

REPORT

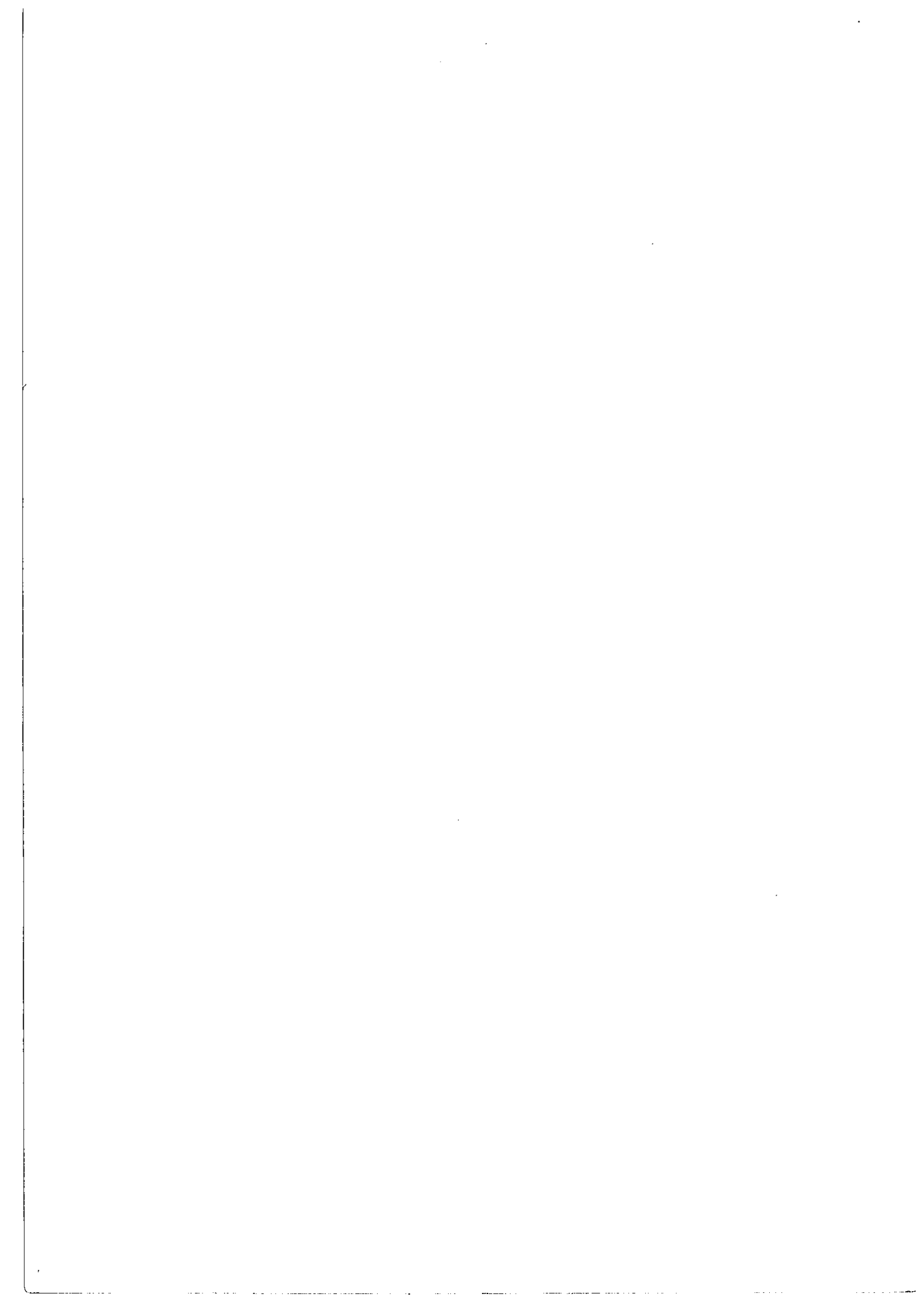
Rome,
Italy,
21-23 March
2001

**European
Commission for
the Control of
Foot-and-Mouth
Disease**

Thirty-fourth session



Food
and
Agriculture
Organization
of
the
United
Nations



REPORT

of the

THIRTY-FOURTH SESSION

of the

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

Food and Agriculture Organization of the United Nations

Rome, Italy

21-23 March 2001

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, March 2001



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Conclusions and Recommendations of the Thirty-fourth Session of the European Commission for the Control of Foot-and-Mouth Disease

