considering the critical situation of FMD and the threat to Europe, non-EU countries should also be asked to support the activities of the Commission as the EC does through its Trust Fund.

The Committee members raised the question about the possibility of having the EUFMD contributions and accounts in Euro instead of US$ to avoid a shortfall in the financial obligations of the member countries due to fluctuations in the exchange rate. The Secretary agreed to raise this question with FAO Finance Division.

Recommendations

1. A letter should be sent by the Secretary to the CVO's of non-EU countries informing them of the critical situation of FMD throughout the world and on the need to reinforce their vigilance and to consider the possibility of contributing to the non-EU Trust Fund (TF909700 MTF/INT/004/MUL) in order to give better support to the activities of EUFMD.
2. This question should be discussed by the Thirty-fourth Session and if requested by the Commission, the Director General of FAO could launch an appeal for funds to the governments as had been done in the past under such a critical situation.
3. The Secretariat should continue to follow-up on the question of outstanding contributions.
4. The Secretariat should investigate with FAO Finance Division the possibility of having the EUFMD contributions and accounts in Euro.

The Committee **adopted** and **approved** the accounts and budget as presented.

Item 7. Any other business

Follow-up of the proposal from the 64th Session regarding reinforcement of the surveillance of exotic diseases in the Balkan countries

This particular sub-item was not discussed and the Committee agreed that the conclusions and recommendations adopted by the 63rd and 64th Session of the Committee be presented to the 34th General Session.

Thirty-fourth Session

The Agenda for the Thirty-fourth Session was presented and accepted.

The Secretary explained that an invitation will be sent to Yugoslavia although its new status vis-à-vis the UN Organizations is not yet defined.

The list of observers to be invited was discussed and it was agreed that in addition to the usual observers invited, certain CIS countries will be invited by the Commission to participate.

Workshop on a simulation exercise in the Czech Republic

The Secretary informed the Committee that the Czech Republic had agreed to host a Workshop on simulation exercise in June 2001 and he circulated a draft programme for it. Dr Marabelli thanked Dr Celeda for agreeing to host this exercise. Dr Hallet informed the meeting that Belgium was organising a simulation exercise on 30 November.

Personnel

Dr Leforban informed the Committee that Dr Ryan's contract had been extended up to 30 October 2001. During the discussion the Committee recognised the valuable contribution of Dr Ryan to the activities of the secretariat and asked the Secretary to look actively for his replacement by another APO.

Report of the discussion on the proposal to link EUFMD activities with the activities of OIE

This point was added to the agenda at the request of a member of the Executive Committee. He explained the reasons for this request stating that it was in no way related to unsatisfactory work of the Secretariat; on the contrary, he recognised the excellent work carried out in recent years. He also stated that he was not familiar with the institutional aspects of the Commission and had no knowledge of the practical consequences of his proposal or whether it would be feasible.

The rationale of his request was as follows:

- CVO's have to attend numerous meetings;
- there is another FMD Commission in OIE (i.e, the Foot-and-Mouth Disease and other Epizootics Commission);
-.a better utilisation of resources available should be researched by preventing overlapping of activities;
- a consideration to have the activities regarding FMD currently undertaken by OIE and FAO carried out by one Organisation.

Under the circumstances he wondered whether, in the medium term, a regrouping of FMD activities of the two Organisations (FAO and OIE) could be envisaged?

The members of the Committee and the representatives of International Organisations discussed this item at length. They appreciated the suggestion to evaluate periodically the relevance of the activities of the EUFMD Commission in relation with the situation of FMD and the activities of other Organisations as had already been done in 1993. Analysing and reviewing the activities of a particular Committee or Commission is a normal process in all Organisations.

The following arguments were put forward in favour of maintaining the EUFMD Commission under its present status in FAO:

- FMD continues to be present throughout the world and seriously threatens Europe;
- the activities of the Secretariat are currently very efficient and fulfil the expectations of the Executive Committee and of the Member countries; its pro-active interventions during critical periods have always been quick and pertinent; the Research Group of the Standing Technical Committee is a unique body, to which most FMD research laboratories and workers contribute;

- the presence of the EUFMD Commission within the Animal Production and Health Division of FAO - which includes a large veterinary presence and competence - contributes to maintaining a close link between the European CVOs and FAO which might otherwise disappear;
- EUFMD meetings are an appropriate forum to discuss FMD between European countries and other countries which could be difficult to contact due to political and/or diplomatic constraints;
- the OIE FMD and other Epizootics Commission is trade oriented and its work does not overlap with EUFMD work; it is already absorbing the OIE Working Group on Informatics and Epidemiology;
- OIE is engaged in a challenging process of restructuring and has a busy agenda, with a new Administrative Commission and a new Director General;
- OIE has limited operational possibilities while FAO has an extended network.

The representative of FAO then expressed the views of the Organization:

- The activities of the Commission in the early nineties were limited and the question of of this body being maintained or abolished was probably relevant at that time when FMD had been eradicated from Europe. This is no longer the case and the members of the Committee themselves recognise the excellent work carried out by the Secretariat in recent years;
- EUFMD is the only forum where FMD is exclusively discussed by 33 European FAO Member Countries every two years;
- Annual meetings of the Research Group are considered as a reference for all FMD scientists in Europe and worldwide;
- The benefit/cost ratio of the Commission and the evaluation of its activities and delivery to Member Countries are very favourable;
- It is true that the work of such a Commission may be carried out somewhere else. However, FAO has a number of comparative advantages such as scientific and operational environment, neutrality and independence, financial and diplomatic guarantees;
- It may be risky to undermine and destroy one efficient body in charge of co-ordinating FMD control in Europe during a period when the disease threat is very serious;
- Regarding the institutional aspects of the question, there are no rules under the basic texts of the Organisation or under the Constitution of EUFMD allowing for a transfer of Membership, of structures and of budgets to another Organisation. In other words, the FAO/EUFMD Commission should first be abolished before considering establishing an equivalent body outside FAO;
- It is not useful for FAO, or for the Commission itself, that the position of the EUFMD is rediscussed at the present time.

There was a consensus of opinion by the participants on the following conclusions and recommendations :

1) Under the Constitution of EUFMD and the FAO basic texts there are no provisions for merging or transferring EUFMD with any other existing Commission or Committee of the OIE and therefore the decision is clearly to keep or to abolish the EUFMD Commission but not to transfer it;

2) The existing contacts created through the Commission between the European CVOs and FAO, as well as contacts with CVOs of other countries will be lost if the Commission is abolished;

3) The risk of FMD to Europe has increased considerably during recent years and the EUFMD Secretariat has met these challenges in a highly commendable manner;.

4) While recognising that the discussion on the future of the Commission had been useful, the Committee agreed that it would not be necessary to raise this issue again at the 34th General Session.

Considering the above discussion and conclusions, the Committee and the participants at the Session unanimously decided:

- to keep the EUFMD Commission under FAO as it is at present;
- to include the report of the discussion and its conclusions in the report of the 65th Session of the Executive Committee;
- that this point will not be discussed again under the agenda of the 34th Session, next March in Rome.

Item 8. Adoption of the draft report

The report was adopted subject to the inclusion of the Committee's suggested amendments.

Closing remarks

On behalf of the Committee, the Chairman expressed thanks to the German Government, to Professor Zwingmann and the Veterinary Services for having organised the meeting so well and to the secretariat for their excellent work. He thanked the Research Group and all the members, Dr Donaldson from the WRL, Dr Füssel, EC, OIE and Dr Belev for his contacts with the CIS countries. He stated that he was extremely satisfied with what had been achieved to date together. He also extended thanks to the interpreters and to the administrative staff present from the Ministry.

Professor Zwingmann thanked the Chairman for his friendly words which he would not fail to pass on to his staff. He was pleased that most of the participants could join the visit to the Cathedral on Saturday and avail of the services of an extremely qualified guide.

FMD Situation in Europe and other Regions 2000

John Ryan, EUFMD Secretariat

INTRODUCTION

The first outbreaks of Foot-and-Mouth Disease (FMD) in Europe, since type O was reported in Bulgaria in 1996, occurred in Greece in July ending almost 4 years of freedom on the European continent. This reinforces the warnings issued by the Commission that the threat of introduction of FMD into Europe from Turkey, the Middle East and the Trans-Caucasian countries persists.

Overall, the year 2000 was a particularly bad year with outbreaks of FMD occurring in many countries and regions that were previously free of the disease (such as Japan, Republic of Korea, Russia, Mongolia, Greece, Uruguay, the state of Rio Grande do Sol in Brazil, etc.) and the movement of serotypes beyond their traditional zones (Asia 1 in Greece, and SAT 2 in Saudi Arabia and Kuwait). Therefore, it is worthwhile to strongly emphasise that the risk to Europe remains high and that a long history of freedom from the disease and even barriers such as seas and long distances do not guarantee continued freedom from the disease as was demonstrated by this years outbreaks in Japan and Republic of Korea.

The immediate threats to Europe arise from the fact that parts of Anatolian Turkey, the Caucasian region and the Middle East remain endemic for FMD and within these regions 4 serotypes - O, A, Asia 1 and Sat 2 - circulated in 2000.

Only two member countries, Turkey and Israel reported outbreaks of FMD in 1999, and two member countries, Turkey and Greece reported outbreaks in 2000.

In 1999.....

64 countries officially reported outbreaks of FMD to the OIE, WRL or FAO. Forty four countries reported outbreaks of only one serotype - predominately type O - and 20 countries reported outbreaks of 2 or more different serotypes. Serotype O was reported in 50 countries, A in 18 countries, Asia 1 in 6 countries, SAT 1 in 5 countries, SAT 2 in 6 countries, SAT 3 in 1 country and there were no reported outbreaks of type C in 1999.

In 2000 (up to October).....

52 countries officially reported outbreaks of FMD to the OIE, WRL or FAO. Thirty eight countries reported outbreaks of only one serotype - predominately type O - and 14 countries reported outbreaks of 2 or more different serotypes. Serotype O was reported in 34 countries, A in 11 countries, Asia 1 in 5 countries, SAT 1 in 6 countries, SAT 2 in 4 countries, SAT 3 in 1 country and C in 1 country.

EUROPE 2000

Outbreaks of FMD serotype Asia 1 occurred in Greece in July. The 14 outbreaks were predominantly restricted to the Evros Delta, on the border with Turkey. Limited spread of the disease occurred within the Prefecture of Evros, and two further outbreaks were reported in the Prefecture of Xanthi, linked epidemiologically to the Evros outbreaks.

See Report of Greece.

TURKEY 2000

Although there were no reported outbreaks of FMD in European Turkey (Thrace), it is likely that Turkey was the origin of the Greek outbreaks as it has been shown that the nucleotide sequence of the Greek Asia 1 strain was almost identical to that of Asia 1 isolates from Asiatic Turkey (Anatolia).

Outbreaks of FMD due to serotypes O, Asia 1 and two distinct strains of A (referred to as A Iran 1996 and A Iran 1999) have occurred this year in Asiatic Turkey. The European Union (EU) agreed to supply 1.3 million doses of trivalent vaccine containing serotypes O, Asia 1 and A for use in Turkish Thrace. An EU/EUFMD mission visited Thrace in October 2000 to assess the situation and the progress made in the autumn vaccination campaign.

See Item 3.

CIS COUNTRIES 2000

An FAO/EC/OIE/ARRIAH mission visited the Caucasian region in June-July 2000, and concluded that FMD is now endemic in Armenia, Azerbaijan and Georgia. Serotypes O, A (A Iran 1996) and Asia 1 have been isolated from samples submitted to the OIE Regional Reference Laboratory, ARRIAH, Vladimir (Russia). A buffer zone supported by EC (USD 680,000 over two years) was established since 1999 on the southern border areas of the region using vaccine supplied by ARRIAH Vladimir.

Locally produced FMD vaccine (lapinised) and other Russian vaccines are also used in the region . The mission concluded that the buffer zone has had so far a limited effect on controlling the disease and alternative strategy and measures should be considered to prevent spread from Caucuses into Russia. Russia is also at risk due to the endemic situation of FMD in Kazakhstan, and no buffer exists along the approximately 7,500 km border between Russia and Kazakhstan.

In 2000, FMD type O outbreaks were reported in Georgia, Kazakhstan, Russia and Tajikistan.

FMD type Asia 1 was reported in Georgia and FMD type A was reported in Kazakstan.

In April 2000, The Russian Federation reported FMD type O in pigs in the Primorskiy Territory in the far east of the country close to the Chinese border and within the vaccination buffer zone. The last report of FMD in Russia was in 1995.

See Item 4.

MIDDLE EAST 2000

In April 2000, Saudi Arabia reported outbreaks of FMD SAT2 in a dairy heard and in June 2000, Kuwait reported outbreaks of FMD type SAT2 in nomadic sheep. These are the first reports of the serotype SAT2 outside Africa.

FMD type O outbreaks were reported from Egypt, Iran, Iraq, Kuwait, Lebanon, Turkey and the United Arab Emirates.

FMD type A outbreaks were reported from Turkey, Iran and Iraq.

Information from the WRL in February 2000, indicated that samples received from Iraq were positive for FMD virus type A. On further characterisation by nucleotide sequencing, it was reported that this virus was closely related to the Iran 96 topotype.

FMD type Asia 1 outbreaks were reported in Iran and Turkey.

AFRICA 2000

FMD type O outbreaks were reported from Egypt, Kenya, South Africa and Tanzania

In September 2000, South Africa reported its first outbreak in the Free Zone since 1957. The outbreaks were in pigs and the source of the virus was swill from visiting ships. This is the first outbreak of FMD type O in South Africa.

FMD type A outbreaks were reported from Kenya.

FMD type SAT1 outbreaks were reported from Malawi, Namibia, South Africa, Tanzania, Zambia and Zimbabwe

In August 2000, Namibia reported an outbreak of SAT1 in cattle. The source of the virus is believed to be from a neighbouring country. The last outbreak was in 1994. There was also FMD type SAT1 viral activity detected in the FMD enzootic zone of the FMD-control area adjoining the Kruger National Park in South Africa.

FMD type SAT 2 outbreaks were reported from Kenya, and Tanzania.

FMD type SAT 3 occurred in Zimbabwe.

FMD type C occurred in Kenya.

In addition to the above, outbreaks of FMD were reported from Angola, Chad, Ethiopia, Niger, Senegal and Uganda where no serotype has been identified.

It should be noted that many African countries report FMD outbreaks to OIE long after the outbreaks have occurred, these delays can be as long as 6 months to one year and much data for 1999 was only received in 2000.

ASIA 2000

FMD type O outbreaks were reported from Cambodia, China (Hong Kong), Japan, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Republic of Korea, Taiwan Province of China, Thailand and Vietnam.

An outbreak of FMD virus type O was reported to the OIE in late January by the Malaysian authorities. The outbreak occurred in Peninsular Malaysia in the state of Selangor and affected small cattle holdings and a nearby commercial piggery. Quarantine measures and modified stamping out were used to control the outbreak.

On the 4th February 2000 Taiwan Province of China reported 3 outbreaks of FMD type O - analogous to O/Taiwan/99 - in cattle. The outbreaks occurred in Yunlin and Chiayi prefectures. The control measures instigated were stamping out, destruction of milk, strict hygienic control and quarantine measures around the farms and the instigation of a nation-wide vaccination campaign. This report was followed two weeks later by a report on the 18th February from Taiwan province of China of an outbreak of FMD type O - analogous to O/Taiwan/99 -in goats in Changhwa prefecture. The same measures as previously were implemented with a strengthening of the mass vaccination campaign. This report was followed two weeks later by another report of FMD type O/Taiwan/99 in goats in Kaoshiung prefecture.

On the 1st November 2000, Taiwan reported new outbreaks of FMD type O/Taiwan/97 in pigs in the Taoyuan prefecture. The animals were discovered with vesicular lesions in an

abattoir and were destroyed. After epidemiological tracing, no further cases were found and it is believed that these pigs came from small farms that were not vaccinated.

In March 2000, Japan reported FMD type O in cattle. This was the first outbreak in Japan since 1908. In total, 4 farms were affected, 3 in the Miazaki prefecture on the southern island of Kyushu, and one in the Hokkaido prefecture on the northern island of Hokkaido. The control measures applied were stamping out, intensive surveillance around the outbreaks, tracing of all epidemiological contacts and a national serological survey. No vaccination was applied and Japan has since regained its disease free status. The virus responsible was the pan-Asian topotype O that was prevalent in East Asia in 2000. All the factors described in the international literature were examined as possible routes of entry, the factor which was not ruled out as that linking between infected farms and East Asian countries is imported forage. Many facts support the hypothesis that wheat straw of Chinese origin carried FMD virus into Japan, while there were no facts found nullifying this hypothesis.

Interesting findings from transmission experiments showed that the virus isolated had a low pathogenicity in cattle and transmission between Japanese Blacks takes place but that transmission between Holsteins doesn't take place. Pigs show typical clinical signs of FMD when infected and transmission between pigs takes place, but infected cattle don't show vesicles typical of FMD and transmission between infected cattle and pigs doesn't take place.

In March 2000, The Republic of Korea reported outbreaks of FMD type O in cattle. This was the first outbreak of FMD in Korea since 1934. The virus responsible was similar to O/Taiwan/97. In total there were 15 outbreaks in March-April in dairy and beef farms. The control measures applied were stamping out of infected and neighbouring farms and vaccination in the regions where outbreaks occurred. All vaccinated animals are permanently marked by punching or branding and can only be slaughtered in designated abattoirs. The possible routes of transmission were considered to be by imported hay or straw or even with the "yellow sand" climatic phenomenon.

In April 2000, Mongolia reported FMD type O similar to O/Taiwan/97 and O/Russia/2000 in cattle, sheep, goats and camels. The last outbreaks of FMD in Mongolia occurred in 1973. There were large numbers of animals clinically affected in 26 herds: 685 bovines, 347 sheep, 307 goats and 62 camels. All infected animals were destroyed with compensation paid to the owners, strict quarantine measures were put in place and there was ring vaccination around the outbreaks. The last cases were reported on the 13th June 2000.

FMD type A outbreaks were reported from Pakistan and Thailand.

FMD type Asia 1 outbreaks were reported from Thailand.

SOUTH AMERICA 2000

FMD type O outbreaks were reported from Bolivia, Brazil, Columbia, Ecuador and Uruguay.

FMD type A outbreaks were reported from Bolivia, Brazil, Columbia and Peru.

In August 2000, Argentina reported their detection of an exotic FMD type A virus activity in cattle. During routine epidemiological surveillance in the province of Formosa, on the border with Paraguay, they discovered 10 animals that had been illegally imported. Although no clinical signs were present, the animals were preventively destroyed. Sera

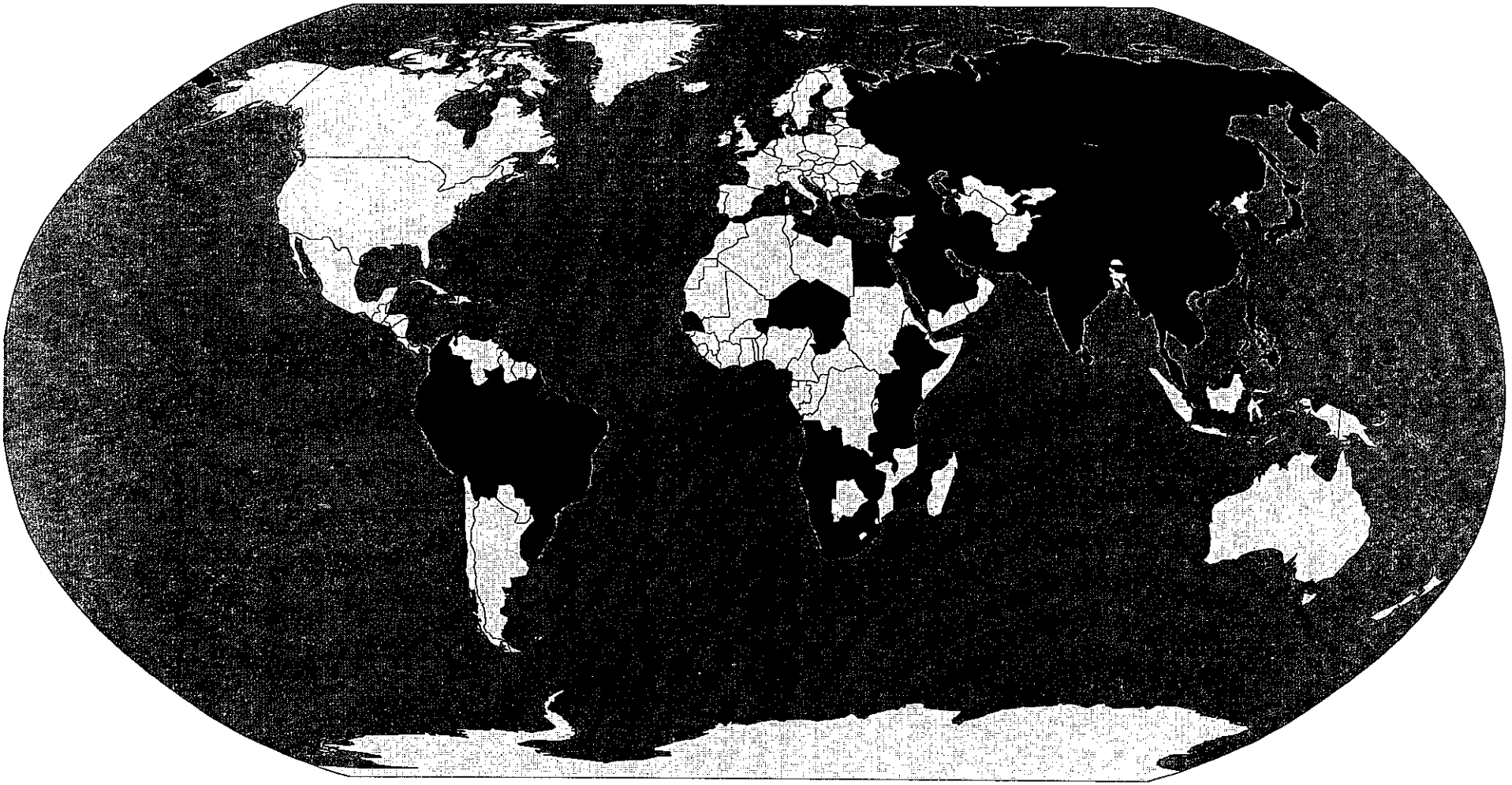
from 4 of these animals tested positive to VIAA (virus infection associated antigen) and EIBT (electroimmunotransfer blot) and virus type A24 was isolated from one probang sample. The epidemiological contacts from this farm were traced and subjected to serological examination and movement restrictions were put in place. The results of this tracing and surveillance detected 2 more locations, one in the province of Corrientes and the other in the province of Entre Rios, with seropositive animals. All the animals in these 3 holdings were stamped out. In addition, a serosurvey was instigated for the entire country, with no further seropositives detected. No animal with clinical signs was discovered.

On the basis of an OIE expert mission, the Foot and Mouth Disease and Other Epizootics Commission decided that Argentina should remain on the list of FMD free countries where vaccination is not practised because they believed that an isolated incursion of infected animals had occurred and that the appropriate control measures were taken by the Veterinary Administration of Argentina.

In May 2000, Brazil ceased vaccinating in the southern states of Rio Grande do Sul and Santa Catarina as part of a campaign to have the states recognised as free from FMD without vaccination. In August 2000, Brazil reported outbreaks of FMD type O in cattle and pigs in the state of Rio Grande do Sul. The last outbreaks in this state were in 1993 and the state was recognised as a zone free of FMD with vaccination. The last outbreak was reported on 22 September 2000, bringing the number of outbreaks in the State of Rio Grande do Sul to 22. All sick or potentially contaminated animals in the outbreaks and adjoining properties were destroyed, this comprised 11 067 animals (8 185 bovines, 2 106 pigs, 772 sheep and 4 goats) in a total of 659 properties. Stamping out and movement restrictions were the control measures used and the ban on the use of FMD vaccines in the state remained in place.

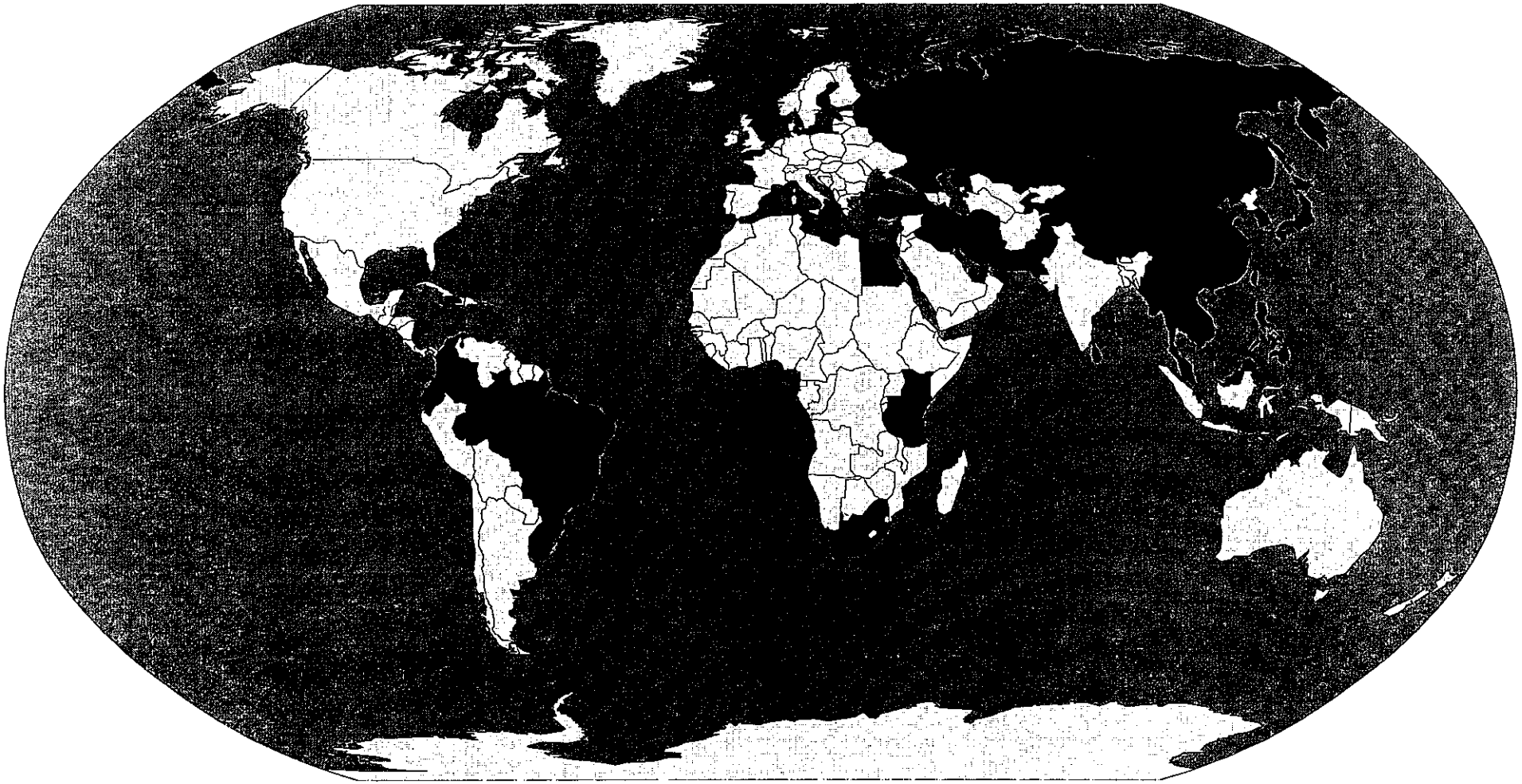
In October 2000, Uruguay reported its first outbreak of FMD since June 1990. The outbreak occurred close to the border with Brazil in the 12th Administrative Division, in Chiflero district, Department of Artigas. 40 animals showed clinical signs (29 cattle and 11 pigs). FMD type O was reported as the causal agent. The probable origin of the infection is a sow infected by ingesting feed of animal origin, slaughterhouse waste or contaminated by-products. The control measures used were stamping out and strict movement controls. All susceptible animals in the outbreak zone were destroyed (20 406 animals in 179 holdings).

FMD outbreaks 2000



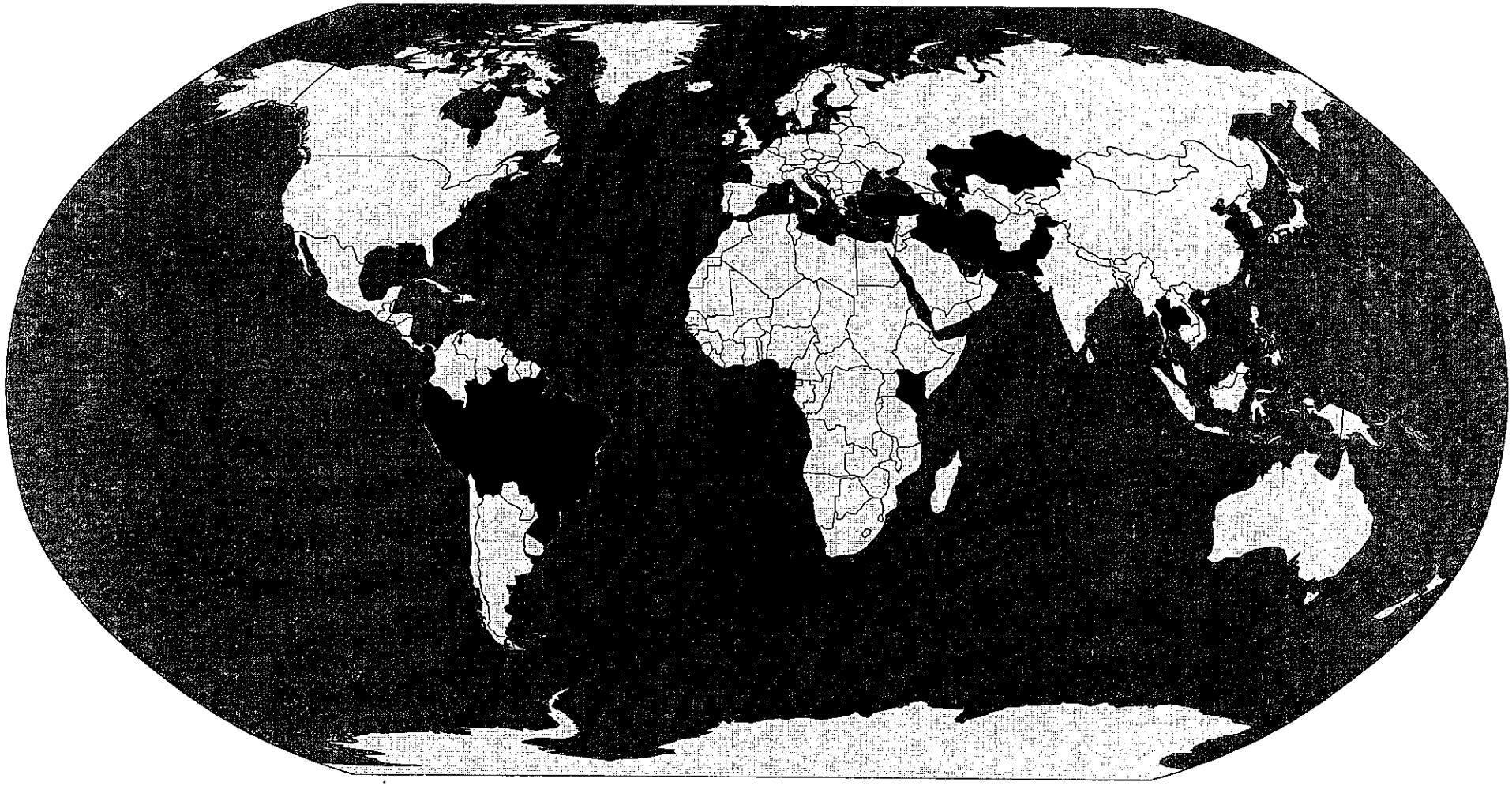
All serotypes as officially reported to OIE,WRL,FAO

FMD Type O outbreaks 2000



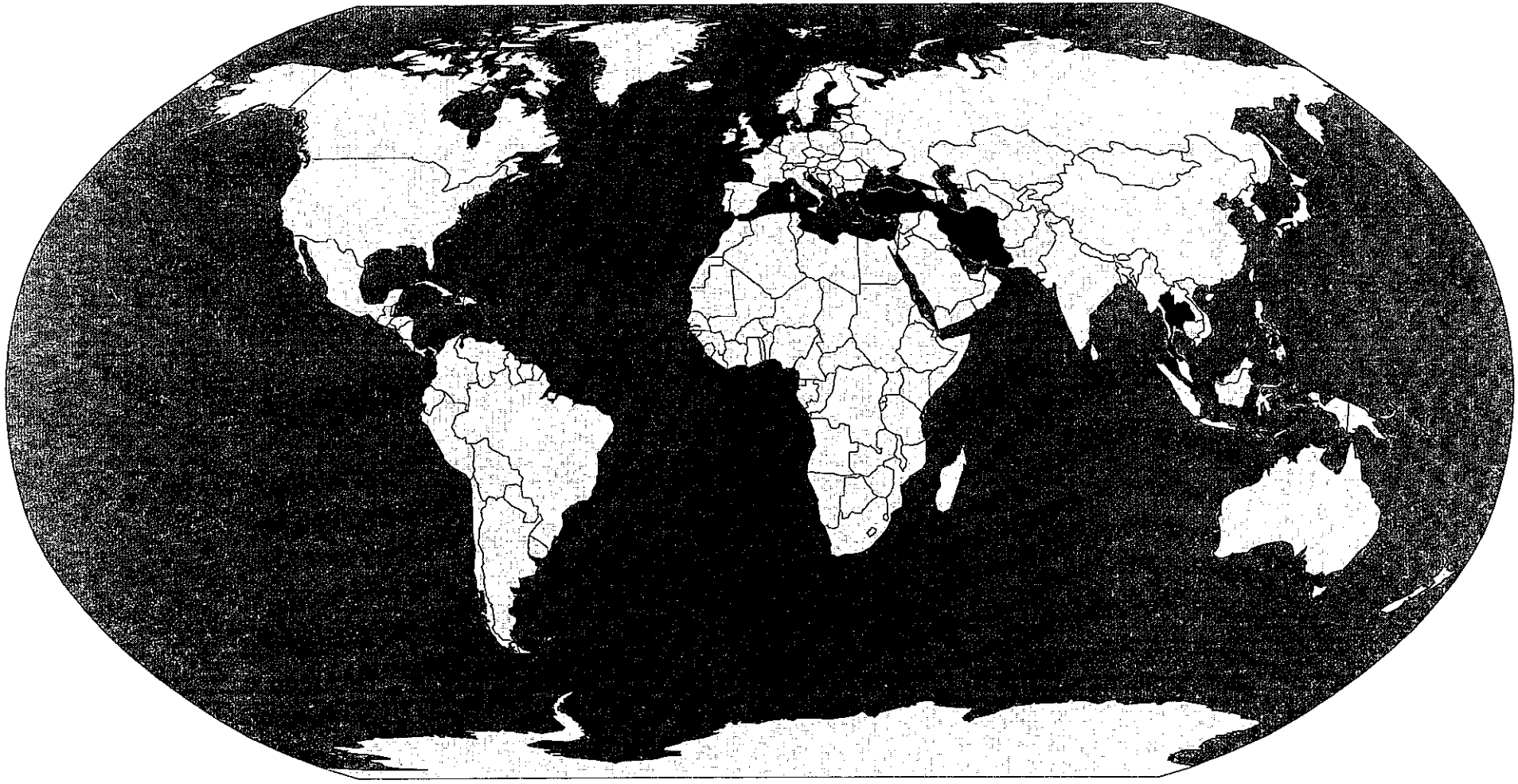
FMD Type O as officially reported to OIE,WRL,FAO

FMD Type A outbreaks 2000



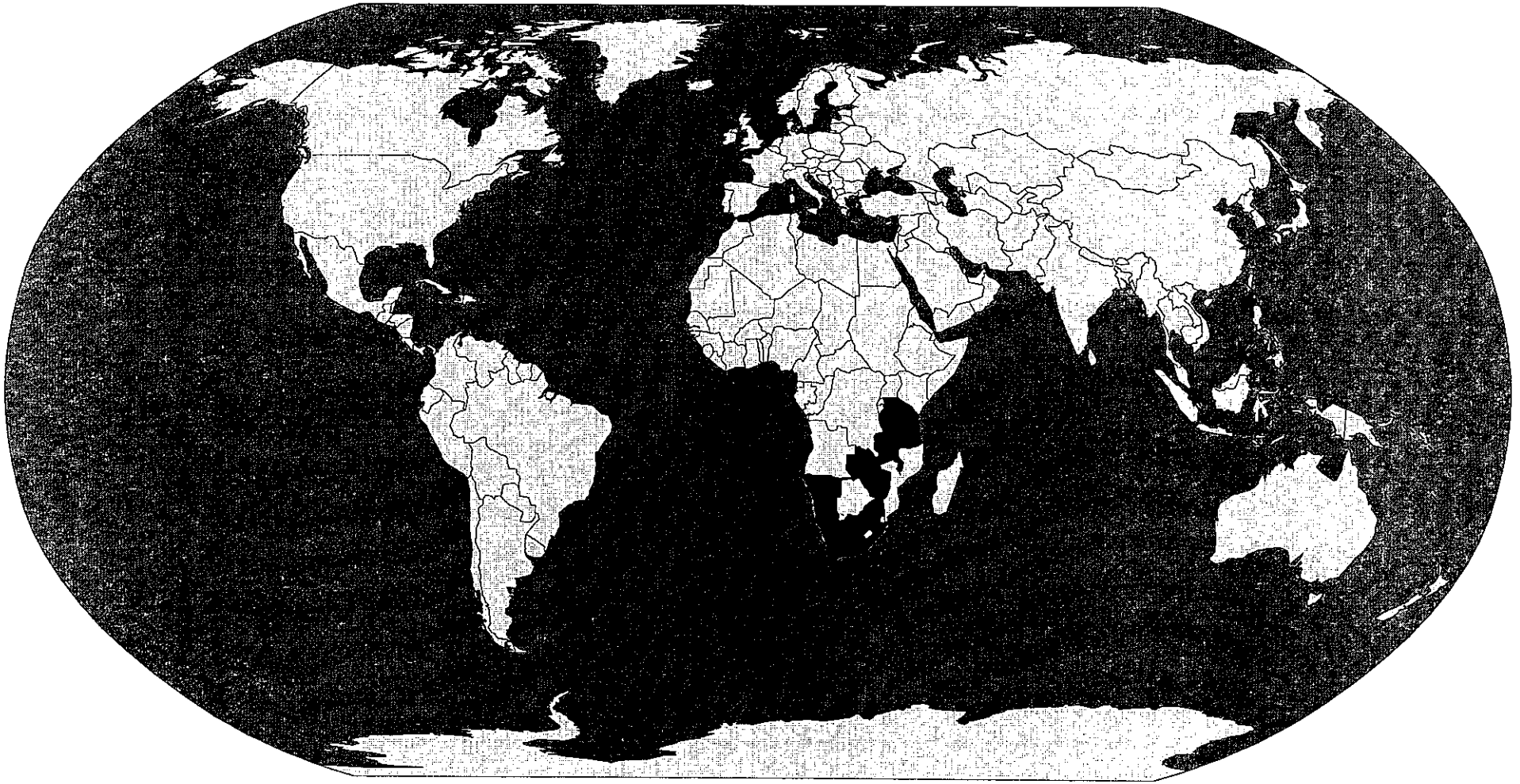
FMD Type A as officially reported to OIE,WRL,FAO

FMD Type Asia 1 outbreaks 2000



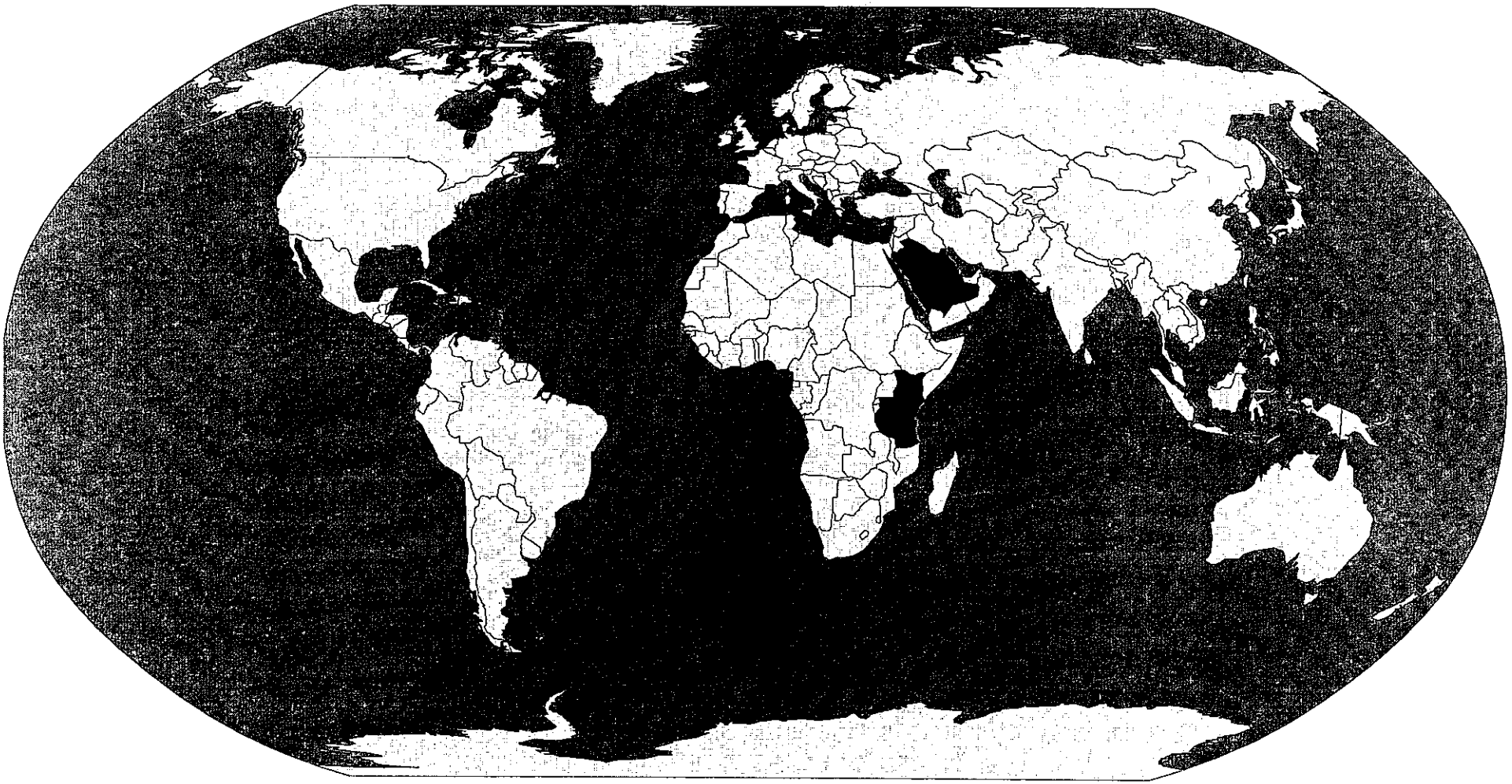
FMD Type Asia 1 as officially reported to OIE,WRL,FAO

FMD Type SAT1 outbreaks 2000



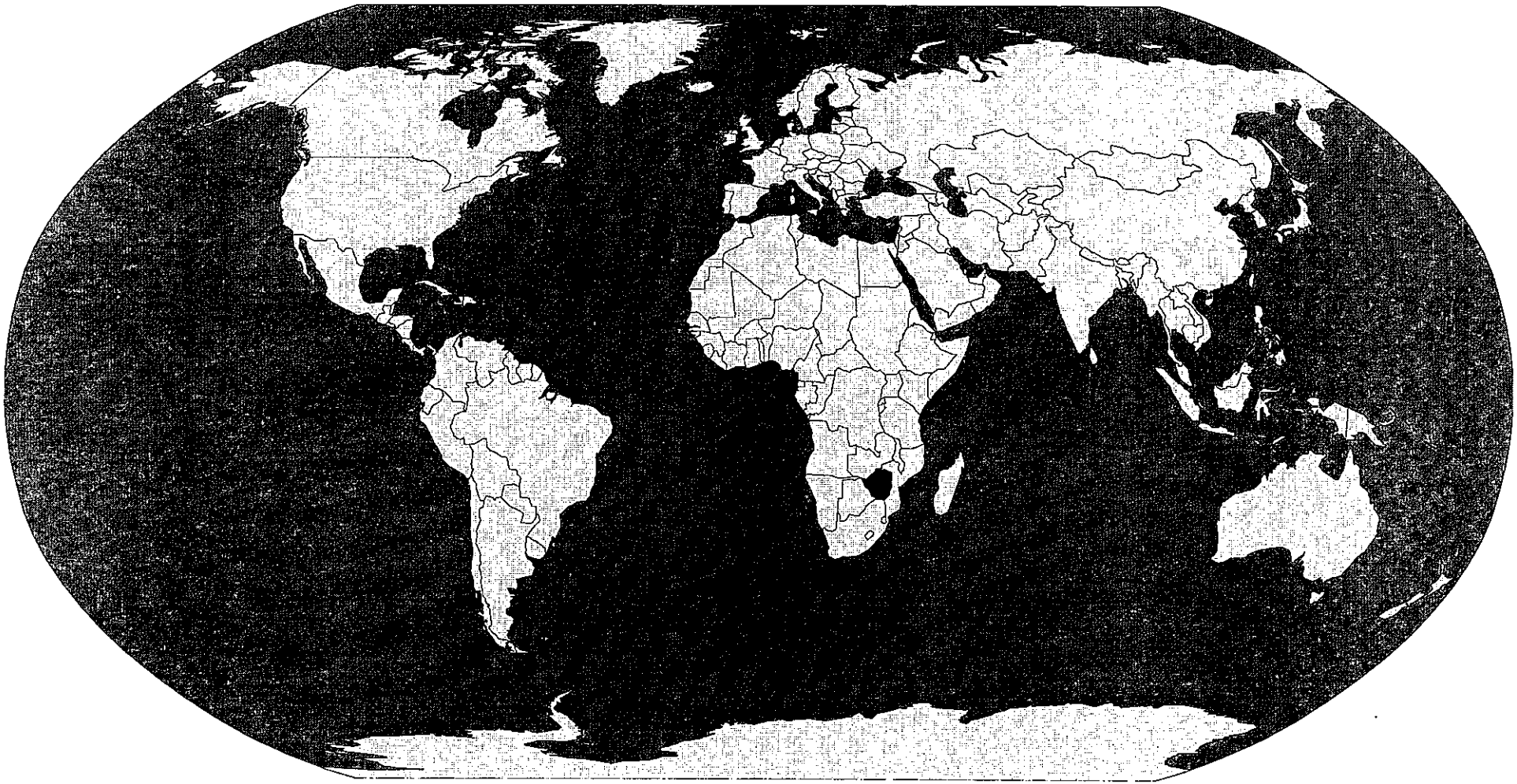
FMD Type SAT 1 as officially reported to OIE,WRL,FAO

FMD Type SAT2 outbreaks 2000



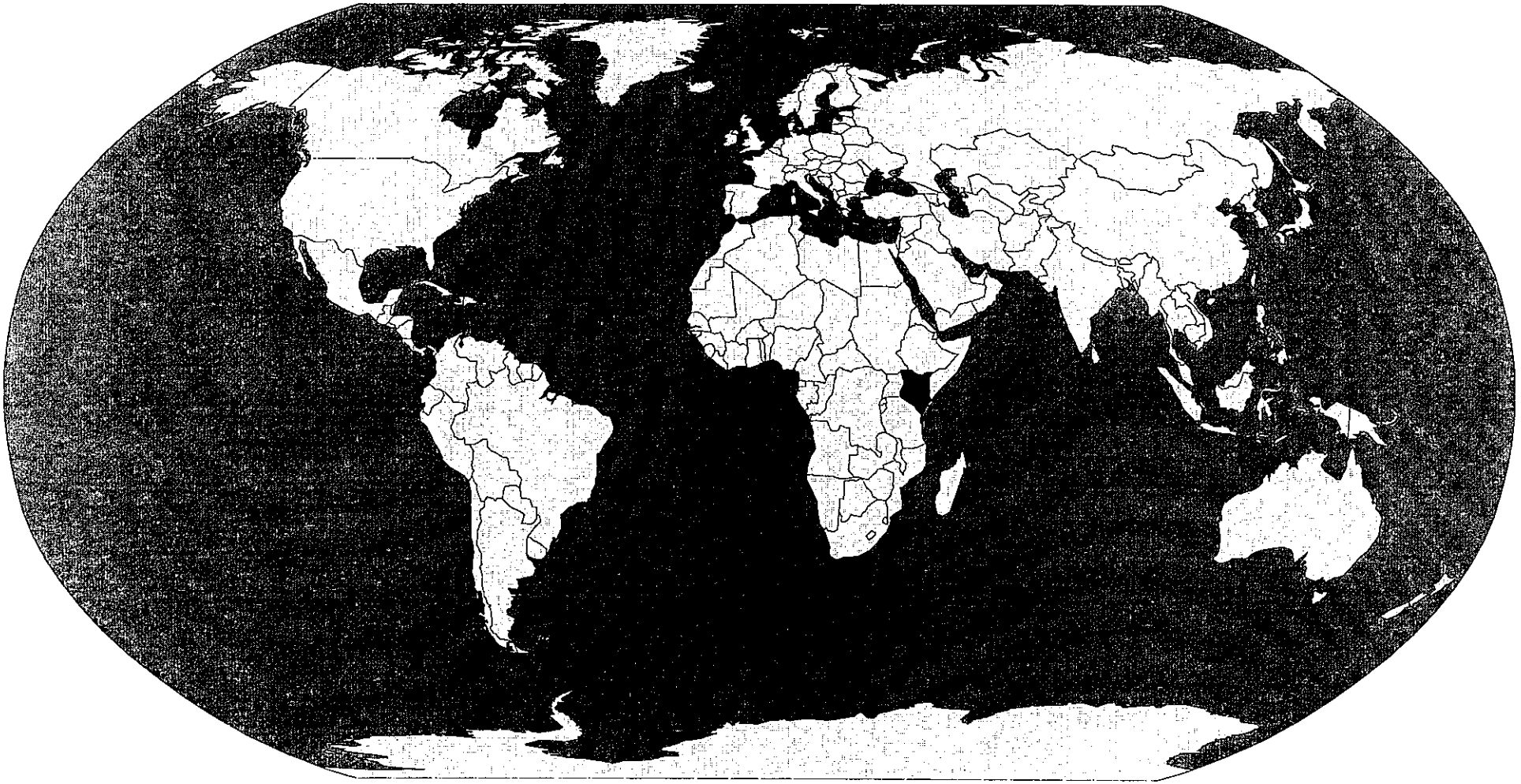
FMD Type SAT 2 as officially reported to OIE,WRL,FAO