Item 1 - Agenda

Item 2 - Situation of FMD in Europe and in other regions

Conclusions

1. The risk of FMD has increased significantly in 2000 and 2001 due to many factors. These included: the specific characteristics of certain strains of virus (e.g. PanAsia O strain); increased trade and movements of animals and animal products; increased movements of people (tourists and migrants); the deterioration of national veterinary services in many countries due to under-staffing, poor salaries and cut-backs in resources, and a general neglect of biosecurity issues and their hidden costs when driving forward trade liberalisation measures.
2. The outbreak of FMD in the United Kingdom due to the type O, PanAsia strain was yet another example of the danger posed to livestock by this particular virus in many areas of the world. This danger has been recognised for several years and the propensity for its spread was clear from its involvement in recent outbreaks in areas normally free of FMD, or of this serotype, such as Japan, South Africa and now the UK, Ireland, France and the Netherlands.
3. The likely origin of the UK outbreak in swill-fed pigs again emphasised the severe risks associated with this method of animal husbandry, not only for the introduction of FMD, but also of other serious list A diseases.
4. The problem to detect the early cases was a major reason for the subsequent, wholesale spread of disease and may well demonstrate a lack of awareness on the part of some livestock owners after 32 years of freedom from the disease in the UK.
5. The UK outbreak underlined the danger posed by infected sheep as disseminators of infection, especially in a fully susceptible livestock population, and most particularly when the strain of virus involved causes inapparent clinical disease in this species.
6. The deficiencies in identification of sheep and the recording of their movements make the tracing process extremely difficult and, in some cases, impossible.
7. It is acknowledged that UK took very strong measures after the disease was detected, but there is as yet no sign that the control measures are slowing the progress of the disease. The full extent of the infection has yet to be determined.
8. The spread of virus before the detection of the disease in the UK to Northern Ireland and to the mainland of Europe, including to date France and the Netherlands, has been attributable to the transshipment of live animals, especially sheep, which were either silently diseased or incubating the disease. This is a particularly hazardous trade in respect of the dissemination of FMD and, potentially, of other serious diseases.
9. The outbreaks of FMD in Western Europe had revealed some serious deficiencies in the capability of some national authorities to effect diagnostic testing and serological testing on an adequate scale in the event of an emergency. This was in large part due to limitations in the immediate availability of reagents and kits for the detection and typing of viral antigen and for the detection antibodies.

Recommendations

1. **All European countries should now be especially vigilant against the possible introduction of the type O, PanAsia topotype of FMD virus into their susceptible livestock.**

2. All countries should bear in mind that the prevalence of strains of FMD other than the type O PanAsia strain are also increasing markedly in different regions. A notable example was seen with the Asia 1 virus, currently prevalent throughout much of the Transcaucasus region and in Iran and Turkey and recently in Greece.
3. All countries recognise the increased risk of FMD and take advantage of the lessons learned by the affected member countries to improve their contingency planning and prevention measures for FMD.
4. State Veterinary Services should be funded, staffed, sized, structured and resourced to a level commensurate with their workload and responsibilities in order to maintain a surveillance of FMD and other epizootic diseases and to deal efficiently with major disease emergencies.
5. Much more specific attention should be given to the biosecurity dangers inherent in the structure of the animal production industry in Europe and internationally. Live animal movements, including both the transit and final destination of such movements, should be traced in relation to the likelihood of disease spreading from the UK, Ireland, France and the Netherlands.
6. Serious consideration should be given to improving the control of the trade in live animals within and between the member countries of the EUFMD Commission.
7. Serious consideration should be given to the comprehensive marking and registration of individual animals, and particularly of sheep and goats, throughout member countries of the EUFMD Commission.
8. Serious consideration should be given to the stricter control, or to the total prohibition of swill feeding throughout the member countries of the EUFMD Commission. In any event, waste food from ports, airports and motorway rest areas should be strictly controlled, collected and totally destroyed.
9. The review of national Contingency Plans should include the urgent consideration of requirements for and the immediate availability of adequate quantities of reagents and kits for the detection and typing of viral antigen and the detection of both neutralising antibodies and antibodies to the non-structural proteins of FMD virus. The National Veterinary Laboratories should evaluate their need and keep the appropriate stock as a reserve.
10. Measures should be investigated with WRL participation to develop possible means for the provision of test reagents/kits to EUFMD member countries in emergency situations.
11. It is essential to establish urgently a bank of reagents to be employed in standardised tests for the diagnosis and serological surveillance of FMD.
12. There is a need for further work on the formal and precise definition by the OIE of the terms "infection", "case" and "outbreak" in respect of FMD.
13. There is a need for clarification of sampling size and methods to be applied in the investigation of suspicion of FMD, during an outbreak and also for serosurveillance in Europe in collaboration with the OIE.
14. An international OIE/FAO conference should be urgently organised on FMD, aiming in particular at questions related to: the conditions of declaration of disease outbreaks, the use of vaccination - especially the vaccination of endangered species and other zoo animals - and the risks linked to the exchange of animals and products including animals for non-food production.
15. The international community should provide enhanced support for surveillance and control of FMD in countries where the disease is still endemic.