FMD Type SAT3 outbreaks 2000



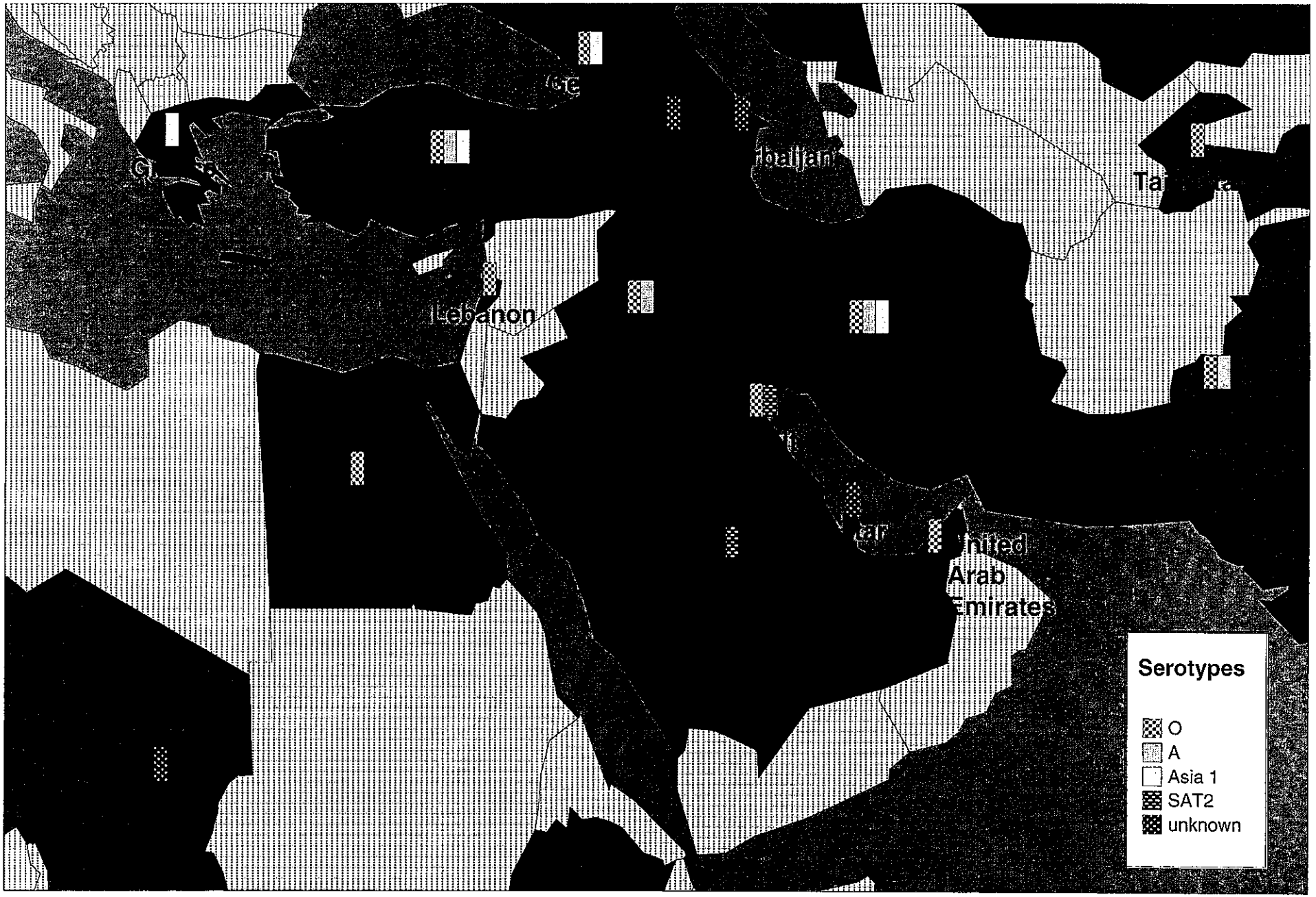
FMD Type SAT3 as officially reported to OIE,WRL,FAO

FMD Type C outbreaks 2000

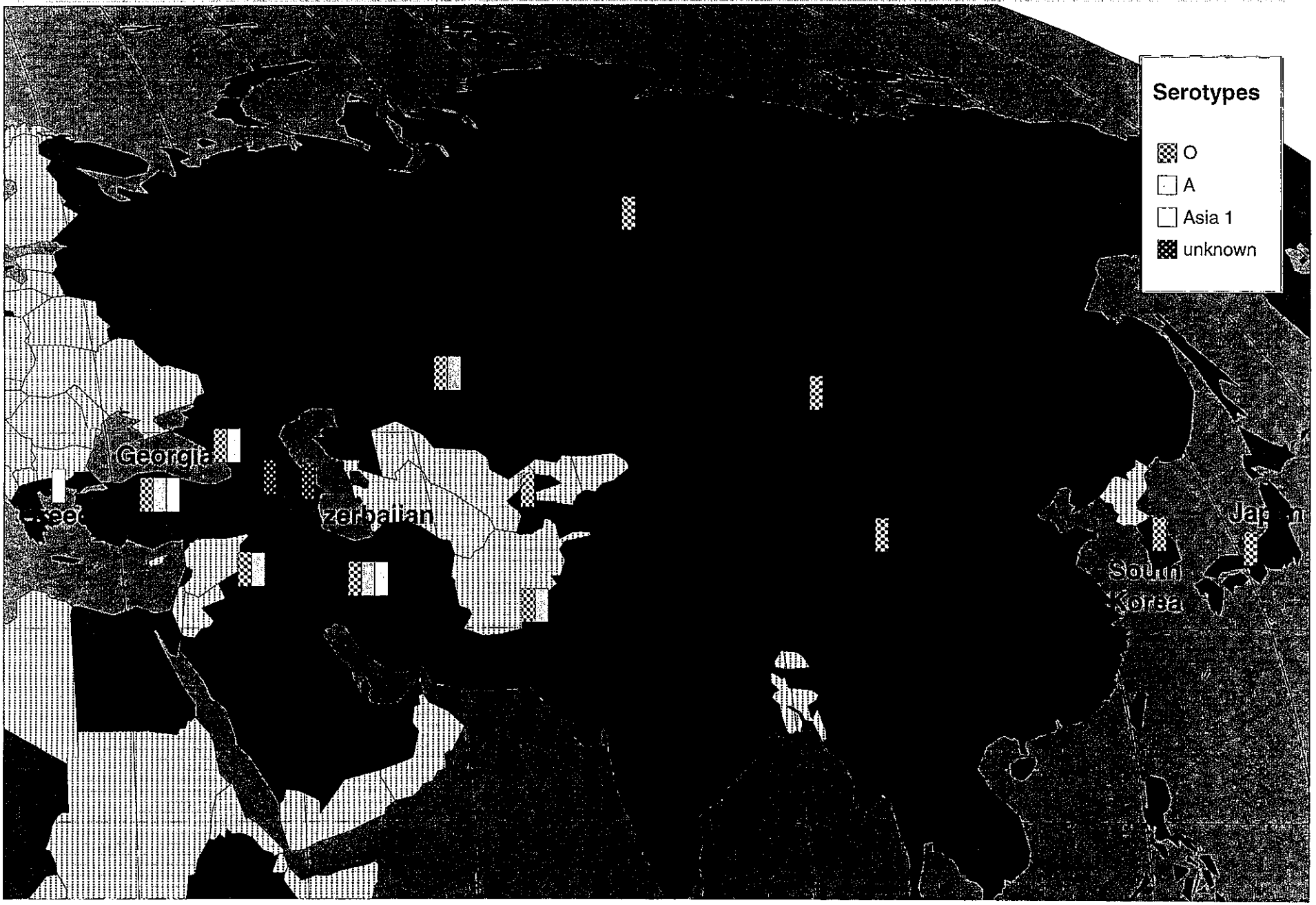


FMD Type C as officially reported to OIE,WRL,FAO

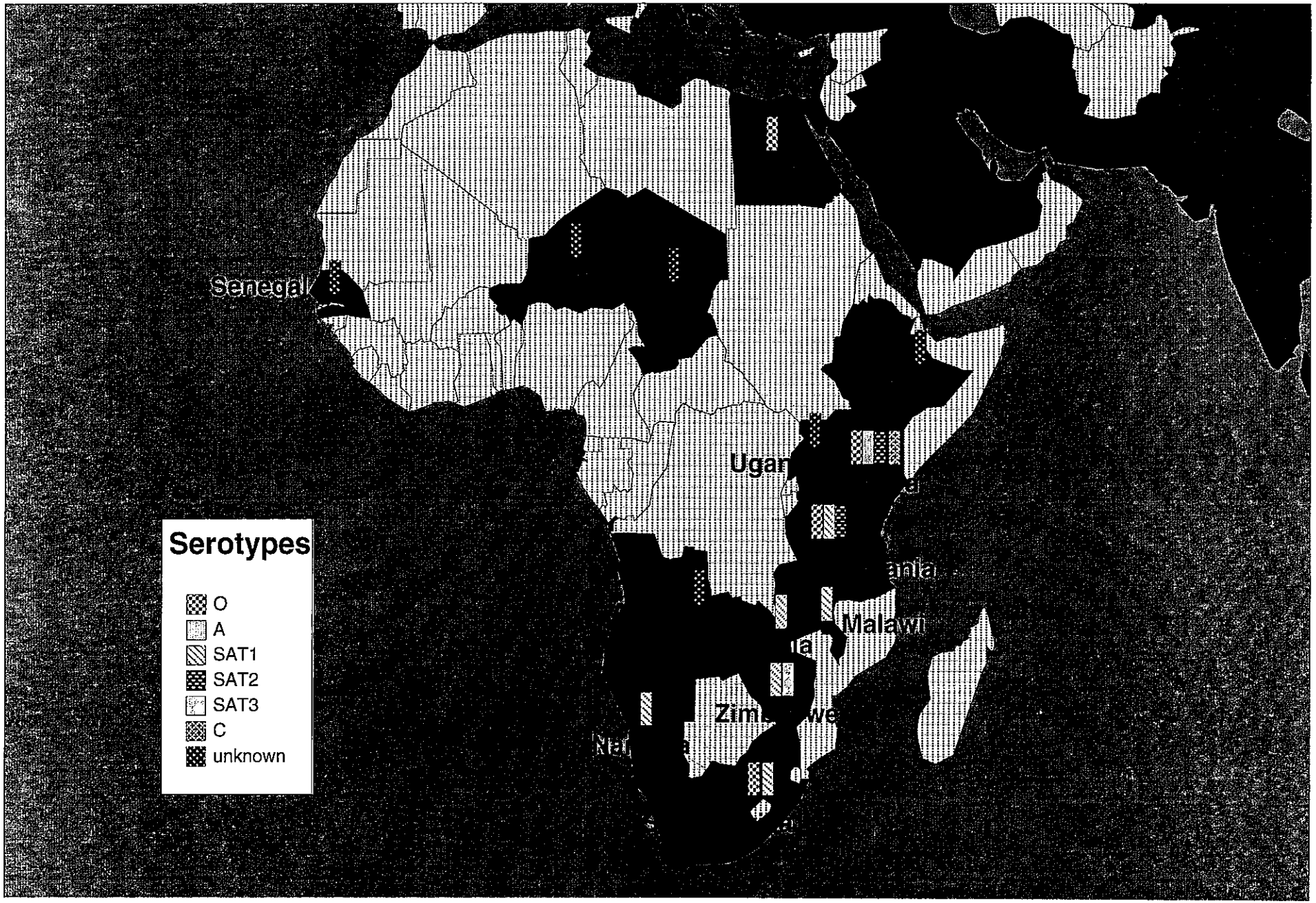
Middle East Outbreaks 2000



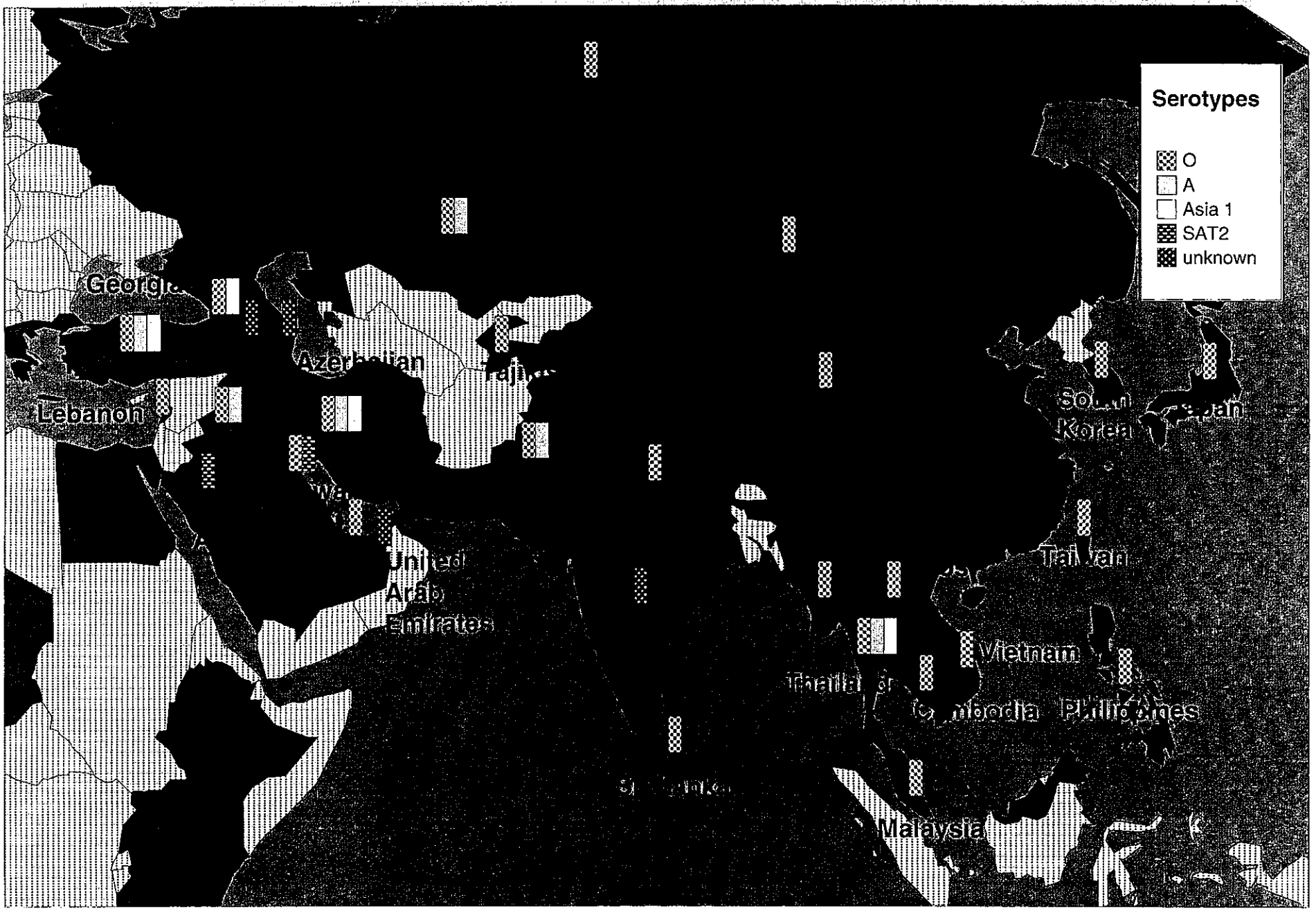
FMD in West Asia and CIS Countries 2000



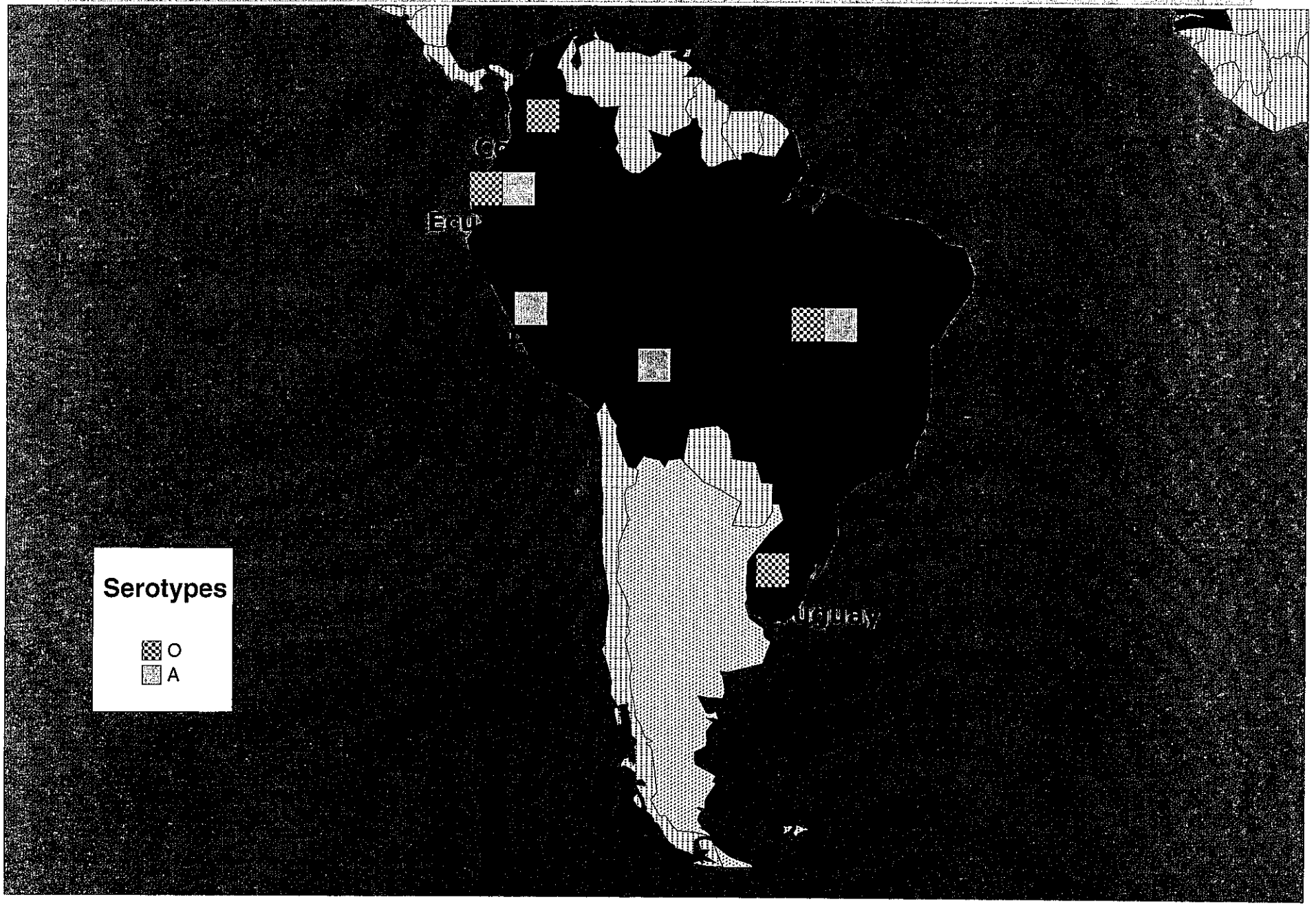
FMD in Africa 2000



FMD in Asia 2000



FMD in South America 2000



OIE Status as of 01 Nov 2000

= Free without Vaccination (52)

= Free Zone with Vaccination (1)

= Free with Vaccination (1)

= Free Zone without Vaccination (3)

Appendix 2

FINAL & CONSOLIDATED REPORT (*)
ON THE INCURSION, EVOLUTION & ERADICATION OF FMD IN GREECE
(Summer 2000)

by MINISTRY OF AGRICULTURE, D.G. OF VETERINARY SERVICES
ANIMAL HEALTH DIRECTORATE, DEPT. OF INFECTIOUS DISEASES,
EPIDEMIOLOGY & DOCUMENTATION, GREECE

1. INTRODUCTION

Foot-and-Mouth disease (FMD) – type O_1 – occurred for the last time in Greece in the Prefecture of Evros in September 1996. The disease was eradicated by applying a stamping out / non vaccination policy and Greece regained by OIE the status of "*FMD free country without vaccination*" in May 1998 and held it until July 2000, when it was suspended due to a new incursion of type Asia 1.

FMDV type Asia 1 was last recorded in Greece in 1961 – again in Evros – and it was then dealt with by partial slaughter and vaccination.

On the other hand, FMDV type Asia 1 is steadily reported, along with other types, in Turkey where it gradually progressed westwards from Eastern Anatolia near the Iranian border, in 1999, to the city of Bolu in the Western Buffer Zone, in June 2000.

This was the official information available to the Greek Authorities in early July 2000, when incursions of FMDV type Asia 1 were recorded along Evros river on the Greek-Turkish border.The main events relating to the incursion,evolution and eradication of FMD in Greece in summer 2000 are described in this report.

2. INCURSION OF FMD

Primary incursion of FMD was suspected on 10 July, and confirmed on 11 July, in two beef cattle herds grazing freely in the South-Eastern part of the Evros Delta on the Greek -Turkish border (Map 1). Judging by the age of lesions and the mean incubation period,the estimated date of primary infection is placed on 2nd July + 1 day.

Due to the animal husbandry conditions and practices in the Delta area, by the time of detection the disease had become widespread inside the Delta and escaped to the contiguous town of Ferres.

The FMDV strain isolated in Greece was genetically fingerprinted in WRL, Pirbright, and found to be identical to the FMDV type Asia 1 strain isolated in Turkey in 1999 and 2000. This settles the origin of the disease.

3. EVOLUTION OF FMD

3.1 Description of outbreaks

A recapitulative list of outbreaks,broken down by ***geographical*** and ***epidemiological cluster***, is given in Table 1 below and locations of outbreaks are indicated in Map 2 attached to this report.

Outbreak No.& Type	Location	Animals Present			Suspicion		Confirmation	
		Species	Number	Sick	Date	Reason	Date	Reason
00/01-**Primary**	Evros Delta, EVROS	Bovines	138	12	11.07	clinical	11.07	VD
00/02-Second.		Bovines	55	5	10.07	clinical	11.07	VD
00/03-Second.		Bovines	305	6	18.07	clinical	18.07	clinical
00/06-Second.		Bovines	129	5	27.07	clinical	31.07	VD
00/10-Second.		Bovines	46	5	07.08	clinical	10.08	serol/VD
00/04-Second.	Ferres, EVROS	Bovines	160	0	17.07	contact	20.07	serology
00/07-Second.		Sheep	642	15	27.07	clinical	01.08	serol/VD
00/08-Second		Bovines	111	10	01.08	clinical	03.08	serol/VD
00/05-**Primary**	Peplos, EVROS	Bovines	89	10	19.07	clinical	24.07	serology
00/09-Second.	Potamia, XANTHI	Bovines	122	60%	07.08	clinical	08.08 09.08	serology VD
00/11-**Primary**	Mandra, EVROS	Bovines	58	8	17.08	clinical	18.08	VD
00/13-Second.	Asimenio	Bovines	209	15	07.09	clinical	11.09	VD
00/14-Second.	Didim/cho	Bovines	228	11	10.09	clinical	14.09	VD
00/12-Second.	Selino, XANTHI	Bovines	72	3	19.08	clinical	24.08	VD

Table 1: Recapitulative table of FMD outbreaks in Evros and Xanthi, Greece, 2000
* **NOTE** : Serial Numbers of outbreaks indicate chronological order of detection and reporting

In total, approximately 5.400 bovines, 2.300 sheep/goats and 300 pigs were killed and destroyed either in the outbreaks or in contact holdings.

3.2 Epidemiological considerations

Epidemiological relations between outbreaks, explaining the source of infection and the means of transmission, are summarised in Table 2 and schematically presented in the Flow Chart attached to this report.

Serial No. of Outbreak	Type of Outbreak	Source of Infection	Means of Transmission	Estimated Date of Infection
00/01	**Primary**	Turkey	Animals from Turkey crossing Evros river	02.07 ± 1 day
00/02	Secondary	00/01 (?)	Common grazing	05.07 ± 2 days
00/03	Secondary	00/02	Common grazing	08.07 ± 2 days
00/06	Secondary	00/03	Common grazing	20.07 ± 2 days
00/10	Secondary	00/06	Contiguity	30.07 ± 2 days

00/04	Secondary	00/01	Common grazing	07.07 ± 2 days
00/07	Secondary	00/04	Indirect contact	16.07 ± 2 days
00/08	Secondary	00/04	Contiguity	17.07 ± 2 days
00/05	**Primary**	Turkey	Direct contact with infected animals (access by land)	10.07 ± 2 days
00/09	Secondary	00/07	Indirect contact (person + fomites)	25.07
00/11	**Primary**	Turkey	Animals from Turkey crossing Evros river	27.07
00/13	Secondary	00/11	Vehicle / Persons	28.08
00/14	Secondary	00/11	Vehicle / Persons	29.08
00/12	Secondary	00/09	Indirect contact (person + fomites)	06.08 ± 2 days

Table 2 : Epidemiological relations of FMD outbreaks, Greece, 2000

Comments

- According to the assessment of the Greek Authorities, there were three (3) primary incursions of FMD at a 60-km front along Evros river.
  In all cases the working hypothesis for transmission was direct or indirect contact of animals across the border. This hypothesis, however, would assume presence of active infection at the eastern side of the border and close to the outbreaks. Otherwise, a new risk assessment is required to explain long-range transmission and re-orient the objectives and means of surveillance.
- With the notable exception of the Evros Delta, in 3 out of 6 clusters there was only a single outbreak without any "fallout".
- In the Evros Delta, the animal husbandry conditions and practices made selective forwards tracing practically impossible due to multiple contacts in common grazing and watering. Consequently, the Delta was considered and treated as a single epidemiological unit. Nevertheless, more that 700 cattle were salvaged in the Delta.
- Spreading of FMD to Xanthi was due to the "human factor", acting through criminal negligence or premeditated action. However, the means and the circumstances of transmission were recognized promptly and dealt with efficiently.

4. ERADICATION OF FMD

Eradication of FMD was achieved by applying a stamping out / non vaccination policy and proved by a serological investigation designed and executed as described below.

4.1 Objective

To detect and destroy all seropositive animals around known sources of FMDV, so as :

- ✓ To eliminate any risk of residual infection from carrier animals, and
- ✓ To preclude any interference with future serological monitoring and screening schemes.

Successful completion of the scheme signifies eradication of FMD and leads to lifting of all restrictions and restocking of depopulated premises.

4.2 Modalities

In the absence of any legal provisions or technical guidelines for sero-surveillance,the following scheme was proposed by the Greek Authorities :

a) In ***Protection Zones :***
- Uniform geographical distribution of samples (100 % of villages)
- No among-flock discrimination (100 % of flocks)
- Random within-flock sampling (10 % of animals present, min.15 samples /flock)

***NOTE : This scheme more than satisfies the statistical criterion for detecting 5% prevalence with 95% level of confidence.**

b) In ***Surveillance Zones*** :
- Uniform geographical distribution of samples (100 % of villages)
- Random among-flock selection (20 % of flocks in every village)
- Random within-flock sampling (10 % of animals present, min.15 animals / flock)

In all cases serological investigation commenced after 21 days had elapsed since the last recorded outbreak in the respective area.

In case of inconclusive results, the individual animals were re-sampled after 14 days.
In case of positive results, all animals present in the flock were be sampled.
No serological screening in bovines and pigs was envisaged.
All sampled animals were individually identified by ear tags.

4.3 Estimated number of samples

On the basis of the scheme outlined above, the number and distribution of samples estimated to be tested in the framework of serological surveillance is given in Table 3. A total of **4.154** samples was forecasted,plus possible re-tests or complete samplings.

Outbreak No	Location (Clusters)	Protection Zones		Surveillance zones	
		Animals Present	No of samples	Animals Present	No of samples
00/01	Evros Delta	1.265	126	700	70
00/02					
00/03					
00/06					
00/10					
00/04	Ferres	6.966	696	13.846	277
00/07					
00/08					
00/05	Peplos	4.704	470	10.167	203
00/09	Potamia (Xanthi)	3.394	339	18.520	370
00/11	Mandra (Evros)	963	96	10.542	210
00/13	Asimenio	3.776	377	6.538	130
00/14	Didimotycho	1.446	144	13.435	286
00/12	Selino (Xanthi)	1.673	167	10.550	211
Total		24.187	**2.415**	84.298	**1.739**

Table 3 : Number and distribution of samples for serological investigation of FMD

4.4 Final results of serological investigation

Final and conclusive results of serological investigation carried out in September and October 2000 in the protection and surveillance zones around outbreaks of FMD are presented in Table 4 .

Serial No. & Location of Outbreak	Serological Forecasted Samples	Surveillance Tested Samples (total/positive)
00/09 – Potamia, Xanthi	339pz + 370sz = 709	749 / 0 = completed (*)
00/12 – Selino, Xanthi	167pz + 211sz = 378	382 / 0 = completed
Surveillance Zone of 00/09 and 00/12 inside Rodopi		280 / 0 = completed
00/01 – Evros Delta	126pz + 70sz = 196	210 / 0 = completed
00/04 – Ferres, Evros	696pz + 277sz = 973	975 / 0 = completed
00/05 – Peplos, Evros	470pz + 203sz = 673	680 / 0 = completed
00/11 – Mandra, Evros	96pz + 210sz = 306	310 / 0 = completed
00/13 – Asimenio, Evros	377pz + 130sz = 507	521 / 0 = completed (*)
00/14 – Didim/cho, Evros	144pz + 268sz = 412	440 / 0 = completed (*)
TOTAL	**4.154**	**4.547 / 0**

Table 4 : Final results of serological investigation for FMD, Greece, 2000
(*) Re-sampling of individual animals due to inconclusive results of 1st tests

During the same period (September – October 2000) all bovine herds situated inside the protection and surveillance zones were clinically inspected for old lesions of FMD with negative results.

On the basis clinical inspections and serological results presented in Table 4 :

- Eradication of FMD in **Evros** and **Xanthi** has been achieved and documented.
- Prevention of spreading of FMD in **Rodopi**, throughout the epizootic, has also been documented.

Claims of freedom of FMD in Greece are endorsed by the European Union and, accordingly, the Standing Veterinary Committee has voted unanimously in favor of the following Decisions :

- **At the meeting of 07 OCT 2000, Com. Decision 2000/643 amending Com. Decision 2000/486 and lifting all restrictions due to FMD from XANTHI and RODOPI.**
- **At the meeting of 07 NOV 2000, Com. Decision 2000/... repealing Com. Decision 2000/486 and lifting all restrictions due to FMD from the entire Greek territory.**

5. RELATED ACTIONS & INITIATIVES

In the light of experience gained during combating FMD, the following relevant actions have been undertaken by the Greek Authorities :

a) Judicial & Administrative actions

- The principle of co-liability has been introduced and judicial procedures have been activated as a supplement to, or a result of, epidemiological investigations where there are qualified suspicions of negligence or premeditated felonious acts.

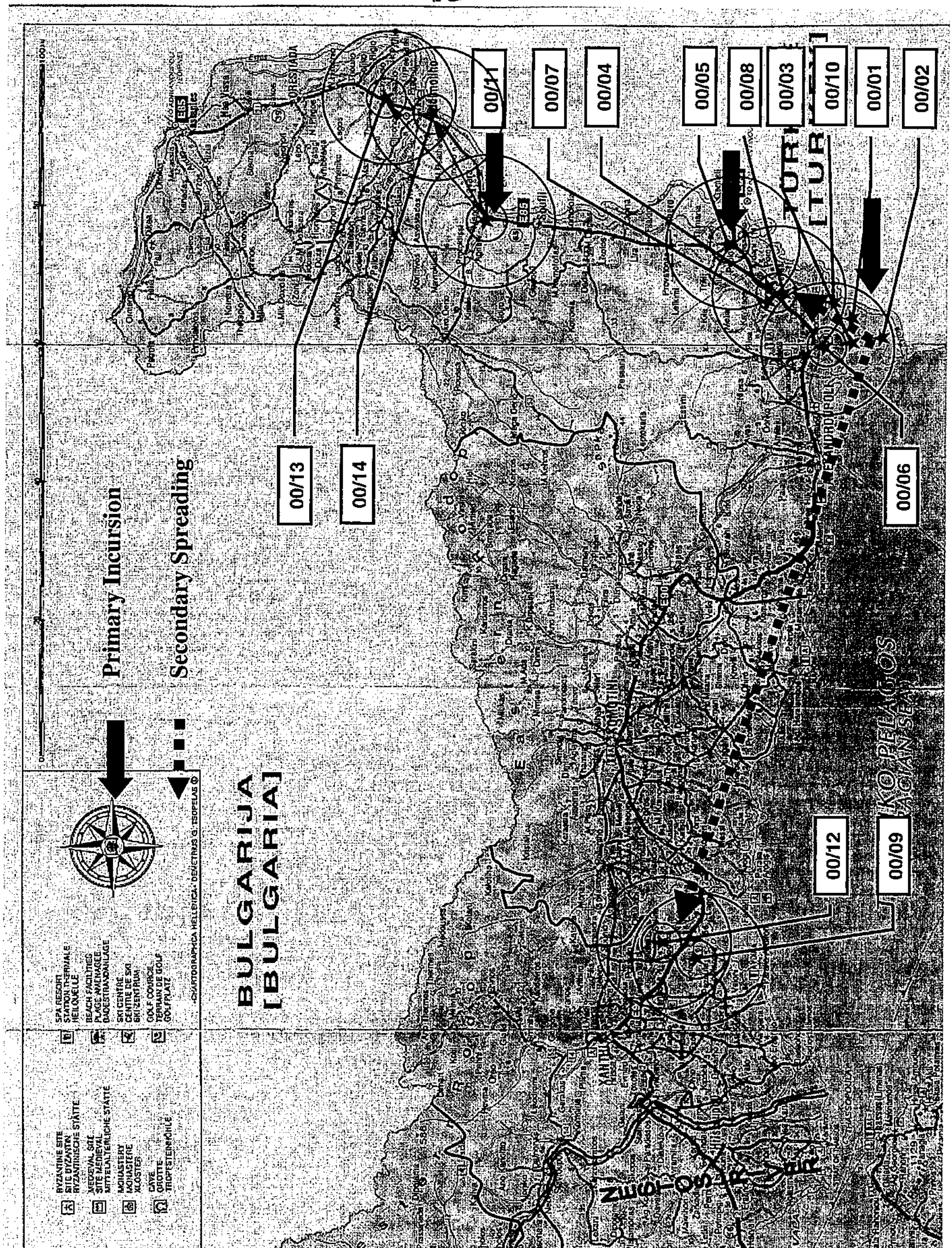
b) Financial actions

- Supporting documentation for payment of compensation has been extended to include detailed and purpose-designed attestations of epidemiological valuation and systematic financial controls.
- Financial sanctions to beneficiaries have been introduced, in proportion to their established co-liability in spreading disease.
- The entire legal framework of compensation procedures and conditions is being reviewed and suitable amendments are being planned for the year 2001.

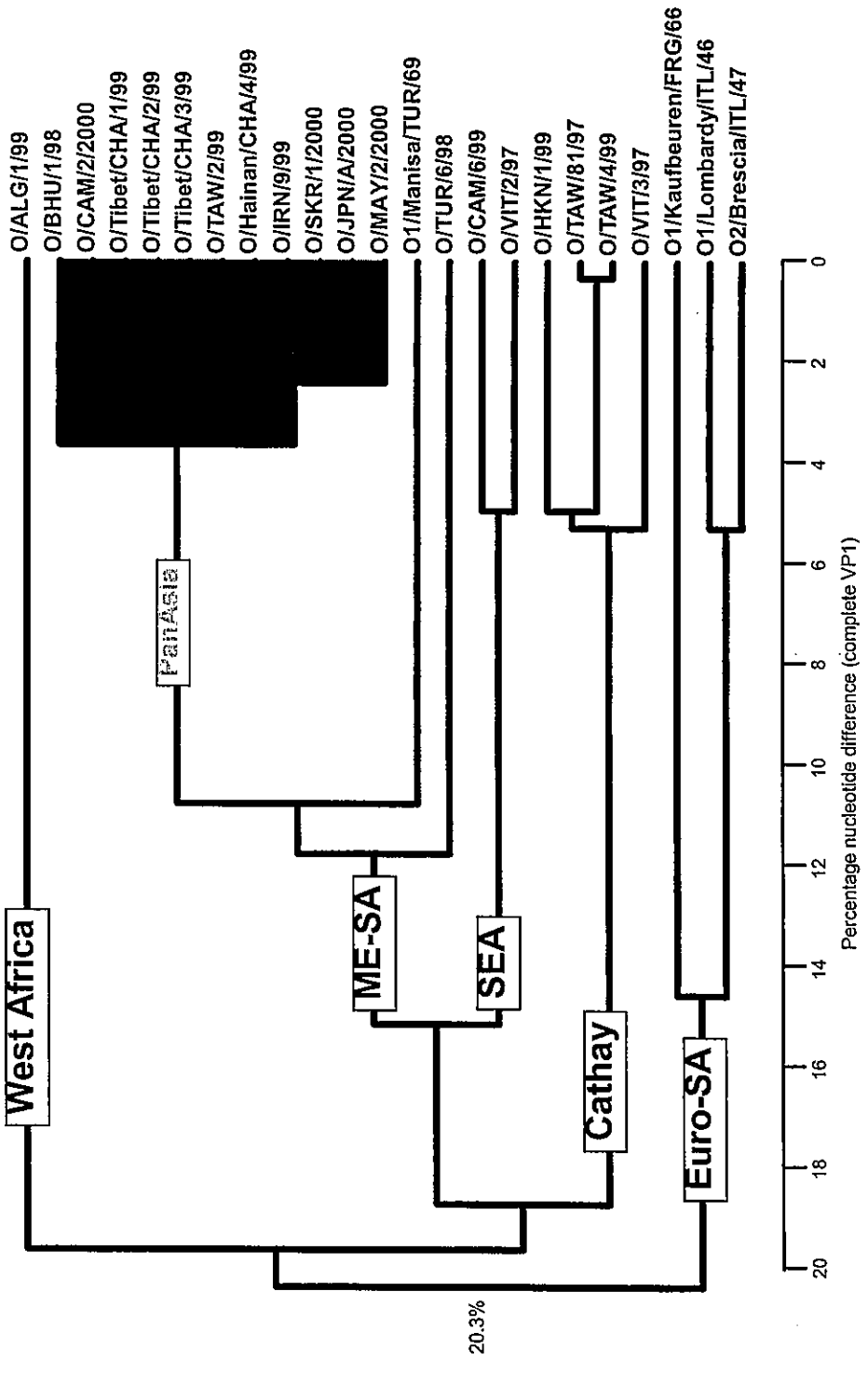
c) Technical actions

- The National Contingency Plan for combating FMD and other exotic diseases has been reviewed and supplemented so as to enhance efficiency in the field and co-ordination at all levels.
  The new CP is now completed and it will enter into force by the end of the year.
- The Athens Institute of FMD has been re-enforced in terms of staff and new laboratory techniques have been introduced (cell culture, ABC Elisa) so as to increase the speed and reliability of diagnostic capability.
- A new risk assessment study is being carried out and epidemio-surveillance in areas-at-risk will be reviewed in the light of its conclusions.
- A multi - disciplinary Seminar was organized, in Alexandroupolis, Evros, on 10 November 2000,addressed to various Services involved in combating exotic diseases and aiming to promote the new CP and present the conclusions of the latest risk assessment study.

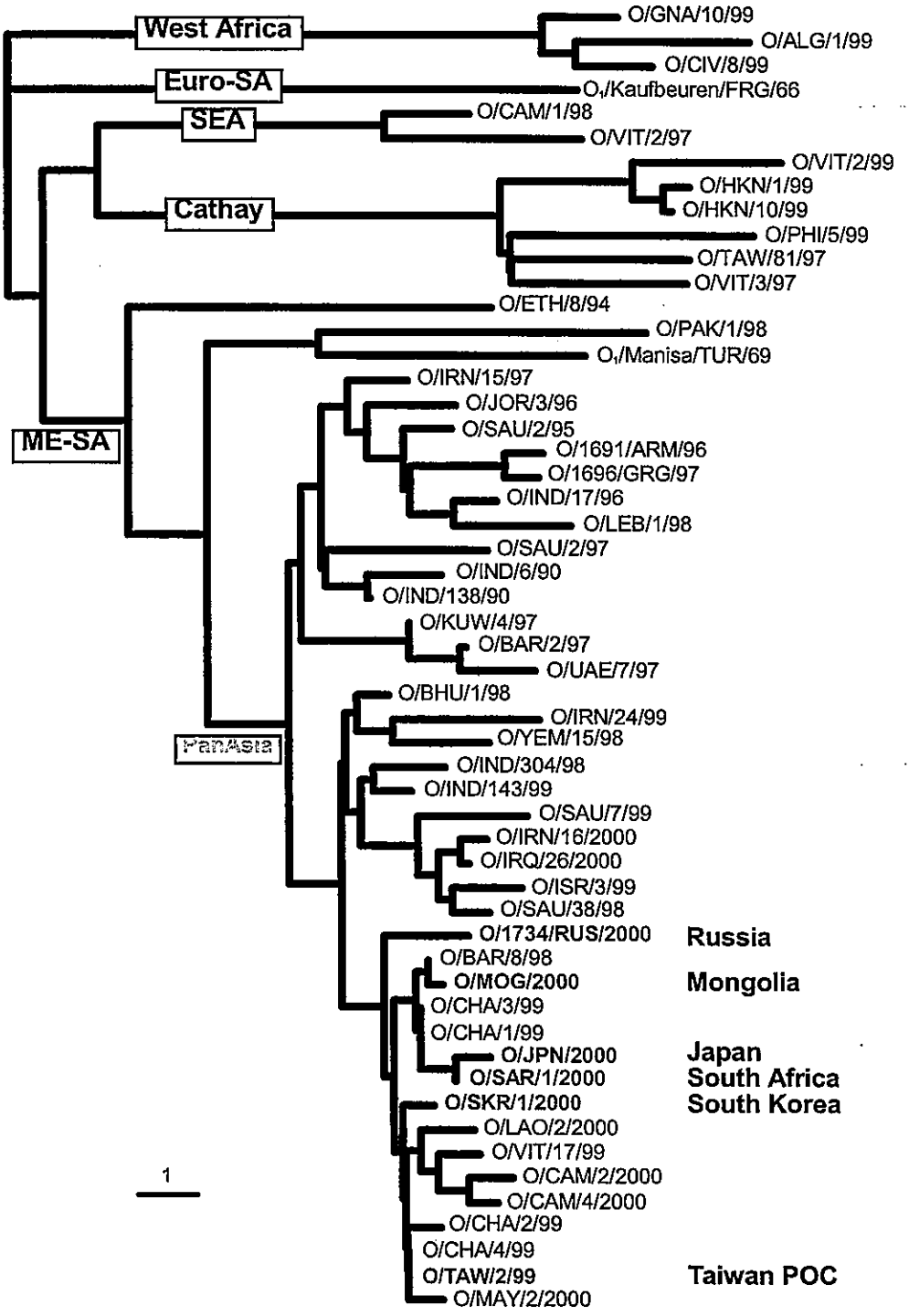
*** NOTE : Complete and current documentation referring to the incursion, evolution and eradication of FMD in Greece in summer 2000 can be found at the web site of the Dept.of Infectious Diseases at http://www.minagric.gr/greek/2.3.1.html**


Primary Incursion
Secondary Spreading
BULGARIJA
[BULGARIA]
00/01
00/02
00/03
00/04
00/05
00/06
00/07
00/08
00/09
00/10
00/11
00/12
00/13
00/14
NESTOS RIVER
ALEXANDROUPOLI
KAVALA
XANTHI
ORESTIADA
SPA RESORT
BEACH FACILITIES
SKI CENTRE
GOLF COURSE
BYZANTINE SITE
MEDIEVAL SITE
MONASTERY
CAVE
CAMPING
MOUNTAIN HUT
PREHISTORIC SITE
ARCHAEOLOGICAL SITE

Phylogenetic tree showing the relationships between the complete VP1-coding sequences of some of the FMD type O viruses belonging to the PanAsia strain

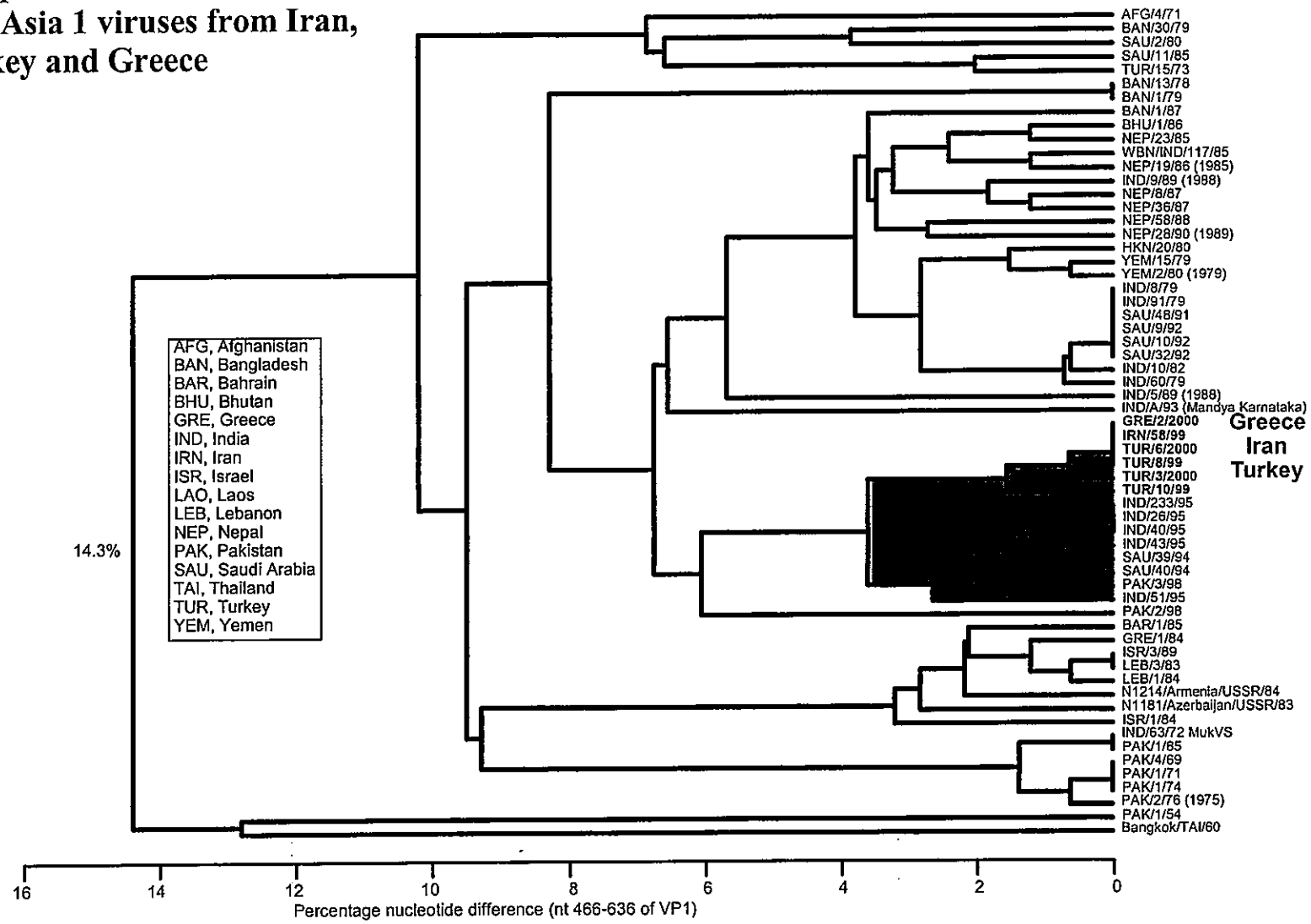


Phylogenetic tree showing the relationships between the PanAsia strain of FMDV type O and other strains