Item 3 - Report on the Commission's activities during 1999-2000

Item 4 - FMD situation Turkey

Conclusions

1. The existing strategy and tactics which have been developed by Turkey with assistance from international organisations are appropriate for the control of FMD. Notable success has been achieved by Turkey in the protection of Thrace and Europe. However, the disease remains endemic throughout Anatolia due to numerous constraints which have prevented the full implementation of the control programme.
2. Given the existing economic circumstances in Turkey it would be very difficult for the country to implement the existing policies using only national resources. For this reason, the support of international organisations would be of great assistance in moving towards the medium-term objective of control and the longer-term objective of eradication.
3. The severity of the present FMD crisis in some of the western countries of the European Union should not be allowed to obscure the fact that the risk of the introduction of exotic viruses into Europe from Turkey remains as a persistent danger. In addition to the endemic type O virus, Turkey has at least two antigenically distinct type A viruses circulating (A Iran 96 and A Iran 99). Type Asia1 had also recently become established and had spread into Greece. In addition, A22 like viruses were again known to be present in Iran and threatened the livestock of Turkey and the territories to the East and South of the Bosphorous.

Recommendations

1. Both Turkey and international authorities should give serious consideration to the evaluation and selective implementation of the detailed recommendations given and the priorities ascribed in the report.
2. Further timely support from the international community, including the EC, FAO, OIE and other organisations would be extremely valuable in the expeditious achievement of the recommended improvements.
3. The new status of Turkey as a candidate for EU membership could provide the opportunity for increased funding from the EU to enable a substantial FMD control programme to be implemented, always provided that Turkey ascribes the required level of priority to the programme.

Item 5 - FMD control in the CIS countries

Recommendations

- 1) Despite the modest outputs of the project as assessed by the expert mission, the project permitted - through a close co-operation between EUFMD/EC/OIE - a much better understanding of the situation of FMD and therefore should have a follow-up.
- 2) ARRIAH is encouraged to continue to monitor the situation of FMD in the region.
- 3) ARRIAH acting as an OIE Reference Laboratory should encourage the countries in the region to report their FMD occurrence to OIE, EC and EUFMD regularly and promptly.
- 4) There is a need for further discussion about the activities to be carried out in the region for FMD control. The new programme in the region, if decided upon, should take into account the conclusions and recommendations of the expert mission.

Item 6 – Activities of the Research Group 1999/2000

Recommendations

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. A full assessment of the risk associated with trade in intestines for sausage casings should be carried out with a view to introducing measures to reduce any significant risks found.
3. Further research is encouraged on the epidemiology of FMD, FMD diagnostics, and reference sera, including sera for NSP ELISA.
4. Risk analysis should be developed further and future elicitation 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 should be organised.
5. Serosurveillance is an essential component of FMD control and the NSP test is a highly valuable tool, despite its limitations. The utilisation of the 3 ABC test should be encouraged.
6. Regular active surveillance programmes for FMDV are encouraged in the Balkans and especially in Thrace. The sampling rate should be decided on a statistical basis.
7. It is essential to establish urgently a bank of reagents to be employed in standardised tests for the diagnosis and serological surveillance of FMD.
8. The Session endorsed the proposals for modification of the FMD Monograph of the European Pharmacopoeia (EP) as proposed by the Working Group and encouraged the Chairman of the Research Group to continue and formalise the contacts with the EP and EMEA. OIE should be informed.
9. The Committee recommended that vaccines for emergency use have a potency of at least 6 PD₅₀.

The conclusions and recommendations of the Research Group were endorsed by the Session.