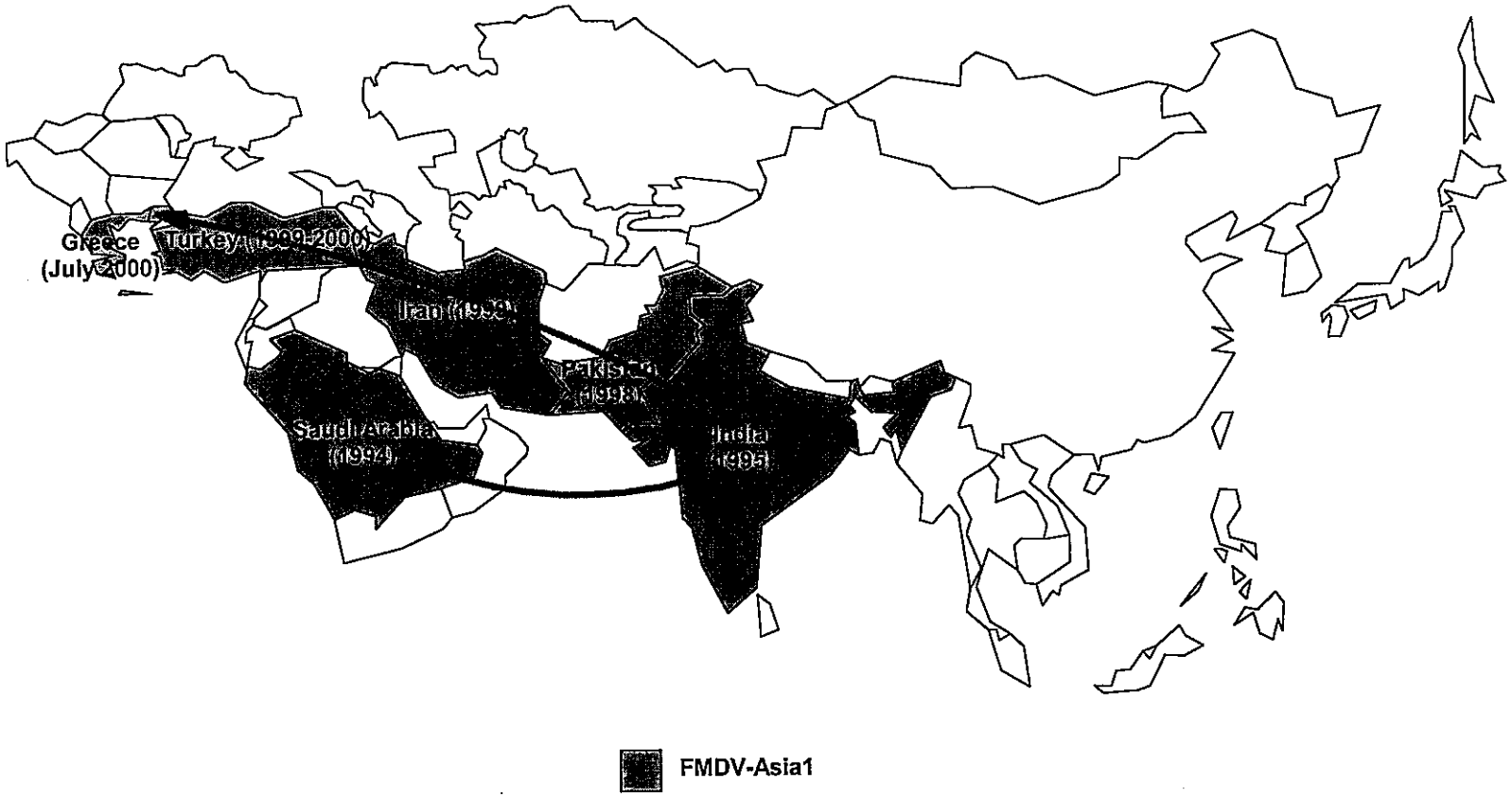


Based on a comparison of nucleotides 469 to 639 of the VP1 gene.

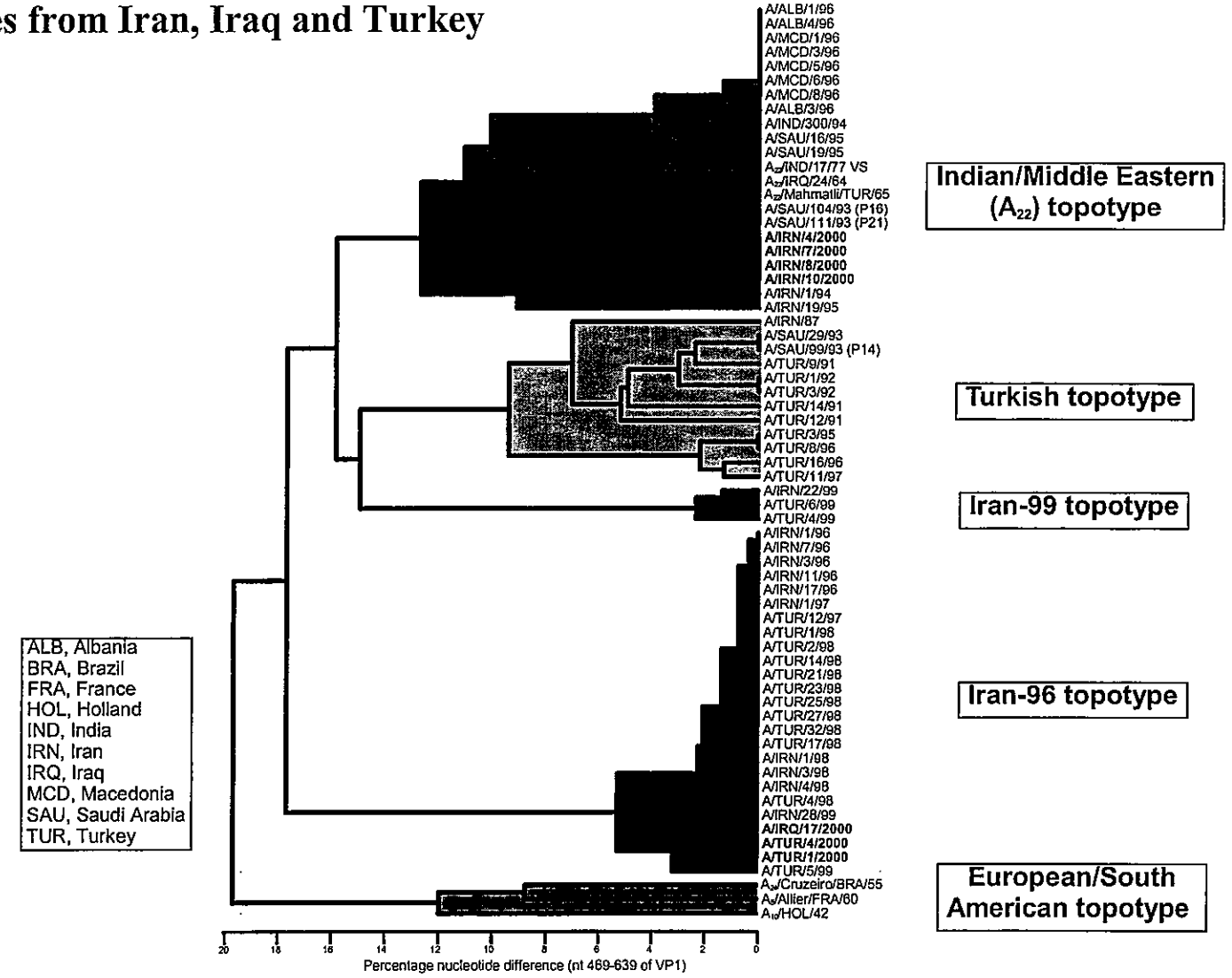
Comparison of recent FMD type Asia 1 viruses from Iran, Turkey and Greece



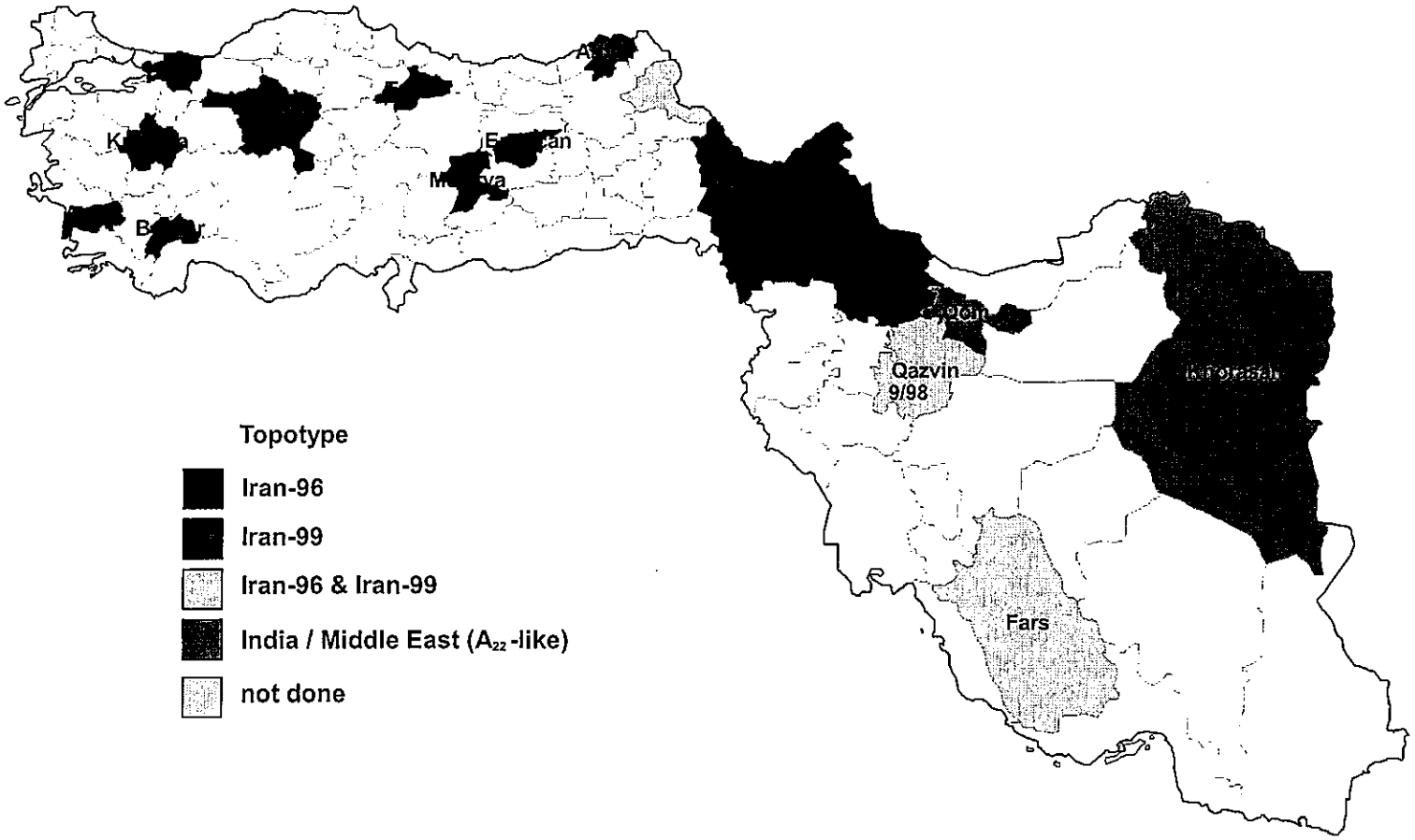
Probable recent spread of a FMDV-Asia1 strain



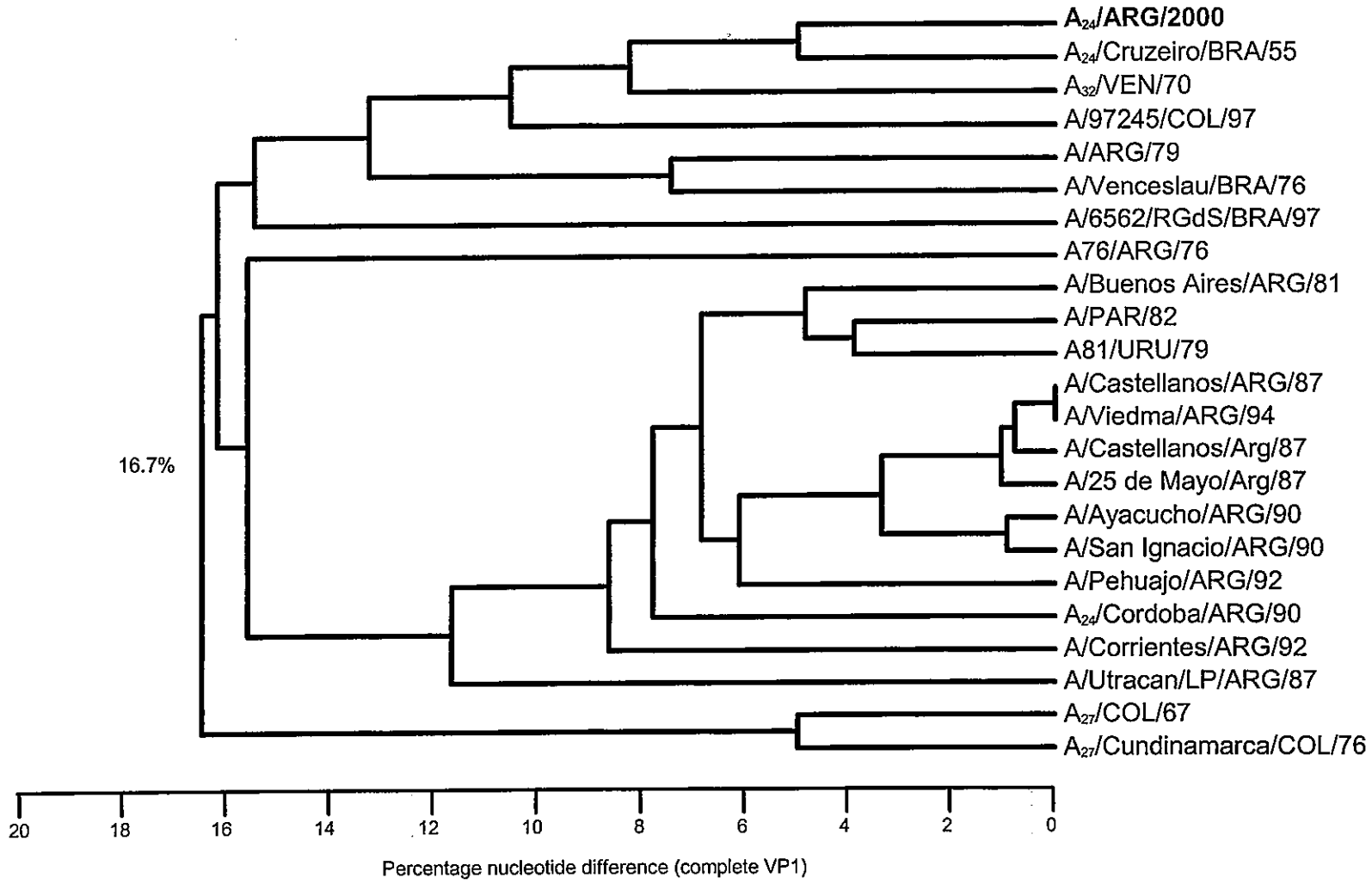
Relationships between various FMD type A viruses and recent isolates from Iran, Iraq and Turkey



Foot-and-mouth disease type A topotypes present in Turkey and Iran between 1998 and 2000



Relationships between A_{24}/Argentina/2000 and other South American strains



Appendix 4

FOOT AND MOUTH DISEASE SITUATION IN TURKEY

Foot and mouth disease is endemic in Anatolia therefore FMD is one of the most important diseases causing significant economical losses in Turkey. Vaccination, quarantine, control of animal movements, surveillance and monitoring are being applied to control of the dlisease.

During the first 10 months in 2000, 3 serotypes (A, O and Asia 1) of FMDV caused totally 100 outbreaks in Turkey (Table 1). Type O and Asia 1 was responsible for most of these outbreaks. Type A has not been reported for the last 6 months.

Table 1: FMD outbreaks in 2000

MONTH	OUTBREAKS					SUSCEPTIBLE		INFECTED		DEATHS	
	Type				Total	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
	A	O	Asia 1	NT							
January	0	4	0	1	5	789	2575	32	45	0	1
February	0	6	0	0	6	2213	0	23	0	0	0
March	2	4	4	0	10	9257	0	174	0	15	0
April	2	10	3	0	15	11378	500	175	80	10	80
May	0	6	9	0	15	29288	2900	458	220	34	3
June	0	7	16	0	23	26053	1168	1819	76	12	1
July	0	2	7	0	9	3870	1153	399	1	1	0
August	0	0	7	0	7	2115	5100	113	0	2	0
September	0	2	4	0	6	2643	3517	109	0	0	0
October	0	2	2	0	4	4975	3180	276	0	0	0
TOTAL	**4**	**43**	**52**	**1**	**100**	**92581**	**20093**	**3578**	**422**	**74**	**85**

A: Type A, O: Type O, As: Type Asia 1, NT: Not typed

In September '99 type Asia 1 FMD outbreaks in Iran were notified by OIE with an emergency case message. First occurrence of Asia 1 FMD outbreak was in October 1999 in Turkey.

The geographical situation of Turkey is always a risk factor for the dissemination of the contagious diseases mainly from the eastern and south-eastern neighbours. Turkey has increased its efforts to control illegal animal movements through borders; it is still a problem. Inland animal movement is also from east to the western part of the country in general.

1.Vaccine Production

The vaccine production at the FMD Institute (ŞAP Institute) for 2000 is given in Table 2. The production is still going on at FMD Institute. In this year, totally 8.948 000 cattle doses FMD vaccine has been sent to the field. 1.250 000 additional trivalent FMD vaccine will be used for the autumn vaccination campaign. 750 000 trivalent FMD vaccine have been imported from a commercial company for autumn vaccination.

Table 2. Vaccine production in 2000

Vaccine strain	Amount of produced vaccine(cattle doses)
O Manisa 69	3,430,000
A Aydın 98 (homologue Iran 96)	53,000
Asia 1 74	1,400,000
A Mahmatlı 65+ O Manisa 69	840,000
A Aydın 98+ O Manisa 69+ Asia 1 74	3,225,000
Total	**8,948,000**

Turkey has been investing significant amounts of money to increase the quantity and the quality of FMD vaccines, which will in turn, contribute for the control of FMD in Turkey. Turkey will continue to invest in FMD Institute to improve the conditions further. Production of oil adjuvanted vaccine, repairmen of the waste treatment system and filtration and concentration of FMD antigens for the vaccine production can be mentioned in this context. Privatisation of vaccine production is in progress and supported by MARA.

2.Vaccination Program

A new control programme was formed for the year 2000. The spring vaccination programme in Turkey was applied as follows:

2.1.Spring Vaccination Programme

2.1.1. Thrace and Marmara Region

Biannual vaccination of all ruminants with a bivalent vaccine (A and O types) in Thrace region (Edirne, Tekirdağ, Kırklareli, İstanbul and Çanakkale) and provinces surrounding the Marmara Sea (Balıkesir, Bursa, Yalova, Kocaeli, Sakarya, Bilecik, Bolu, Anatolian parts of İstanbul and Çanakkale).

2.1.2. Black Sea Region

Biannual Strategic vaccination of large ruminants with a monovalent vaccine (O type) in Artvin, Giresun, Gümüşhane, Kastamonu, Ordu, Rize, Samsun, Sinop, Trabzon, Zonguldak and Bartın Provinces. Disease has not reported for many years in this Region.

2.1.3. In the other regions:

Biannual vaccination of all large ruminants with a monovalent vaccine (O type) in the remaining region.

In the case of type A or other type outbreaks additional ring vaccination with a monovalent vaccine.

Spring vaccination campaign completed within 2 two months, February and March, in all Provinces.

2.1.4. Other activities

Active surveillance has been carried out in the field especially in Kars, Ardahan, Iğdır, Ağrı, Van, Hakkari and Şırnak Provinces.

- Training of the technical personnel mainly in the provinces close to the borders with Iran and Iraq by stressing the importance and risks of the type Asia 1 epidemics. In relation to this a team composed of a specialist veterinarian from Şap Enstitüsü, Ankara and an epidemiologist from GDPC were employed for training of the veterinarians and veterinary technicians in the provinces along the borders.

- The farmers were encouraged to slaughter their animals in the slaughterhouses in Eastern Anatolia instead of transporting to the West.

- The Minister of Agriculture and Rural Affairs has circulated an instruction to the governors of five provinces on the Iran and Iraq border and informed the Ministry of

Internal Affairs and the Regional Governor of Extraordinary Situation (OHAL) for the emergency action plan. From the point of view a series of measures were taken, such as:

-Disinfecting all vehicles crossing through the borders,
-Closing the animal markets and not allowing the dispatch of the livestock from these provinces,
-More strict security and traffic controls of the trucks on the overland routes,
-Regular control and disinfecting of the animal markets,
-Warning the farmers about the importance of the situation,
-Sending regular development reports to MARA,
-Application of the legal measures and penalties if necessary.

Turkey has increased its efforts to control FMD in recent years. To increase the farmer participation in disease control programs, it was decided to charge farmers for FMD vaccines in 1995. This increased the budget of FMD Institute significantly and some major investments have been realised since than.

Spring vaccination figures is given in Table 3.

Table 3. Vaccination figures for the first round of 2000

Region	Animal Population		Vaccination			
	Large rum.	Small rum.	Large rum.	%	Small rum.	%
Thrace	498.478	766.262	368.110	74	394.233	51
Anatolia	10.818.019	36.725.738	5.529.548	51	2.784.644	8
Total	11.377.917	39.376.960	6.291.891		3.178.877	

2.2.Autumn Vaccination Program

GDPC decided to review the vaccination program after Asia 1 FMD type situation in the region. So that it has been decided to use a trivalent vaccine (A, O_1 and Asia 1) in all regions of the country for the autumn vaccination campaign. In the present situation the vaccination program in Turkey for the autumn campaign is follows:

2.2.1.Thrace Region:

Vaccination campaign has been organised in Thrace region, including the Anatolian part of Istanbul and Çanakkale. Vaccination of all ruminants with 1.3 million doses of trivalent vaccine (A_{22} Mahmatlı, O_1 Manisa and Asia 1 types) supplied by EU. Vaccination, surveillance and serosurvey studies are currently being applied in the region. Following the vaccination campaign a serological survey has been conducted to evaluate the success of the vaccination campaign. For this purpose a total 35 villages were randomly selected. From each village 15 cattle and 15 sheep/goat sera from different age groups will be collected at days 0, 28 and 120. NSP-ELISA will also be done to determine whether active virus circulation has been present or not. The potency of the vaccine will be tested in field conditions in Ankara province in cattle, sheep and goats (30 from each).

The amounts of delivered vaccine for Thrace region is given in Table 4.

Table 4.The amounts of delivered vaccine for Thrace region

Province name	Animal population		Vaccination program		Delivered vaccine
	Large Rum	Small Rum	Large Rum	Small Rum	First party
CANAKKALE	106,258	632,500	105,426	593,020	180,000
EDİRNE	112,234	237,586	112,234	237,586	180,000
İSTANBUL	94,606	91,680	80,507	91,680	77,000
KIRKLARELİ	90,200	266,800	90,200	266,800	170,000
TEKİRDAG	95,180	168,650	95,180	168,650	150,000
TOTAL	**498,478**	**1,397,216**	**483,547**	**1,357,736**	**757,000**

STORAGE VACCINE AT THE PENDIK INSTITUTE	543,000 doses

Second round of FMD vaccination figures for Thrace region is given in Table 5.

Table 5. FMD vaccination figures for Thrace region

Province name	Vaccination program		Vaccinated		Vaccination %	
	Large Rum	Small Rum	Large Rum	Small Rum	Large Rum	Small Rum
ÇANAKKALE	105,426	593,020	75,391	108,967	72	18
EDİRNE	112,234	237,586	93,439	66,007	83	28
İSTANBUL	80,507	91,680	60,184	10,164	75	11
KIRKLARELİ	90,200	266,800	72,428	166,552	80	62
TEKİRDAĞ	95,180	168,650	82,761	55,663	87	33
TOTAL	**483,547**	**1,357,736**	**384,233**	**407,353**	**79**	**30**

The EU Mission has visited to Thrace region. GDPC has taken necessary measurement according to EU mission recommendation.