Item 7 – Report from the FAO World Reference Laboratory

Conclusion

The session strongly supported the continuing services provided by the World Reference Laboratory.

Recommendation

The essential requirement was stressed for all countries to send representative samples from outbreaks to the WRL, even when a country had a national diagnostic capability. The number of samples from which no virus could be recovered was also suggestive of the need for the despatch of samples of good quality under adequate conditions of conservation.

Item 8 - Progress in the implementation of Contingency Plans and destruction of carcasses

Conclusions

1. Disposal of carcasses remains a very difficult problem in implementing a successful slaughter policy and can become a significant bottleneck.

2. There is insufficient evidence at the moment of viable alternative options to rendering, burning and burial for large scale disposal of carcasses, although there are many approaches used for the small scale disposal of carcasses.
3. Countries should negotiate in advance with the environmental authorities what options are available for use in different areas of the country. The agreed options should be included in the contingency plans.

Recommendation

That the carcass disposal problem be examined co-operatively on a Europe-wide basis and that funds be dedicated for thorough research on this problem.

Item 9 - Availability of Emergency Vaccines for Europe

Conclusions

1. The Commission notes with disquiet that 7 member countries still have no arrangements made for the supply of emergency FMD vaccine.
2. The Commission warns that, in a crisis situation, vaccine from the European Union Vaccine Bank may not be available for non-members, as member countries will be accorded first priority.
3. The Commission notes with satisfaction that the long delayed contract for the testing of FMD vaccines from Turkey has finally been awarded.
4. The Commission notes that there is some uncertainty among member countries on the correct procedures for transport, handling and administration of emergency FMD vaccines.

Recommendations

1. **That all member countries should make arrangements for the supply of FMD vaccine in an emergency.**
2. **That the Commission prepares guidelines on the correct protocols for the transport, handling and administration of Emergency FMD Vaccines.**

Item 10 - Finance

Conclusion

The representatives from Finance Division (AFF) present at the meeting undertook to explore ways and means of streamlining the procedure for tracing the annual contribution from member countries.

Recommendations

1. **The EC/EUFMD project should cover the period 2001 – 2004.**
2. **Future reports of the Executive Committee meetings and of the Sessions of EUFMD should be considered by EC as official technical and financial reports.**
3. **Reimbursement of expenses up to a ceiling of one million Euro is made every year.**
4. **FAO should inform EC of any contract with third parties.**

5. Prior agreement of EC on all expenses is requested, except for routine activities up to a ceiling of US\$30,000.
6. The deadline for EC response to the EUFMD should be 30 days.

Item 11 - Election of Chairman, Vice-Chairmen, Members of the Executive Committee – Members of the Research Group

Conclusions

The membership of the Executive Committee for the period 2001 - 2003 was confirmed as:

| | |
|----------------------|----------------------------|
| Chairman | Dr Ignacio Sánchez Esteban |
| First Vice Chairman | Dr Leos Celeda |
| Second Vice Chairman | Pf Werner Zwingmann |
| Member | Dr Tibor Soós |
| Member | Dr Romano Marabelli |
| Member | Dr Preben Willeberg |
| Member | Dr Dionisis Panagiotatos |
| Member | Dr Yanko Ivanov |

The following members were elected to the Research Group:

| | |
|----------------------------------------------------------|-----------------|
| Dr F. De Simone | Italy |
| Dr K. De Clercq | Belgium |
| Dr A. Dekker | The Netherlands |
| Dr C. Griot | Switzerland |
| Dr B. Haas | Germany |
| Dr P. Have | Denmark |
| Dr F. Moutou | France |
| Dr V. Palfi | Hungary |
| Dr J. Sanchez-Viscaino | Spain |
| Dr N. Unal | Turkey |
| Dr H. Yadin | Israel |
| Representative of the World Reference Laboratory for FMD | |

Item 12 - Any other business

Item 13 - Adoption of draft report

The draft report was adopted with the reservations that the agreed amendments would be made and that points 12 and 13 would be distributed to the delegates for approval and/or amendment immediately after the Session.

INTRODUCTION

Address by Louise O. Fresco, Assistant Director-General, AG

Excellencies, Ladies and Gentlemen,

It is a great pleasure for me to welcome you on behalf of the Director-General of FAO, Mr Jacques Diouf, to this Thirty-fourth Session of the European Commission for the Control of Foot-and-Mouth Disease.