2.2.2.Anatolian Region:

Vaccination of all large ruminants with trivalent vaccine (A Aydın 98, O_1 Manisa and Asia 1). In some areas in the Black Sea Region where no FMD outbreak has been determined for years were excluded in this campaign, whereas, in the case of necessity strategic vaccination will be applied.

Vaccination campaign in Anatolia has been started from eastern border region including 12 provinces with the vaccine produced by Sap Institute. 750 000 doses imported vaccine have been used in Afyon, Aydın, Burdur, Denizli, Eskişehir, Konya, İzmir, İsparta, Manisa, Muğla, Uşak provinces in Western Anatolia.

It is clear that Asia 1 type and variations in A type FMD is a potential risk for Turkey and also for Europe. Turkey should be considered a high-risk area regarding the transmission of the disease to Europe. By the way, the following actions would support to solve the problem:

- European Union may contribute to the efforts of Turkey through the installation of filtration and concentration system.
- Direct assistance for FMD vaccine production in Turkey.
- Quality assurance and quality control of the vaccine produced in Turkey.
- Improvement of Road Inspection Posts
- Improvement of Border Inspection Posts
- Improvement of Animal Markets
- Identification of Cattle

Appendix 5

Report of the EUFMD/EC/OIE Tripartite Group Meeting on the Balkans held in Istanbul, Turkey , on 20 October 2000.

Introduction

Dr Sungur, General Director, GDPC, MARA, Turkey welcomed the participants on behalf of the Minister of Agriculture and Rural Affairs of Turkey. He underlined the high importance of the regional cooperation through the Tripartite Group concept as a very appropriate forum to address the problems of the region. Regarding the spread of Asia 1 in the region, he regretted that international organizations did not react more rapidly when Turkey requested support while the new virus was in Iran and threatening Turkey.

On behalf of Mr Muthoo, Representative of FAO to Turkey Mr Onul, Programme Officer, welcomed participants. He underlined that the organization of the meeting in Istanbul was highly significant considering its position as a crossroads strategically positioned between Europe and Asia

Dr Marabelli, Chairman of EUFMD thanked Mr Onul and FAO and Dr Sungur and the Ministry of Agriculture of Turkey for having accepted to organise and host this meeting. He welcomed delegates from the three countries and from International Organizations i.e. EC and OIE. Dr Marabelli then presented the provisional agenda which was adopted with the addition of another item on trade issues in the region. The meeting included two different topics FMD and BT and other exotic diseases. Dr Marabelli suggested that FMD be reviewed in the morning, the afternoon being devoted to BT and other exotic diseases.

Item 1: FMD situation in Greece

Dr Panagiotatos reported on the last outbreak due to Asia 1 type, which occurred in Greece in July 2000. The previous outbreak in Greece was in 1996 and Greece regained its FMD free status in 1998. Since then and up to July 2000, no FMD had been reported in Greece.
In 2000, the disease occurred mainly in the Evros delta. 14 outbreaks have been reported: three are considered as primary outbreaks (new introduction of the virus) the other being secondary outbreaks. The origin of the virus is Turkey (virus identical to the Asia 1 strain isolated in Anatolia). For Dr Panagiotatos there is no doubt that the virus came from Thrace where it is present even if not reported. Regarding the situation in Turkish Thrace, the Turkish delegation explained that they have investigated the situation carefully and despite this surveillance they have not detected any sign of FMD. The EC/EUFMD mission which visited Thrace in early October also did not find any sign of FMD during their visiting programme in Thrace.
Dr Panagiotatos explained that the nearest case to the Greek border of FMD due to Asia 1 was reported in Bolu Province in Turkey and it is unlikely that the virus had come to Greece from there. He was of the opinion that this indicates deficiencies in surveillance and reporting in Turkey and particularly in Turkish Thrace.
Dr Panagiotatos also explained that a serosurvey is in progress around the infected zone (in Evros, Rhodopi and Xanthi Prefectures) to verify the absence of circulation of the virus. Preliminary results indicate that the 2000 sera collected so far were negative. These

results contrast with previous sero-surveys after outbreaks in 1994 and 1996 where few positive sera were detected in the vicinity of the infected premises. This absence of any seropositive animal in 2000 clearly demonstrates that the disease has been detected and eradicated at an early stage. The specific surveillance program for Evros province approved and financed by EC is in progress but the recent episode of FMD showed that as the program had been conceived for surveillance in the absence of the disease, it was not yet fully operational for controlling the disease when it occurred in July.

The Secretary of the Commission then presented the conclusions and recommendations of his mission to Greece at the end of July. He stated that certain deficiencies in control had been noted by the mission and most of them have now been corrected. Despite these deficiencies, the measures taken have proved to be efficient in limiting the spread of the disease.

Item 2: FMD surveillance in Bulgaria

Dr Ivanov presented the report of Bulgaria stating that the last FMD outbreak was eradicated in 1996. He presented the result of the sero-surveillance carried out in Bulgaria in 1999. The serosurvey included the 3 Bulgarian provinces bordering Turkey, where the 42 villages within 10km of the Turkish border were sampled. All animals in these villages are ear-tagged. A total of 20 000 samples have been collected and tested with negative results.
In the context of the region where three types of FMDV are circulating in Iran and Turkey there are advantages to the use of the NSP test as it can detect antibodies to any type of virus if circulating.
There are also three regional inspectors on exotic diseases operating in the high risk area in Bulgaria.

Item 3: FMD situation and control in Turkey

Dr S Aktas presented a report on the situation of FMD in Turkey for the last nine months: 96 outbreaks had been reported mainly due to type Asia 1, 50 outbreaks, to type O, 41 outbreaks and 4 were due to type A. He also presented maps with distribution of FMDV in Provinces by types. Types Asia 1 and O are widespread all around the country while Type A occurred in 3 provinces only.

He also presented the spring and the autumn vaccination programs for 2000. In the present situation and due to the lack of vaccine the vaccination programme was as follows:

- Thrace Provinces (Edirne, Tekirdağ, Kırklareli, European part of İstanbul and Çanakkale) and the Marmara Sea Provinces (Balıkesir, Yalova, Bursa, Kocaeli, Sakarya, Bilecik Bolu and Anatolian parts of İstanbul and Çanakkale) : Biannual vaccination with bivalent (A and O types),
- Black sea region: biannual strategic vaccination with type O. disease has not been reported for many year in the region
- In the other regions: Monovalent vaccination (O type)
- In the case of A or Asia type outbreaks, additional ring vaccination with monovalent vaccine for national wide.

8 169 000 doses of (monovalent, bivalent or trivalent) FMD vaccines have been produced at the Sap Institute in 2000 and 2 million additional trivalent vaccine doses will be produced for the autumn campaign.

The spring vaccination has been completed within two months (February and March). In Thrace 74 and 51 % of large and small ruminants have been vaccinated respectively. In Anatolia vaccination covered 51 % of large ruminants and 8 % of small ruminants.

For the autumn campaign 1.3 million of trivalent vaccine (O, A22, Asia 1) have been provided by EU for vaccination in Thrace. Out of this vaccine 750 000 doses have been delivered to the provinces the rest being kept in Pendik Institute. A EU/EUFMD mission visited Thrace in the first week of October. At the time of the mission 51% of large ruminants and 19 % of small ruminants had been vaccinated in Thrace. However there are discrepancies between provinces where maximum and minimum for large and small ruminants are respectively 68-44 % and 3-49%. Turkey did assure the meeting that the vaccination campaign will be completed by the end of October and a covering of more than 80 % is expected. Following the vaccination a serosurvey will be conducted.

In Anatolia vaccination is concentrated on cattle. The vaccination campaign started from the eastern provinces of Turkey from the border to the interior. Trivalent vaccine locally produced has been used in the eastern and central provinces and 750 000 additional doses of imported vaccine (from Intervet) will be used in Western Anatolia.

Active surveillance has been carried out especially along the borders in eastern provinces. Training of staff and awareness campaigns have been organised. Farmers were also encouraged to slaughter their animals in slaughterhouses in Eastern Anatolia instead of transporting them to the west. The Minister of Agriculture has circulated instructions to the Governors of provinces along the border for emergency actions to be taken. Dr Arik explained that Turkey has put many efforts into the improvement of FMD control: this includes training of Veterinarians (from public and private sectors), the re-furbishment of and the purchase of new equipment for the Sap Institute, awareness campaigns, and support to animal markets
In conclusion, theTurkish representatives reminded the meeting that the FMD situation in Turkey is serious and all support forthcoming will be welcome.

The conclusions and recommendation of the recent mission of EUFMD to Thrace were circulated to the participants. They confirmed the statements made by Turkey about the situation of FMD in Thrace and the level of completion of the autumn vaccination campaign in Thrace. The mission underlined the importance of the forthcoming serosurvey in Thrace to verify whether FMD virus has been circulating .

During discussion, Dr Panagiotatos stated that the FMD situation in Turkish Thrace is not clear and Turkish Thrace remains the most likely source of the virus introduced to Greece in July. Dr Ivanov continued and stated that freedom of Turkish Thrace is not demonstrated as there is no sample addressed to the laboratory and even the obligation of veterinarians to report suspicions is questionable. Dr Aktas confirmed the absence of outbreaks in Thrace but for Dr Ivanov the definition of outbreaks should be clarified.

Dr Füssel agreed that EC had some difficulties to implement its FMD project in Turkey due to financial constraints in Turkey that do not permit carrying out the programme in

accordance with the Decision 98/64 and EC rules for financing. However, the Turkish side had not made all the efforts that had been requested. There is still money available under this programme but EC is now in favour of concentrating efforts and support to Thrace to combat FMD and other exotic diseases (sheep pox, PPR, Blue Tongue) Dr Füssel also encouraged Turkey as an accession candidate to approach the DG for Enlargement for long term actions which need important resources.

Dr Sungur informed the meeting that the problem encountered in the past by Turkey for pre-financing 70 % of the EC project is now being solved.

The Turkish delegation circulated a copy of their law on animal identification (regarding bovine)

Item 4 : Regional control programme

Dr Ivanov explained that NVS in Bulgaria is seriously worried about the current situation of FMD in the entire region of Thrace. For him the deficiencies in the present strategy could be overcome only with the common efforts of the three countries with the assistance and support of International Organizations.

He recommended the following measures;
1) Identification of all susceptible animals and registration of holdings within the buffer zone.
2) The former 30 km zones be transformed into surveillance zones in the three countries. Whenever vaccination is being carried out in the zone, type of vaccine used and schedule of vaccination should be declared to neighbouring countries and international organizations.
3) Regular clinical inspection and intensive serosurveillance (using NSP ELISA) to be carried out under the control of international organizations. All NSP positive sera should be sent to the WRL and results should be known to the three countries + international organizations.
4) Unification of the FMD contingency plans between the three countries.
5) Financial and methodological support to be provided for training of staff in national laboratories.

Dr Belev, OIE, explained that the buffer zone in the region was established more than 30 years ago and as there is a high risk of FMD spreading we must take action to protect Europe. He suggested that as follow up to the current meeting of the Tripartite with the CVOs, experts and field veterinarians of the three countries could meet regularly (at intervals of 1 to 3 months depending on the situation) to discuss practical issues and the progress made in prevention and control of FMD and exotic diseases. They could also make visits to the field in the three countries when appropriate.

Dr Füssel was not in favour of multiplying the number of unnecessary meetings but agreed on the interest of local meetings on a bilateral basis where there is real exchange of information and data with reliable and practical results.

It was recommended by the meeting that a framework for a regional program be prepared and circulated to participants by the Secretary of EUFMD. Countries and international organizations should add their contributions to the document (see Annex III the blue print

of the document). This document when finalised should be used as minimum agreed guidelines for FMD control in the region.

Item 5: Trade issue

Dr Panagiotatos asked clarification from Turkey and Bulgaria on the reasons why they ban the import of hides and skins from Greece. He asked whether this was due to the situation of FMD or of Blue tongue as there is no restriction foreseen under the OIE Code for any of the two diseases. He asked that written explanation be sent to him. Dr Sungur explained that under the Turkish law imports are not allowed when one of the list A diseases exist. However they are now reviewing the law to adapt it to the OIE code and his country will also take into consideration the principle of regionalisation.

Bulgaria confirmed the general ban on imports of live animals and animal products originating in the entire Greek territory due to FMD. Dr. Panagiotatos requested that Bulgaria adopts the community acquis communautaire on the applicable safeguard measures.

Appendix 6

REPORT ON THE EUFMD MISSION TO TURKEY TO EVALUATE THE VACCINATION CAMPAIGN IN THRACE (02-06 OCTOBER 2000)

Introduction

In response to the outbreaks of FMD type Asia 1 in north-eastern Greece, in July and August 2000, the European Commission decided to finance vaccination of large and small ruminants with a trivalent O, A and Asia 1 vaccine in Turkish Thrace as a measure to protect Europe.

It was decided that an EC mission should be carried out to inspect the vaccination campaign and it was decided that EUFMD should accompany this mission to offer its advice on the vaccination campaign and the serosurvey. The EUFMD mission would also take the opportunity to check on the progress of the FAO TCP project TCP/INT/8922 and to evaluate the implementations of the previous joint EC-EUFMD mission to Thrace in 1998.
The specific Terms of Reference of this mission are repeated below:

Terms of Reference

1. In Ankara

- visit the FAOR and assess progress in the on going TCP project between Turkey and Iran

2. In Istanbul

- estimate the capability of Pendik Institute to play a role in Surveillance and emergency action in case of outbreaks in Thrace

3. In Thrace

In each of the provinces visited the EUFMD expert should:
- verify that a clinical inspection and questioning of the owner precedes vaccination
- assess the FMD situation: likelihood that unnoticed cases off FMD could have occurred
- ask the farmers their opinion on FMD surveillance/control/vaccination programs
- estimate the level of ear-tagging/identification of cattle
- push for a short campaign (less than 2 months) starting from the borders with Greece and Bulgaria.
- discuss and provide expertise in the preparation of the serosurvey with two objectives:
    * estimate the vaccine coverage
    * verify whether virus circulate in the region (using 3 ABC ELISA knowing that the test has been validated in the Sap Institute, Ankara)
- discuss and make proposals for a long term and sustainable surveillance program in Thrace
- identify the questions which should be raised to the Tripartite meeting.

All assessments should be based on the findings of the previous mission in 1998 and the expert should estimate whether the recommendations of the previous missions had been followed for the present campaign (loses, daily report by vaccination, respect of cold chain, disinfection between farms etc...) . If not they should be repeated.

Conclusions and Recommendations

1. In Ankara

"visit the FAOR and assess progress in the on-going TCP project between Turkey and Iran"

Conclusions

Although there has been delays due to the bureaucratic procedures necessary for revisions to the TCP in FAO HQ, the project revisions have now been accepted and the necessary funds have been released to the FAO Representations in both Turkey and Iran.

The delayed procurement of equipment is now in an advanced stage and FAO Turkey can procure the equipment on presentation of the correct invoices.

The 2 week workshop in Tehran has been delayed but there is a choice of newly proposed dates in late Nov and early Dec.

There are enough funds available for more than the originally planned 2 people to attend the workshop in Tehran. This will involve co-operation on both sides to reduce DSA requirements by allowing visitors to stay in government accommodation for the duration of both workshops.

TCDC experts have separate funding for their attendance at the workshops as their role is to provide the necessary expertise through lecturing and demonstrations. It is important that the TCDC experts have the necessary skills and preparation to be able to conduct the training required by the workshop programme.

The difficulties in arranging training in vaccine production were discussed and it was decided that FAO would present Turkey with the limited options currently available and allow Turkey to choose the best option.

The research project was discussed and it was agreed that a draft proposal would be put forward by the SAP Institute for discussion with the WRL.

2. In Istanbul

"estimate the capability of Pendik Institute to play a role in Surveillance and emergency action in case of outbreaks in Thrace"

Conclusions

The Pendik Institute is an important veterinary institute with a long history in vaccine manufacture.

It acts as the Regional Veterinary Laboratory for Thrace and the Marmara region and as such has a role in passively collecting epidemiological information from the provinces.
It performs no FMD diagnoses, but refers all samples to the SAP. It may perform post mortem examinations on FMD cases but will rely on the SAP Institute for serology and virus isolation.

Its main functions regarding FMD vaccination campaigns are:

- storage and distribution of vaccine
- back up advice and technical support for the veterinary staff in the provinces
- investigating adverse reactions
- training for veterinary personnel and farmers
- co-ordination meetings before the vaccination campaign
- testing of vaccine for bacteriology

It has a good cold room for the storage of vaccine, but does not constantly record temperatures to demonstrate the correct functioning of the cold rooms.

The institute has scientists and epidemiologists that are fully capable of supporting field activities, but there is a lack of specific FMD expertise. Specific expertise in FMD is provided directly to the provinces from the SAP Institute.

Serosurveys are organised directly by the SAP Institute and the GDPC, MARA.

Recommendations

That the Pendik Institute continues to support the provincial directorates with technical support and advice. (including full scientific studies of suspect adverse reactions to vaccination and post mortem examinations of FMD suspect cases).
That the Pendik Institute place a higher priority on a paper trail that could verify that the cold chain was maintained
That in training or meetings before vaccination campaigns, the institute should draw the veterinarians attention to the importance of hygiene at vaccination and the correct use of ice packs to maintain the cold chain.

3. In Thrace

"verify that a clinical inspection and questioning of the owner precedes vaccination"

Conclusions

In all provinces visited and questioned, the farmer is asked if any of the animals are clinically ill (with any disease not just FMD) when the vaccinator first arrives at the farm. Any sick animals thus presented are clinically examined to see if their clinical condition allows vaccination to proceed. Any animals deemed unfit to be vaccinated are treated and vaccination is delayed until a revisit to the farm takes place. This is passive clinical surveillance - i.e. only animals presented by the farmer are examined.

All the large ruminants that were observed were tethered in dark sheds and all small ruminants that were observed were gathered in a dark shed for vaccination. This makes clinical examination difficult.

Recommendations

That all vaccinated animals are subjected to active clinical surveillance at the time of vaccination, i.e. clinically examined for lesions of FMD. This can provide valuable data on

the existence of healed or mild lesions of FMD and give a clearer picture of the true status of the livestock population in Thrace.

"assess the FMD situation: likelihood that unnoticed cases off FMD could have occurred"

Conclusions

Based on discussions with veterinarians and farmers, there is no evidence that clinical FMD has affected animals in Thrace in the recent past.

This doesn't rule out the possibility of silent or sub-clinical infections, especially in small ruminants.

Recommendations

Although the mission did not detect any signs of FMD in Thrace, it is **very strongly** recommended that the Turkish Authorities demonstrate this disease freedom by active clinical surveillance at the time of vaccination and well planned serosurveys using the NSP test.

"ask the farmers their opinion on FMD surveillance/control/vaccination programs"

Conclusions

In all the villages visited, the farmers appeared to support the vaccination campaigns and to have a healthy respect for FMD.

The farmers were concerned about adverse reactions to the vaccination, particularly abortions in pregnant cows.

The veterinary services also reported that the farmers were a little frustrated at having to constantly vaccinate their cattle, although they had no clinical outbreaks of FMD for years.

Recommendations

That in view of the good health status of animals in Thrace, that the Turkish authorities should consider pursuing a policy leading to a declaration of Thrace as a zone free of FMD initially with vaccination and then later on without vaccination (when the necessary control measures are put in place in Anatolia).

"estimate the level of ear-tagging/identification of cattle"

Conclusions

Almost all large ruminants observed on the farms visited were tagged, in Edirne we were assured that almost all animals were tagged and in Kirlareli the estimate was that 75-80% of the animals were tagged as the result of a project with GTZ and the local breeding association. The primary purpose of these tags is for recording breeding information. In all, most of the animals in Thrace are tagged but under different schemes to that in the East of Anatolia and the GDPC has issued guidelines to try to ensure that the tagging systems are compatible.

Vaccinated animals did not receive an identification mark and their tag numbers were not recorded during vaccination.

The district and provincial veterinary offices keep records of the herd(village) animal populations and therefore have a good approximation of the number of animals in each village to be vaccinated, but individual animals tag numbers are not recorded and registered.

Recommendations

That better use is made of existing tagging schemes to more accurately record the animal populations, the animals vaccinated and to help in animal movement controls.

"push for a short campaign (less than 2 months) starting from the borders with Greece and Bulgaria"

Conclusions

In all provinces we were assured that the vaccination campaign would be finished by the end of October, approximately 1.5 months after the commencement of the campaign. There is no evidence to doubt this.

In the provinces with borders with Greece and Bulgaria, we were assured that the vaccination started at those borders and progressed south-eastward. There is no evidence to doubt this.

Recommendations

That these efforts be continued for all future vaccination campaigns.

"discuss and provide expertise in the preparation of the serosurvey with two objectives:

- *to estimate the vaccine coverage*
- *to verify whether virus circulates in the region (using 3 ABC Elisa)"*

Conclusions

The mission did not get to examine in detail the plans for the serosurvey.

Recommendations

That the Turkish Authorities carefully design the serosurvey so that the two questions above can be answered.

That the Turkish Authorities consult with EUFMD on the plan for the serosurvey.

"discuss and make proposals for a long term and sustainable surveillance program in Thrace"

Conclusions

In the time available there was no time for detailed discussions for a long term sustainable active surveillance programme

Recommendations

In a normal year, there is usually two vaccination campaigns in Thrace. These opportunities should be used to the full by conducting active clinical surveillance at the time of vaccination. Any post vaccination serosurveys should use the NSP Elisa test to try to detect silent circulation of virus.

"identify the questions which should be raised to the Tripartite meeting"

1) The plan for the serosurvey should be discussed and in particular what specific questions it is designed to answer.

2) Discuss the origins of the outbreaks in Greece and the likely route of transmission, assuming that Thrace is free of FMD.

3) The shortcomings in the vaccination campaign as raised by the EC Mission:

- absence of comprehensive documentation on vaccine usage that would allow proper auditing of the use, storage and wastage of the vaccine.
- maintenance of the vaccine temperature could not be demonstrated in the cold stores and there were incorrect uses of cold packs in the field.
- vaccination procedure - esp the accurate measurement of many small doses in dark sheds and lack of clinical examination of all animals
- sub-optimal vaccination hygiene - using the same needle to aspirate the vaccine and to inject the animal, mixing of used and unused needles in the same container

4) Improvements since the last mission

Vaccination is now starts from the Greek and Bulgarian borders
The campaign is condensed into less than 2 months
Losses appear to be less due to the use of 50 dose bottles
More complete tagging of the animal population
Better information on livestock populations is provided to the vaccinators at the beginning of the day
Written protocols on vaccination and disinfection technique are now available

5) No improvements since the last mission

Individually tagged animals are not registered by the veterinary authorities and this information is not used for vaccination planning or movement controls
Metallic boxes still in use in some districts and irregular use of icepacks
Shortcomings as raised by the EC mission above.

Acknowledgements

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Appendix 7

Conclusions and Recommendations of the European Expert mission to Caucasus as presented to the Tbilissi meeting of 8 July

Выводы и рекомендации по Закавказскому Региону экспертов МЭБ/ФАО/ЕС

Frame work of the mission
Цели и задачи миссии.
The mission including 4 European experts and one expert from ARRIAH was fielded with the following objectives:
Миссия, включающая 4[x] представителей из европейских стран и 1 представителя ВНИИЗЖ, преследовала следующие цели:

- evaluate the situation of FMD in the region;
  оценить ситуацию по ящуру в Регионе;

- assess the impact of the EC/FAO project which started in 1999 and consisted in providing vaccine for vaccinating on southern borders and supporting the reinforcement of FMD surveillance in the region;
  оценить влияние проекта ЕС/ФАО, начатого в 1999 году и заключающегося в предоставлении вакцины для иммунизации вдоль южной границы и поддержке усилий по надзору за ящуром в Регионе;

- update the assessment of the risk introduction of FMD from Caucasia to Russia and to Europe carried out in 1999;
  пересмотреть оценку риска заноса ящура из Закавказья в Россию и далее в Европу, проведенную в 1999 году

Summary of findings
Обобщение результатов

Disease situation in the region
Ситуация по заболеванию в Регионе.

In contrast to what was understood by the mission in 1999, it is estimated that FMD virus circulates in the region but disease is not properly reported and there are unacceptable delays in reporting it and submitting samples for typing in case of suspicion of FMD. Last outbreak was officially in Georgia in May 2000 due to type O. The ELISA to NSP carried out by ARRIAH in 1999 also showed evidence of virus circulation
В отличие от того, что было отмечено миссией в 1999 г., сейчас установлено, что вирус ящура циркулирует в Регионе, но о заболевании сообщается не должным образом и допускаются задержки в информировании о ящуре и предоставлении проб для типизации при подозрении на ящур. Последняя вспышка ящура в Грузии официально установлена в мае 2000 г. и вызвана возбудителем типа О. ИФА на неструктурные белки вируса проведенный во ВНИИЗЖ в 1999 г. также свидетельствовал о циркуляции вируса.

Regional co-operation and co-ordination
Региональная кооперация и координация.

The level of co-operation is very low in respect of exchange of information.
The only tangible co-operation identified in the region concerns the production of lapinised vaccine developed in Georgia in co-operation with Armenia.
Уровень кооперации довольно низок в отношении обмена информации. Явная кооперация в Регионе наблюдается только в области производства лапинизированной вакцины в Грузии при сотрудничестве с Арменией.

National FMD control programs
Национальные программы по контролю ящура.

Surveillance
Эпизоотологическое обследование.

FMD surveillance and control is given a low priority especially if the disease is supposedly due to the types already existing in the region. Type is not possible to confirm without laboratory tests.
Эпизоотологическому наблюдению и противоэпизоотическим мероприятиям не придают большого значения, особенно в отношении постоянно циркулирующих штаммов, несмотря на то, что тип возбудителя можно установить только лабораторными методами.

No active surveillance of FMD is carried out in the region even in areas with outbreaks. There are no proper epidemiology activities carried out in the region for FMD.
Эпизоотологическое обследование не проводится даже в неблагополучных пунктах. В Регионе не проводится полное эпизоотологическое расследование и анализ каждого случая ящура.

Information was not given spontaneously to the experts during the mission. Part of the information requested was obtained but almost exclusively through the discussion and without supporting data. The information collected at local, regional and national levels are not organised to provide figures under synthetic format (table)
Информация не предоставлялась в полном объеме во время работы миссии. Частично информация была получена, но исключительно в результате опросов и , к сожалению, без подтверждающих данных. Информация, собранная на местном, региональном и национальном уровнях, не оформлена так, чтобы предоставить данные в системном виде (таблицы).

Vaccination
Иммунизация.

There are no real spring and autumn campaigns organised. In many instances FMD vaccination is carried out according to availability of the vaccine.
Реальные кампании по массовой вакцинации (весной и осенью) не организованы. Чаще всего вакцинация проводится в зависимости от наличия/поступления вакцины.

Vaccination is the only measure taken to control the disease. Any other control measures are disregarded or not implemented even when included in their national legislation
Вакцинация - практически единственное мероприятие, предпринимаемое для контроля ящура. Прочими мероприятиями пренебрегают или не проводят вообще, несмотря на то, что они включены в национальные законодательства .

Important deficiencies in the cold chain are suspected (vaccine usually stored in cellars at the local and sometimes district level for periods of several weeks)
Подозревается существенный дефицит в наличии холодильного оборудования у ветеринарных служб Региона (вакцины обычно хранят на протяжении нескольких недель в подвалах на местах, а порой и на районном уровне).

Different types of vaccines (including lapinised vaccines from different origins) have anarchically been used in the region. Confusion is also observed in the types of vaccine used, in the duration of immunity. This makes the interpretation of the serosurvey carried out in 1999 difficult.
Вакцины различных типов (включая и лапинизированные вакцины различного происхождения) используются в Регионе бессистемно. При этом возникают дополнительные сложности относительно определения типов вакцин и оценки продолжительности иммунитета, что порождает сложности в интерпретации результатов проведенного в 1999 г. серологического обследования.

Confusion between our aid and national programs is observed in the three countries. However , this may have had a positive impact to compensate the delay for receiving the vaccine in time for spring vaccination.
Не состыковка между предоставленной нами помощью и национальными программами по вакцинации отмечены во всех трёх странах. Однако, в случае задержки поставки вакцины для предстоящей вакцинации, она может компенсировать такую задержку.

According to the (scarce) figures provided it is estimated that the level of vaccination does not exceed 60 % of the livestock population in the region.
В соответствии с предоставленными данными (весьма скудными) рассчитано, что уровень вакцинированных животных не превышает 60 % от имеющегося в Регионе поголовья.

There is no national monitoring of the FMD vaccination campaigns in any of the countries. Veterinary Services provide the vaccine to Regional Veterinary Services which is then distributed to the local veterinarians according to official livestock figures. Local veterinarians report the number of vaccinations carried out but there is no other control, no auditing of local reports up the chain of command.
Ни в одной из стран мониторинг за программой по вакцинации против ящура не проводится. Ветеринарные департаменты предоставляют вакцину региональным ветеринарным службам, а те, в свою очередь, распределяют вакцину до местного уровня в соответствии с официальной информацией о наличии поголовья на местах. Местные ветеринарные службы сообщают о числе вакцинированных животных, но какой-либо дополнительный контроль отсутствует. Нет проверки сообщений с мест по цепи распоряжений.

There is no tracing back when suspected lesions are found on carcasses.
Нет расследования в случаях обнаружения подозрительных поражений при убое животных и при поступлении туш на рынки.

Laboratory diagnosis
Лабораторная диагностика.

CFT test has been transferred to National FMD laboratories. However as there were limited numbers of suspicions of FMD reported, National FMD laboratories carried out very few investigations (on suspected material or serological testing) in 1999 and 2000. According to our information, only the National FMD laboratory of Georgia carried out CFT on material received in May and in July 2000. The sample received in May was found positive to type O.
Наборы для РСК были переданы национальным ящурным лабораториям. Однако, в связи с регистрацией ограниченного количества подозрений на ящур, национальные ящурные лаборатории провели незначительное количество исследований (на патматериале или серологическое тестирование) в 1999 и 2000гг. Согласно нашей информации только Национальная ящурная лаборатория Грузии провела РСК на патматериале, полученном в мае и июле 2000г. Образец, полученный в мае, был положительным к типу О.

The serosurvey carried out by ARRIAH in 1999 confirmed that virus circulates in the region. However this serosurvey has not been properly designed and implemented
(no real epidemiological base for selection of samples, no record of ages of animals, no possibility of tracing back positive animals). The serosurvey for 2000 should be organised in a more structured manner
Серологическое обследование, проведенное в 1999 г. во ВНИИЗЖ, подтвердило, что вирус ящура циркулирует в Регионе. Однако, это обследование не было соответствующим образом спланировано и осуществлено (нет реальной эпизоотологической основы для отбора проб, нет данных о возрасте животных, нет возможности для отслеживания положительно прореагировавших животных). Серологическое обследование в 2000 г. должно быть проведено в более организованной форме.

Conclusions and Recommendations
Выводы и рекомендации.

<u>Control of the outbreaks</u>
<u>Контроль вспышек заболевания.</u>

Priority should be given to the provision of basic instructions for control of the disease and supply of equipment and disinfectants
Приоритет должен быть отдан предоставлению основных инструкций по контролю заболевания и обеспечению инструментарием и дезинфектантами.

The establishment of forage reserve at the district level should be considered to feed animals during quarantine. Animals should at least be confined (possibly chained outside) within the infected premise for a minimum of three weeks
Для кормления животных во время карантина необходимо решить вопрос о создании резерва кормов на уровне районов. Животные должны быть, по меньшей мере, ограничены в перемещении в пределах инфицированного хозяйства (поставлены на привязь) на период не менее 3 недель.

Vaccination
Вакцинация.

In general the provision of vaccine by the project during 1999 and 2000 have had a limited impact in the prevention of the disease in the region and other options should be identified
В целом, предоставление вакцины по программе 1999 и 2000 гг. имело ограниченное воздействие на предупреждение возникновения ящура в Регионе. В связи с этим, должны быть рассмотрены прочие возможности.

Preference should be given to vaccine corresponding to international standards and properly controlled. The control of lapinised vaccine utilised in the region should be made according to OIE standards.
Предпочтение следует отдавать вакцинам, отвечающим международным стандартам и контролируемым должным образом. Контроль лапинизированной вакцины, используемой в Регионе, должен проводиться в соответствии с требованиями МЭБ.

The strains to be included in the vaccine to be used in the Caucasian region should protect against the current field strains. The OIE reference laboratories will provide advice in this respect.
Штаммы, входящие в состав вакцин, используемых в Закавказском Регионе, должны обеспечивать защиту против циркулирующих в настоящее время полевых штаммов. Референтные лаборатории МЭБ могут предоставить соответствующие рекомендации на этот счет.

Utilisation of oil vaccine should be encouraged in the region
Намерение использовать вакцины с масляным адъювантом в данном Регионе следует поддержать.
Reporting
Предоставление информации.

National Veterinary services are encouraged to organise a real monitoring of FMD (notification and record of suspicions and outbreaks) and of vaccination figures in accessible presentation and format.
Национальным ветслужбам следует поддержать организацию реального мониторинга за ящуром (уведомление и регистрация подозрений на заболевание и вспышек заболевания) и сбор данных по вакцинации в приемлемой для представления и анализа форме.

Import
Импорт.

The import of meat and milk or products from infected countries should be done under conditions at least as strict as those of the OIE code. These imports should be under the control of the Veterinary Service and precise data on quantities, origin etc should be available
Импорт молока, мяса и других продуктов из неблагополучных по ящуру стран должен проводиться в соответствии с требованиями Кодекса МЭБ. Этот импорт должен находиться под контролем ветслужбы и точные данные о количестве, происхождении продуктов и т.д. должны быть доступны.

Laboratory tests
Лабораторные исследования.

National Veterinary Services should insure that field material for typing the virus should be sent to the national laboratories from each suspicion as rapidly as possible and that the type is confirmed by ARRIAH.
Национальные ветслужбы должны гарантировать, что материалы для типирования возбудителя будут посылаться в национальные лаборатории при каждом случае подозрения на ящур в кратчайшие сроки, и что каждый случай будет подтверждаться во ВНИИЗЖ.

Instructions should be given by ARRIAH so that the material received for typing the virus by CFT could also be used for virus isolation by ARRIAH.
ВНИИЗЖ следует подготовить инструкцию о том, что необходимо делать для того, чтобы материал, использованный для типизации в РСК, мог использоваться в дальнейшем для изоляции вируса во ВНИИЗЖ.

In all cases virus type should be confirmed by ARRIAH.
Во всех случаях тип вируса должен быть подтвержден во ВНИИЗЖ.

Serosurvey
Серологическое обследование.

Regarding the serosurvey for 2000.
В отношении обследования на 2000 г:

- A minimum of 500 sera should be tested from each country in accordance with the LOA. (250 large ruminants and 250 small ruminants);
- В соответствии с Соглашением, должно быть исследовано как минимум по 500 сывороток из каждой страны (250 кр.рог.ск. и 250 м. рог.ск.).

- Age of the animals, dates of vaccination and type of vaccine used should be recorded at the time of collection of samples
- При взятии проб необходимо регистрировать: возраст животного, дату вакцинации и тип использованной вакцины.

- Selection of villages/district should be made on an epidemiological basis (random sampling or other identified criteria for the selection).
- Выбор деревень/районов взятия проб должен быть проведен на основе биостатистики (рандомизация или другие критерии).

- Ear tagging and re-sampling of the same animals is one possibility
- Необходимо введение ушных меток и проведение повторного исследования тех же животных.

- Samples should be collected in March – April and at the end of October before the second campaign of FMD vaccination.
- Отбор проб провести в марте - апреле и осенью (в конце октября) до начала второй осенней противоящурной кампании.

- LPBE ELISA should be used for screening and a protective titre determined by ARRIAH
- LPBA ELISA проводится во ВНИИЗЖ для скрининга сывороток. При этом уровень антител, обеспечивающий защиту животных, определяется ВНИИЗЖ.

- 3 ABC tests should be carried out on all LPBE positive animals above a threshold determined by ARRIAH
- 3 ABC метод реализуется в отношении всех положительных сывороток, имеющих пороговое значение, установленное ВНИИЗЖ.

Follow up of the project
Продолжение Проекта.

Support to the BZ should be continued but reoriented
Поддержка Буферной Зоне продолжится, но при некоторой переориентации.

The possibility to establish a bank of vaccine for ring vaccination in Caucasus should be considered. Monovalent vaccine should be delivered only after confirmation of the type by ARRIAH
Следует рассмотреть возможность создания банка вакцин для проведения кольцевых иммунизаций в Закавказье. Моновалентная вакцина может быть поставлена в Регион только после подтверждения типовой принадлежности возбудителя во ВНИИЗЖ.

Appendix 8

Report on the activities of the EUFMD Research Group. Session of the Research Group of the Standing Technical Committee of the European Commission for the Control of Foot-and-Mouth Disease Borovets, Bulgaria, 5-8 September 2000. [1]

Kris De Clercq[2]

[1] Manuscript based on the Report of the meeting made by all members and the secretariat.
[2] Chairman of the Research Group of the Standing Technical Committee of the European Commission for the Control of FMD.

Item 1 General Information

A brief description was given of the activities of The Animal Production and Health Section of the Joint FAO/IAEA Programme of Nuclear Techniques in Agriculture (Vienna), which promotes research in developing countries. The main mechanism is through FAO/IAEA Coordinated Research Projects (CRPs), Research Contract Holder (RCH) and Research Agreement Holders (RAH).

Item 2 Epidemiology/pathogenicity/immunology/genetics

From the 9 papers presented it was concluded and recommended that:

1. The pandemic strain of FMDV serotype O is a major threat to Europe.
2. Disease awareness can be sub-optimal in a country, which has not experienced FMD for a long period of time.
3. The variable pathogenicity of the Japanese 2000 type O FMD isolate has been discussed.
4. The minimal aerosol infective doses of FMDV for pigs (which is relatively high) should be determined to improve models to predict airborne spread.
5. Taq Man PCR technique shows promise for the quantitative diagnosis of FMDV and for describing the kinetics of infection.
6. Detection of the mucosal IgA response to FMDV should be considered as an additional method to detect carrier cattle and cattle exposed to infectious virus.
7. The FMD situation in Turkey is still of concern. At the moment of the meeting 3 FMDV serotypes (O, A and Asia 1) were circulating in Turkey. Continued submission to the WRL of additional outbreak samples from various parts of Turkey and from each of the detected serotypes should be encouraged.

Item 3 Control of FMD

The following conclusions and recommendations were made:

1. In the first of four presentations under this item the role of sheep in the epidemiology of FMD was reviewed and the main features of virus transmission related to that species were highlighted. It was concluded that there might be certain circumstances when the self-limiting infection of sheep can permit different control strategies to be applied. A series of recommended actions and strategies were presented which aim to achieve particular control and eradication objectives under different circumstances in which sheep are a major component of the livestock population.
2. Studies should be initiated to determine the feasibility of measures to reduce the risk associated with trade in intestines for sausage casings and these measures should be submitted to the OIE Code Commission for consideration.
3. The deterioration of FMD control procedures in Transcaucasia and Central Asia has increased the risk of the introduction of FMDV particularly for the Russian Federation and possibly also for Europe. The Russian southern border with Kazakhstan is not protected by a buffer zone. Priority should be given to the strengthening of the Russian buffer zones and to the improvement of surveillance and control programmes in the Transcaucasian region. The ARRIAH, Russia should

send to the WRL, Pirbright, representative samples of the FMD virus isolates, which it receives from the ex-USSR countries.

4. The results of the tests for non-structural antibodies indicate that FMD virus was circulating in the three Transcaucasian republics during 1999 and 2000. Cattle in the Transcaucasian region control programme should be vaccinated within a short period of time in the early spring before they are permitted to move to highland pastures. Unfortunately there is a shortage of vaccine for use in Transcaucasian countries and the locally produced vaccine (from Armenia and Georgia) is not fully quality controlled.

Item 4 New developments in FMD diagnostics

Four papers were presented on 'Antigen detection and virus isolation', 5 on 'PCR-based testing' and 6 on 'Serology'. From these it was concluded and recommended that:

1. The work on the immortalisation of primary cells for virus isolation and on the type independent detection of FMDV antigen by ELISA should be continued.
2. The combination of immunocapture PCR with PCR-ELISA would increase the capacity for sample analysis.
3. Chromatographic strips utilising MAbs that bind all types of FMDV could provide the possibility of a pen-side preliminary diagnosis leading to more effective control but only in certain situations, i.e. in endemic areas. Standard guidelines for the use and application of the strip-tests should be prepared.
4. Tests for antibody against non-structural proteins of FMD will have an increasing role in disease surveillance and control. Reference sera should be identified for internal and external quality assessments of test performance.

Item 5 Phase XVI

Conclusions and Recommendations:

1. The reference sera (O_1 Manisa, A_{22} Iraq and C_1 Oberbayern) used in phase XVI should be recommended to OIE as the international reference standards. The FAO Phase XVII Collaborative Laboratory Study should supply candidate reference sera for the O PanAsia, A Iran ' 96 and $Asia_1$. Some of these sera should be post-infection which could be tested for the presence of antibodies to non-structural proteins.
2. A comparison should be made between low titre serum produced naturally and that produced artificially by diluting a high-positive serum with negative serum.
3. The currently used LPB ELISA for FMDV antibodies suffers from non-specific positive results and cross-reactivity. Protocols for the solid phase competition ELISA and solid phase blocking ELISA should be circulated to national laboratories of member countries.
4. Higher cut-off titres can be used by national laboratories in response to particular requirements within their own countries, such as post-outbreak surveillance.

Item 6 Vaccines

From the 6 papers presented it was concluded and recommended:

1. Three different ways of getting a higher immune response after vaccination were presented:
   - High potent emergency FMD oil vaccine in pigs and sheep probably confer immunity for up to 6 months.
   - The incorporation of saponin in water-in-oil vaccines resulted in high antibody levels even in calves with high levels of residual maternal antibodies.
   - FMD vaccine mixed with anti-serum against the FMD-type of the vaccine at one particular Ag/Ab ratio

   This research should be encouraged
2. The combined use of formaldehyde and BEI was shown to shorten the time needed for complete inactivation.

3. The use of Ab tests for NSPs can substantially contribute to an objective evaluation of emergency vaccine efficacy in sheep.

4. The feasibility of developing a practical PD_{50} test in pigs should be further considered. However, it should be restricted to particular cases.

Item 7 European Pharmacopoeia (E.P.)

It was recommended that contacts with the EP and EMEA should be continued and finalized to obtain a substantial inclusion of the contents of the report proposed by the EP Working Group.

The EP Working Group report was presented at on a meeting of Group 15V of the Eur. Pharm. in Strasbourg. All members of Group 15V present voted 'In favour of proposing to the Eur. Pharm. Commission that the FMD vaccine Monograph should be revised'.
The Swiss member of Group 15V will prepare a revision proposal. The Chairman of Group 15V proposed that he should take contact with the RG. The Secretary, Mr. Castle, will circulate the Swiss proposal to the other members of Group 15V and to us for comments.

The EP Working Group report will also be presented at meeting of EMEA on December 4, 2000.

Item 8 Expert Elicitation Workshop

Prior to the Session of the Research Group (RG) an expert elicitation workshop on the Risk of Introduction of FMD into Europe was conducted. The workshop sought to answer 3 key questions by eliciting the opinions of the experts:
a) what groups of countries in Europe were most likely to experience outbreaks of FMD in the next 5 years?
b) What groups of external countries posed the greatest risk to Europe?
c) what routes of introduction posed the greatest risk to Europe?

In addition, the experts were asked to predict the minimum, most likely and maximum number of outbreaks that Europe would experience over the next 5 years.

The preliminary results were presented to the meeting and displayed good convergence between the experts' opinion.

Conclusions and Recommendations:

1. It was concluded that the results accurately reflected the experts' opinions on the risk of introduction of FMD to Europe

2. EUFMD and the Research Group continue to examine methods of analysing the risk of introduction of FMD to Europe and continue its collaborative efforts/activities with specialized European institutes.

3. Future elicitations involve the gathering in advance of relevant data especially in relation to trade prices, volumes and movements of commodities.

4. Future elicitations include experts from the livestock and meat industries and veterinary experts involved from Veterinary Services, in the control of trade in livestock and all animal products.

Item 9 Closed Session

1 Follow-up to the activities of the working group on the European Pharmacopoeia
Members of the group agreed that the Secretary would send the report of the Working Group to the Director of OIE. Dr Paul Kitching, WRL, would address the question to the OIE FMD and other Epizootics Commission at its next meeting in September.

2 EU antigen bank
Members of the Group expressed their concern:
- regarding the supply from the EU antigen bank to Turkey for vaccination in Thrace of a trivalent vaccine, which includes the A22 strain as this strain, does not protect correctly against new type A currently circulating in Turkey and in the Middle East. However, it was explained that EU had no possibility to supply A Iran 96 from its antigen bank at the moment of the decision.

- on the depletion of the EU bank following the supply of FMD vaccine of O type to Japan, Korea and Turkey.

It was agreed that this concern should be addressed to the CVO's of the Executive Committee who could probably refer it to EC.

3 Information on the recent and future missions to Caucase, Greece and Turkey

- Dr M. Amadori and Dr Y. Leforban reported on their mission to Transcaucasian countries from 24 June to 9 July 2000.
- The Secretary reported on his mission to Greece (joint EC/EUFMD) mission from 24 to 28 July 2000.
- He also informed the Group that an EC/EUFMD mission will visit Thrace during the first week of October to assess progress in the vaccination campaign with the trivalent vaccine provided from the EU antigen bank.

  Concerning the vaccination in Thrace, the group recommended that:
  - *vaccination start from the border
  - *clinical examination be carried out prior to vaccinating
  - *vaccination be organised over a short period of time (one month)
  - *the recommendations of the EC/ EUFMD mission, which visited Thrace in 1998 during the emergency campaign against type A, are taken into account.
- Dr J. Ryan reported on the FAO TCP in progress between Iran and Turkey for strengthening surveillance and control of new FMDV strains.

4 Follow up to the Workshop on NSP ELISA in Brescia in January 2000. Need for an additional workshop for other National FMD labs.

It was suggested that if another technical meeting on the subject is organised by the Balkan countries, other countries in the region, including Romania be associated.

5 Follow up to the discussion on SVD at the previous Sessions.

The Chairman informed the group that he will participate in the meeting of the OIE Regional Commission for Europe and will present the replies of the CVO's to the questionnaire on SVD, which he had circulated.

6 Relations between EUFMD and EC: utilisation of the Trust Fund

The Secretary informed the Group about the ongoing discussion between the EUFMD/FAO and EC for the signature of a new four-year agreement on the utilisation of the Trust Fund.

7 Circulation of the information to the Group by the Secretariat, Evolution in the roles and methods of work for the RG

The Group was interested in receiving all epidemiological information on FMD.

The Secretary also stated that he was open to any proposal of the Group for updating the methods of work of the RG including the organisation of electronic conferences if necessary

8 Next group to be designated by the 34th Session of EUFMD together with the Activities of the RG over the coming years

The Chairman recalled the role of the RG, which is to give scientific advice to the Executive Committee. He also stressed the need for the members to actively participate in the activities of the Commission by presenting contributions to the meetings and by participating in the EUFMD missions when requested.

9 Venues for the next Sessions of the RG

2001 Denmark
2002 Turkey
2003 Switzerland

Proposals from Brescia and Madrid for the next sessions.

Appendix 9

Results of the Expert Elicitation Workshop on the Risk of Introduction of FMD to Europe

Held in Borovets, Bulgaria
04-05 Sept. 2000

John Ryan & Lisa Gallagher

Introduction

During late 1999 and during the year 2000, the FMD situation world-wide deteriorated significantly. The Executive Committee of EUFMD became increasingly concerned about the increasing risks to Europe of FMD introduction and requested the Research Group of EUFMD to analyse the risks facing Europe.

EUFMD had already begun building competencies in the relatively new and fashionable discipline of Risk Analysis, and Dr. Susan Horst - a specialist in Risk Analysis from Wageningen University, The Netherlands - had already presented her work to the Research Group. Therefore, based on this specific request from the Executive Committee and trying to build upon the work of Dr. Horst, it was decided to conduct an expert elicitation workshop immediately before the Research Group Meeting in Borovets, Bulgaria on the 4-5 Sept. 2000.

Objectives

The objective of this workshop was to examine only the risk of Primary Introductions of FMD to Europe and it did not examine spread within Europe or the economic consequences of FMD outbreaks.

In examining the Risk of Introduction of FMD to Europe over the next 5 years, 3 key questions were framed:

Where in Europe is most likely to be affected?
Where outside Europe is the disease most likely to come from?
How or by what route is the virus most likely to be transmitted?

Finally we decided that it would be useful to generate a forecast of the number of primary outbreaks of FMD that the experts believed would take place over the next 5 years.

Method

Due to time and resource constraints, it was decided to reduce the complexity as much as possible and to use the elicitation of expert opinion to generate the answers to our key questions.

Expert Elicitation

The use of Expert Opinion in Risk Analysis is indicated when any of the following conditions are true:

- *"Data has never been collected in the past*
- *Data is too expensive to obtain*
- *Past data is no longer relevant*
- *Data is sparse*
- *The area being modeled is new"* [1]

[1] *D Vose, 2000 "Risk Analysis a Quantitative Guide"*

In the context of the questions we were trying to answer, all of the above indications for the use of Expert Opinion were true.