I should like to greet the Permanent Representatives to FAO, the Delegates and Experts of the Member Countries of the Commission, the Observers of the other Countries and the International Organizations and to thank you for having accepted FAO's invitation to take part in this Thirty-fourth Session.

This Session is particularly important in view of the totally unexpected outbreak of the disease in the United Kingdom about a month ago and its spread to virtually the whole country. The associated threat to the other European countries is a very real one. I know that you are all very worried and I hope that this Session will be an opportunity to take stock of the situation and of the protection measures being taken in different countries. This meeting takes place at a time when the consumers of Europe and further afield are concerned about Genetically Modified Organisms, Bovine Spongiform Encephalopathy and the whole question of food safety. The appearance of Foot-and-Mouth Disease reinforces the feeling of crisis already engendered by BSE and GMO's. The sometimes tumultuous reaction blames the entire agricultural sector and even for certain groups the international order represented by the World Trade Organisation.

The Commission now includes 33 Member States, which means practically all the countries of Europe. I am particularly pleased to welcome the Representative of the Federal Republic of Yugoslavia. Yugoslavia's status with regard to FAO is now being clarified and the Federal Republic of Yugoslavia should soon resume full membership of the Commission. Virtually all the Member Countries are represented today.

Amongst the many observers, I should also like to greet the Representatives of the International Organizations and in particular the Director-General of the Office International des Epizooties and the Delegation of the European Commission. The joint activities of the European Commission for the Control of Foot-and-Mouth Disease, FAO, and your Organizations have been further strengthened in recent years: through the joint organization of training workshops, joint sessions of the Research Group of the Commission and experts on the disease in the countries of the European Union to, very recently, the establishment of a OIE/EUFMD/EC Tripartite Group to help control foot-and-mouth disease in the countries of the Community of Independent States. I am also happy to note the participation of an observer from the Russian Federation. We welcome this increased co-operation among our Organizations as it allows greater effectiveness and better service to the Member Countries in this high risk context.

FAO is also very grateful to the European Union for the assistance that it continues to provide the EUFMD Commission through the jointly managed Trust Fund. We are happy that this confidence will soon find tangible expression in the signing of a four-year co-operation project.

FAO has always paid particular attention to animal health in the entire world. The implementation of the priority EMPRES programme for the prevention and control of transboundary disease is a testament to this. It is impossible to limit oneself to Europe in the case of FMD.

The origin of disease in Europe is often the Middle East and Asia, which is why constant attention needs to be paid to these regions in the economic interest of the countries concerned, but also in that of Europe.

Foot-and-mouth disease caused heavy loss of livestock in Iraq in 1999. The Iraqi Government made an appeal for help from FAO. We continue to intervene very actively in this country.

Turkey and Iran play a key role in the Middle East as they are often the transit countries for viruses that can then threaten Europe, as in the case of the new variants of foot-and-mouth disease type A and of type Asia 1, which were in fact introduced into Greece in the Summer of 2000.

The foot-and-mouth situation continues to be worrying in Turkey despite FAO's assistance through a regional technical co-operation programme for the control of the disease, jointly undertaken with Iran. I am therefore happy to welcome the Representatives of these countries.

The general foot-and-mouth disease situation in the world deteriorated during the year 2000, with outbreaks in Japan, the Republic of Korea and recently in South Africa, and in certain hitherto unaffected countries of South America. In its recent sessions, the Executive Committee of the Commission had noted an increased threat of introduction of foot-and-mouth disease in Europe. Recent events have unfortunately confirmed this. This shows that the control of foot-and-mouth disease is an ongoing battle, in which the European Commission for the Control of Foot-and-Mouth Disease, which was created 46 years ago, must continue to play a fundamental role. Foot-and-mouth remains a major world disease and Europe's long-term protection can only be envisaged if control measures are taken in all countries where the disease remains endemic. According to the molecular epidemiology findings, the strain of virus type O recently introduced into Great Britain could have originated from the Indian subcontinent.

FAO is always ready to work towards improving the control of diseases throughout the world and will continue to provide its support to the Commission. The Commission can play a role as an example for other regions.

I should like to thank you all again for the effort you have made to be here today under the somewhat difficult circumstances caused in particular by the strikes. I thank you, and I wish you all a fruitful outcome of this Thirty-fourth Session of your Commission and hope to take advantage of this session to exchange points of view with you in a more informal manner in the days to come.