Reduction of Complexity

In trying to reduce the complexity of the questions we would have to ask the experts, we decided to aggregate countries into groups both inside and outside Europe and to limit the list of possible routes of transmission. This was accomplished by allowing the experts themselves to decide on the groups and list of routes to be considered in a pilot questionnaire that was circulated before the workshop. European countries were grouped into 5 European Groups with other countries that represented possible sources of FMD were grouped into 8 source or external groups. A limited list of 15 routes of introduction were used.

Workshop

The workshop method itself used a modified Delphi Technique, where two iterations of the same questionnaire took place with lengthy discussions on the results of questionnaire one taking place before questionnaire two was completed. In the first iteration of the questionnaire, each expert answered the questionnaire individually without the bias that could be introduced in a group situation. Then lively group discussions took place as the results of the first questionnaire were critically examined by the experts. This discussion forum raised many issues and was a means whereby experts with unique knowledge of the risks could share them with the entire group before all the experts completed the second questionnaire. This allowed individuals to re-evaluate their responses after the group discussion and it would be expected that there would be a movement of opinion towards consensus in the second questionnaire.

Questioning Method

The questioning method used was a direct elicitation of conditional probabilities e.g. Given that a **primary outbreak of FMD** has occurred in the **Balkan Group**, what is the probability that the source of introduction was from the following groups:....*list of Source Groups*. Visual aids such as pie-charts and bar charts were provided to help the experts elicit the probabilities. Conjoint Analysis (indirect elicitation) was not used because many experts found the conjoint analysis questions too conceptually difficult and it would have been impossible to organise given the time constraints.

The following is the list of routes used (not all routes were considered in each pairing of source group and European group based on the results of the pilot questionnaire) a definitions sheet accompanied the list of routes to clarify what introductions were included under each heading:

Legal Import of Livestock	Illegal Import of Livestock	Legal Import of Meat
Legal Import of Other Animal Products	Illegal Import of Animal Products	Returning Livestock Trucks
Other Returning Trucks	Swill from Boats	Swill from Aircraft
Airborne Spread	Wildlife (import/transboundary movement)	Tourist/Immigrant Vehicles
Tourist/Immigrant Foodstuff	Imported Bedding/Packing Material	"Natural" Spread

The following is the list countries in each of the 5 European Groups:

"Islands"	Balkans	Eastern Europe	Western Europe	Southern Europe
Finland	Albania	Czech Republic	Belgium	Italy
Ireland	Bulgaria	Hungary	Denmark	Malta
Iceland	Croatia	Lithuania	France	Portugal
Norway	Cyprus	Poland	Germany	Spain
Sweden	FR Yugoslavia	Romania	Luxembourg	
United Kingdom	Greece	Slovak Republic	Netherlands	
	Slovenia	Latvia	Switzerland	
	FYRO Macedonia	Estonia	Austria	
	Bosnia			

The following is the list of countries in each of the 8 Source Groups:

Turkey[2]	Caucasian and Central Asian Republics	Asia	Rest of Africa	
		Afghanistan	Angola	Mozambique
Middle East	Armenia	Bangladesh	Benin	Namibia
Bahrain	Azerbaijan	Bhutan	Botswana	Niger
Egypt	Georgia	Brunei	Burkina Faso	Nigeria
Iran	Kazakhstan	Cambodia	Burundi	Rwanda
Iraq	Kyrgyzstan	China	Cameroon	Senegal
Israel	Tajikistan	Hong Kong	Central African Republic	Sierra Leone
Jordan	Turkmenistan	India	Chad	Somalia
Kuwait	Uzbekistan	Korea, Dem People's Rep	Congo	South Africa
Lebanon		Korea, Republic of	Djibouti	Sudan
Oman		Laos	Equatorial Guinea	Swaziland
Palestinian NA	**Russia/Eastern Europe**	Malaysia	Eritrea	Tanzania
Qatar	Belarus	Mauritius	Ethiopia	Togo
Saudi Arabia	Moldova	Mongolia	Gabon	Uganda
Syria	Russia	Myanmar	Gambia	Zaire
UAE	Ukraine	Nepal	Ghana	Zambia
Yemen		Pakistan	Guinea	
	South America	Philippines	Guinea Bissau	
North Africa	Bolivia	Sri Lanka	Ivory Coast	
Algeria	Brazil	Taiwan	Kenya	
Libya	Colombia	Thailand	Lesotho	
Morocco	Ecuador	Vietnam	Liberia	
Tunisia	Peru		Malawi	
	Venezuela		Mali	

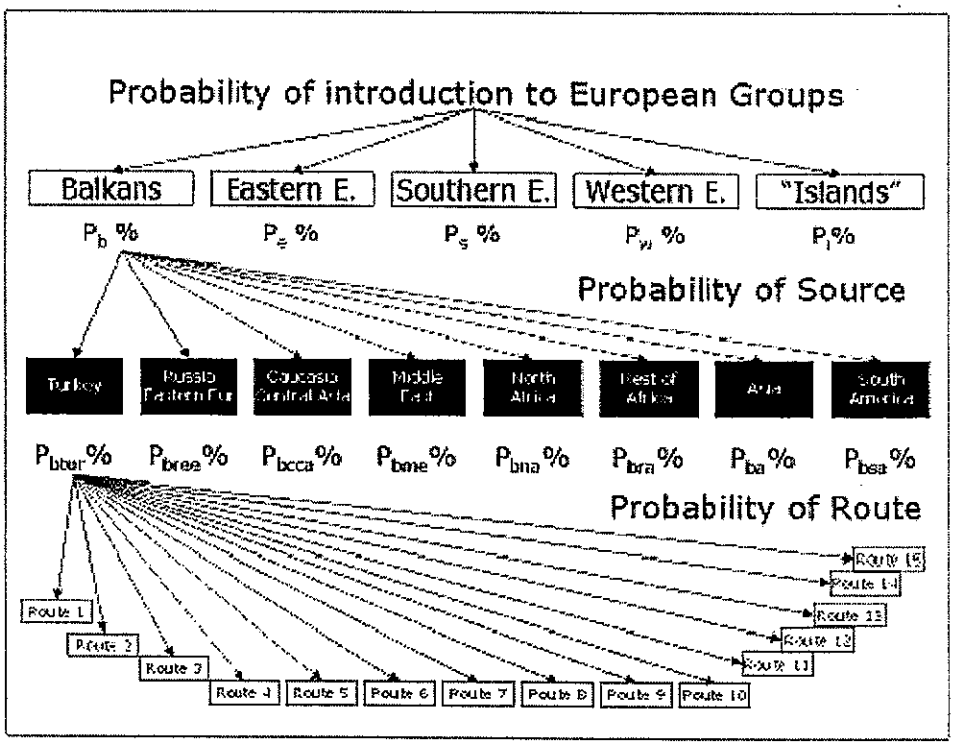
Questions Asked

There were 4 levels of questioning:

1. For each of the European Groups - what is the probability of any primary introduction of FMD in the next 5 years from any source and from any route.

2. For each of the European Groups (assuming an introduction has taken place) - what is the probability that each source group was the source.

3. For each European group - source group pairing (assuming an introduction between the pair) - what is the probability that each route was the route of introduction.



[2] Turkey and Israel are members of EUFMD but due to recent outbreaks of FMD and the fact that they are surrounded by FMD endemic countries it was decided to include them as potential sources.

4. Finally, each expert was asked to predict the minimum, most likely and maximum no. of primary outbreaks in each European group over the next 5 years.

Analysis of questionnaires

A probability was assigned to each route in each European group - source group pair for each expert. The results of the different experts for each of these probabilities were treated as discrete distributions and Monte Carlo simulations were run for each of these probabilities.

The generation of such a large number (460) of discrete probabilities allows us to aggregate these probabilities back up to answer any specific question we want to ask. In particular we can answer the key questions (where will be affected? where will it come from? how will it be transmitted?) for Europe as a whole...or for each group...even for each source group.

Finally, the prediction of the number of outbreaks over the next five years was generated by combining the experts beta pert distributions i.e. their min, most likely & max.

Results

In the first iteration of the questionnaire, there was huge variation in the answers between the experts. This was to be expected as many of the participants were unfamiliar with this type of workshop and questioning. In the second iteration of the questionnaire, there was good convergence in the results of the different experts. This was not only due to becoming more familiar with the exercise and clearing up some misunderstandings, but it was also the result of sharing of knowledge between the experts, particularly when they were not familiar with the epidemiological profile of certain regions.

Although there were 20 experts participating from many countries across Europe, there was no "weighing" of the experts opinions.

Where will be affected?

Group	5th %ile (%)	Mean (%)	95th %ile (%)
Balkans	40	**59**	90
Eastern Europe	5	**23**	50
Southern Europe	0	**11**	23
Western Europe	0	**5**	10
"Islands"	0	**2**	5

It is clear from the above that the Balkans and Eastern Europe are perceived to be areas most at risk from introductions of FMD, with Southern Europe a distant third.

Where will it come from?

External Group	Mean
1 Turkey	41
2 Russia/Eastern Europe	13
3 Middle East	13
4 Caucasia and Central Asia	11
5 North of Africa	9
6 Asia	6
7 Rest of Africa	4
8 South America	3

From the results above it is clear that Turkey is perceived to represent the greatest risk to Europe, with the Russia/Eastern Europe, Middle East and Caucasia and Central Asia perceived to represent similar but much reduced risk.

How will it be transmitted?

Route	Mean %
1 Illegal import of livestock	21
2 Illegal import of other animal products	15
3 Tourist/immigrant foodstuffs	11
4 Legal import of other animal products	6
5 Returning livestock trucks	6
6 Legal import of meat	5
7 Swill from aircraft	5
8 Swill from boats	5
9 "Natural" spread	5
10 Tourist/immigrant vehicles	4
11 Other returning trucks	4
12 Legal import of livestock	4
13 Imported bedding/packing materials	3
14 Wildlife	3
15 Airborne spread	3

These results above show the aggregated risk of each route across all the pairings and give an indication of the routes of introduction that are most likely to result in FMD being introduced to . Europe.

The top 10 possible introductions

	European Group	Source Group	Route	5th %ile (%)	Mean (%)	95th %ile (%)
1	Balkans	Turkey	Illegal import of livestock	2	9	20
2	Balkans	Turkey	Natural Spread	0	5	20
3	Balkans	Turkey	Illegal import of other animal products	0	3	6
4	Balkans	Turkey	Wildlife	0	2	4
5	Balkans	Middle East	Illegal import of livestock	0	2	7
6	Balkans	Turkey	Tourist/immigrant foodstuffs	0	2	7
7	Balkans	Turkey	Airborne	0	2	4
8	Balkans	Turkey	Returning livestock trucks	0	2	3
9	Balkans	Caucasia/Cen Asia	Illegal import of livestock	0	1	8
10	Balkans	Russia/East Eur	Illegal import of livestock	0	1	3

The results above are taken directly from the lowest level of data and represent the 10 scenarios most likely to lead to an introduction of FMD across Europe as a whole. The percentage values should be read as follows: assuming that an introduction of FMD to Europe has taken place, 9% represents the mean probability that the introduction was from Turkey to the Balkans by the illegal import of animals. It is noticeable that all have the Balkans as the European group and that Turkey is the source group in 7 of these most likely scenarios. In the following sections, the top 5 scenarios are taken for each European Group.

Top 5 introductions for the Balkans

Source	Route	Mean %
1 Turkey	Illegal import of livestock	9.43
2 Turkey	Natural spread	4.60
3 Turkey	Illegal import of other animal products	2.90
4 Turkey	Wildlife	2.34
5 Middle East	Illegal import of livestock	2.02

Top 5 introductions for Eastern Europe

Source	Route	Mean %
1 Turkey	Illegal import of other animal products	1.10
2 Turkey	Illegal import of livestock	1.06
3 Turkey	Tourist/immigrant foodstuffs	0.86
4 Russia & East Eur	Illegal import of livestock	0.74
5 Caucasia & Cent Asia	Illegal import of other animal products	0.69

Top 5 introductions for Southern Europe

Source	Route	Mean %
1 North Africa	Tourist/immigrant foodstuffs	0.44
2 Middle East	Tourist/immigrant foodstuffs	0.42
3 Turkey	Illegal import of other animal products	0.40
4 Turkey	Tourist/immigrant foodstuffs	0.39
5 North Africa	Illegal import of livestock	0.39

Top 5 introductions for Western Europe

Source	Route	Mean %
1 Turkey	Tourist/immigrant foodstuffs	0.28
2 Turkey	Illegal import of other animal products	0.19
3 Middle East	Tourist/immigrant foodstuffs	0.15
4 Turkey	Illegal import of livestock	0.13
5 Turkey	Swill from aircraft	0.12

Top 5 introductions for the "Islands"

Source	Route	Mean %
1 Turkey	Tourist/immigrant foodstuffs	0.11
2 Middle East	Tourist/immigrant foodstuffs	0.10
3 Turkey	Illegal import of other animal products	0.07
4 Russia/East Eur	Illegal import of other animal products	0.06
5 Asia	Tourist/immigrant foodstuffs	0.06

Prediction of No. of Outbreaks in the next 5yrs

Group	5th %ile	Mean	95th %ile
Balkans	3	7	14
Eastern Europe	1	**4**	10
Southern Europe	1	3	7
Western Europe	0	**1**	3
"Islands"	0	1	2

Discussion

The results clearly demonstrated the experts opinion of the greatest risks of FMD introduction facing Europe. There was good convergence in opinion in the second iteration of the questionnaire and on presentation of the results to the experts, there was no disagreement with any of the results presented. Although the accuracy of the actual probabilities may be disputed, the ranking of the risks are very robust, particularly because they represent the opinion of not just one expert but many experts.

Such results will be very useful in directing the attention of decision makers and risk managers to the main risks of introduction of FMD. The results of a workshop like this are certainly an improvement on other methods such as informal analysis of risks by an individual or by a small group from only one country or no analysis of the risks at all.

Problems

A major limitation from the methodological point of view was that there was no formal data presentation step to assist the experts in their deliberations. This was somewhat compensated by the geographical spread of the experts and the details that surfaced during the discussions. The main reason that no data was presented to the experts was because the overwhelming volume of data that is required could not have been collected in the limited time available. To gather this data for future exercises will be costly in time and resources and one has to question whether the extra accuracy that more data would bring to the results justifies this extra investment.

Another problem was that the workshop was perhaps too ambitious, it was very long and very difficult for the experts, there were difficulties with timekeeping and not enough time was allocated to the discussions. This aspect could be improved if the workshop had been computerised, but this would also require more time and resources.

The profile of the participating experts may have been too narrow, as it consisted mostly of virologists. In future the profile of the experts could be widened to include more epidemiologists, Veterinary Service Staff involved in the control of the livestock and meat industries, traders from the meat and livestock industries and policy makers.

Some routes of introduction were not considered especially laboratory escapes. The point was made that for some regions, this might pose the greatest risk. It was also argued that a laboratory escape is not technically an introduction.

Conclusions

For everyone involved it was an extremely interesting and useful exercise and this was reflected by the results of the feedback questionnaire that were very supportive and constructive.

The results were surprisingly convergent, because in general expert elicitations are not a precise science and by their very nature of collecting the opinions of diverse experts it is expected that there would be divergence in opinion.

The results above are a written expression of the beliefs of the many experts. This document can now be consulted and used as opposed to this knowledge remaining buried in the minds of the experts. It is also an improvement on individual opinions alone. It can be useful for risk managers who need to formulate overall disease prevention strategy without being able to conduct thousands of import risk analyses and consult privately with many experts.

Although this workshop had some limitations as discussed in the "Problems" section, it is fair to say that the method works, and would work much better when the lessons learned in this workshop are implemented in future workshops.

It was an extremely cost effective workshop for EUFMD as it took advantage of the fact that the experts had gathered in Borovets for the Research Group Meeting later that week. There is also no guarantee that a more expensive workshop (i.e. more experts, computerisation and an expensive data gathering process) would give results that lead to significantly better decision making. Therefore there are cost-benefit considerations to be taken into account before trying to improve the accuracy of the results.

The Future?

Possibilities for future work in this area:

- to repeat this exercise at the Research Group(RG) Meeting next year or in two years time?
- to de-couple the workshop from the RG meeting and to include epidemiologists, decision makers and vets and traders from the meat and livestock industries?
- to try a validation exercise next year by focussing on a specific European group and comparing the more detailed results with the results of this workshop?
- to take a look at inter-European spread?

Acknowledgements

A huge THANK YOU to all the participants for their patience, diligence and hard work. To the secretary of EUFMD, Dr. Leforban and the Chairman of the Research Group, Dr. De Clercq, for their support and advice. To Lisa for all her hard work and ideas.

Accounts as at 30 September; Budgets for 2001 and 2002

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Financial Report as at 30 September 2000

MTF/INT/011/MUL - TF number 904200

Statement 1

	US$	US$
Balance as at 1 January 2000		174,292
Interest received	0	
Contribution from member countries (As per statement 2)	214,660	214,660
Expenditure		
Commission Secretary	82,422	
Consultant	-	
Admin. Support Personnel	44,348	
Contracts	46,391	
Duty Travel	15,393	
General Operating Expenses	1,046	
Expendable Equipment	7	
Non-Expendable Equipment	-	
Total Expenditure		-189,607
Balance as at 30 September 2000		**199,345**

TRUST FUND No. 9042.00 - MTF/INT/011/MUL - Inter-Regional - European Commission for the Control of Foot-and-Mouth Disease

Status of Contributions as at 30 September 2000
(expressed in US$)

Member Governments	Outstanding 31/12/99	Contribution due for 200	Received up to 30/09/00	Outstanding 30/09/00
ALBANIA	25.00	2,600.00	2,600.00	25.00
AUSTRIA	0.00	7,800.00	0.00	7,800.00
BELGIUM	0.00	13,000.00	0.00	13,000.00
BULGARIA	11,364.99	7,800.00	0.00	19,164.99
CYPRUS	2,600.00	2,600.00	2,600.00	2,600.00
CROATIA	2,600.00	2,600.00	0.00	5,200.00
CZECH REPUBLIC	0.00	7,800.00	7,800.00	0.00
DENMARK	0.00	13,000.00	0.00	13,000.00
FINLAND	0.00	7,800.00	7,800.00	0.00
FRANCE	0.00	26,000.00	26,000.00	0.00
GERMANY	0.00	26,000.00	26,000.00	0.00
GREECE	0.00	7,800.00	0.00	7,800.00
HUNGARY	0.00	7,800.00	7,800.00	0.00
ICELAND	0.00	2,600.00	0.00	2,600.00
IRELAND	20.00	7,800.00	7,800.00	20.00
ISRAEL	0.00	2,600.00	2,600.00	0.00
ITALY	1,293.71	26,000.00	22,260.29	5,033.42
LITHUANIA	-2,600.00	2,600.00	0.00	0.00
LUXEMBOURG	0.00	2,600.00	2,600.00	0.00
MACEDONIA, Fed.Y.Rep. of	15.00	2,600.00	0.00	2,615.00
MALTA	0.00	2,600.00	2,600.00	0.00
NETHERLANDS	0.00	13,000.00	0.00	13,000.00
NORWAY	0.00	7,800.00	15,600.00	-7,800.00
POLAND	0.00	13,000.00	13,000.00	0.00
PORTUGAL	0.00	7,800.00	0.00	7,800.00
ROMANIA	0.00	13,000.00	13,000.00	0.00
SLOVENIA	0.00	2,600.00	2,600.00	0.00
SPAIN	0.00	13,000.00	13,000.00	0.00
SWEDEN	0.00	13,000.00	13,000.00	0.00
SWITZERLAND	0.00	13,000.00	13,000.00	0.00
TURKEY	0.00	13,000.00	13,000.00	0.00
UNITED KINGDOM	0.00	26,000.00	0.00	26,000.00
YUGOSLAVIA, Fed. Rep. of	67,861.30	7,800.00	0.00	75,661.30
TOTALS	83,180.00	325,000.00	214,660.29	193,519.71

STATEMENT 3

MTF/INT/004/MUL - TF number 909700

FOOT AND MOUTH DESEASE - EMERGENCY AID PROGRAMME

Financial Report as at 30 September 2000

	US$	US$
Balance as at 1 January 2000		53,743
Interest received		-
Expenditure		
Consultancy	-	
Duty travel	-	
Expendable Procurement	10,133	
Support Costs	-	
Total expenditure		10,133
Balance as at 30 September 2000		**43,610**

STATEMENT 4

MTF/INT/003/EEC - TF number 911100

FOOT AND MOUTH DISEASE

Financial Report as at 30 September 2000

	US$	US$
Balance as at 1 January 2000		593,346
Interest received	-	
Contribution received	-	
		0
Expenditure		
Consultancy	-	
Duty Travel	26,942	
Contracts	340,000	
General Operating Expenses	-	
Expendable Equipment	-	
Non-Expendable Equipment	-	
Support Costs 6% (on all items except expendable equipme	-	
Less: Total Expenditure		366,942
Balance as at 30 September 2000		**226,404**

Statement 5

TEMP/INT/974/MSC TF number 081159

FOOT-AND-MOUTH DISEASE

Financial Report as at 30 September 2000

		US$
Balance as at 1 January 2000		1,226
Contributions received	-	
Interest received	-	
		1,226
Expenditure		
Duty travel		1,226
Balance as at 30 September 2000		-

TF904200 MTF/INT/O11/MUL (TFAA970089122)
European Commission for the Control of Foot-and-Mouth Disease

Pledges by member countries for the years 2001 and 2002

2001	US$325,000
2002	US$325,000

Budgets (expressed in US$)

Budget Acct Code and components		**2001 approved**	**2001 revised**	**2002 proposed**
5300	Secretary	145,168	126, 238*	129,394*
5500	Administrative Assistant	88,485	69,194*	70,923*
5660	Temp assistance and overtime	1,500	7,800**	7,800**
	Support staff (interpreters)	15,000	15,000***	-
	Subtotal	**250,153**	**218,232**	**208,117**
5650	Contracts			
	-Annual contribution to WRL	35,000	35,000	35,000
	-Collaborative Laboratory Study	8,500	11,200	11,200
	-Workshop	-	15,000	-
5900	Travel (Secretariat & NST's)	31,200	31,200	32,448
6000	Expendable equipment	-	-	-
6100	Non-Expendable equipment	-	-	-
6110	Hospitality	-	1,000	-
6300	General Operating Expenses	147	-	-
6500	Chargebacks	-	800	800
	Subtotal	**74,847**	**94,200**	**79,448**
6300	G.O.E.Reserve/unallocated funds	-	12,568	37,435
	Total	**325,000**	**325,000**	**325,000**

* includes projected cost increase of 2.5% on salaries and 4% on travel (based on expenditure up to September 2000 & forecast for remainder of the current year in Oracle System)
**The Commission at its 33rd Session recommended earmarking a certain amount of funds for temporary clerical assistance should the necessity arise.
***interpreters for 34th General Session

Budgets for 2001 and 2002

Trust Fund 911100 MTF/INT/003/CEE (TFEU970089129)

Budget account code and components	***Proposed Budget 2001*** **(as per FAO/EC project doc)**	***Proposed Budget 2002*** **(as per FAO/EC project doc)**
5570 Consultants	US$ 15,000	US$ 15,000
5900 Travel	US$ 50,000*	US$ 50,000*
5650 Contracts	US$ 10,000 ** -	US$ -
5920 Workshop/training	US$ 15,000	US $ -
6300 Gen. Op. Expenses	US$ 2,500	US$ 2,500
6000 Expendable equipment	US$ 120,000***	US$ 130,000
6130 Support Costs (6% all items except vaccine)	US$ 5,550	US$ 4,050
Total	US$ **218,050**	US$ **201,550**
Balance	*US$ 226,404 (as of 30.09.00)*	
Less proposed expenditure	US$ 8,354	

*Research Group
Tripartite meetings
**LOA Brescia/Albania (10,000)
***Emergency vaccine supply (100,000) Reagents (20,000)

TF 909700 MTF/INT/004/MUL (TFAA970089127)
Provisional Budget 2001 and 2002

	Proposed budget 2001	***Proposed budget 2002***
5570 Consultants	US$ 7,000	US$ 7,000
5900 Travel	US$ 7,000	US$ 7,000
6000 Expendable equipment (vaccine)	US$ 10,000	US$ 10,000
Expendable equipment (reagents)	US$ 13,000	US$ 13,000
6100 Non-expendable equipment	US$ 2,000	US$ 2,000
5920 Training	US$ 2,000	US$ 2,000
6130 (Support costs (6% all items except vaccine)	US$ 1,860	US$ 1,860
Total	US$ 42,860	US$ 42,860
Balance	US$ **43,610** (as at 30.09.00)	US$ 43,610
Balance less expenses	US$ 750	US$ 750

Appendix 11

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