Address by Romano Marabelli, Chairman of the European Commission

Excellencies, Ladies and Gentlemen, Dear Colleagues,

It is a great pleasure for me to welcome you to this Thirty-fourth Session of the European Commission for the Control of Foot-and-Mouth Disease.

I should like to begin by thanking FAO and Ms Louise Fresco, Assistant Director-General of the Agriculture Department, for having organized this meeting.

I should also like to welcome the Delegates and Experts of the Member Countries of the Commission, the Observers and the Representatives of the International Organizations.

Thank you for having accepted the invitation to attend this Thirty-fourth Session, despite the critical situation in Europe resulting from the introduction of the virus in the United Kingdom, and its associated risk for the other European countries.

We were faced with two choices: to cancel or postpone the meeting, or to hold it as planned. We decided to go ahead as planned, even though the Chief Veterinary Officers of some countries have not been able to participate because of the situation on the ground. This was the case for example with the United Kingdom and we strongly regret the absence of Dr Scudamore, even though we can understand the reason. For the same reason, the World Reference Laboratory of Pirbright is not represented either. Yet, the information they could have given us directly at this Session would have been very useful. But the United Kingdom is not wholly unrepresented since Dr Tony Garland, an expert in foot-and-mouth disease whom most of you already know, has agreed to act as spokesperson for the Ministry of Agriculture of the United Kingdom and to give an official report on the situation. Dr Tony Garland has been involved in efforts to control the disease in recent weeks as an expert at the Laboratory of Pirbright and the MAFF and is fully aware of the situation. Dr Garland had earlier agreed to act as rapporteur for this Session, for which we are extremely grateful. He was also asked, in follow up to the Sixty-fifth Session of the Executive Committee, to prepare a review of the situation and control measures in Turkey in the last 10 years. He will be reporting to us on this work.

In view of the situation the original agenda, that had been planned and distributed to you, could well be modified, with priority in presentations and discussions obviously given to the situation in the United Kingdom, France and the other European countries most directly at risk.

The organization of this meeting was also hampered by the absence of our Secretary who had to undergo an operation following an accident. He made the effort to be here today, and I should like to thank him for that. He was not however inactive during his long period of immobility as he was able to keep in touch with the Secretariat through Internet and the telephone and thus contribute towards the preparations for this Session.

In the meantime, Dr Ryan, Associate Expert with the Secretariat of the Commission, spent two weeks at the Laboratory of Pirbright to help set up a database to deal with the enormous volume of samples arriving from the field. He only returned to Rome at the end of last week. I should like to thank him for having accepted this mission to Pirbright on behalf of the Commission.

I should also like to thank Dr Cheneau, Chief of the Animal Health Service, who replaced the Secretary during his absence, and Ms Raftery, Administrative Assistant, who both worked so hard to ensure that this meeting took place in the best possible conditions. The Secretariat would like however to ask for your understanding over any shortcomings caused by the special circumstances.

The initial agenda envisaged presentations and discussions on the situation in Turkey and the Caucasus, and it is important that these take place, although inevitably more briefly than originally intended. The events in Great Britain should not lead us to forget that the threat of introduction of foot-and-mouth disease through the Balkans, and to a lesser extent from the Caucasus, persists. The episode that occurred in July in Greece with the introduction of virus Asia 1, without doubt from Turkey, is there to remind us of this. I should like to take this opportunity to congratulate our colleagues in the Veterinary Services of Greece for their decisive and effective action which helped to eradicate the disease in a very short time, constricting it to the delta region of the Evros river, with one single external outbreak.

I should also like to thank the Representatives of the International Organizations and in particular the Director-General of the Office International des Epizooties and the Delegation of the European Commission. The joint activities of the European Commission for the Control of Foot-and-Mouth Disease, of FAO, and of your organizations have been further reinforced in recent years and, in view of the present crisis, should be strengthened even more.

The Commission is also grateful to the European Union for its continuing assistance through the jointly managed Trust Fund. A four-year co-operation project should soon be signed for the management of this Trust Fund, amounting to 1.5 million dollars.

Recent events have shown that no single country is sheltered from the virus and that prevention measures need to be reinforced at all levels and in all Member Countries. That will be the focus of our discussions today and tomorrow. The control and prevention of foot-and-mouth disease are ongoing battles, in which the European Commission for the Control of Foot-and-Mouth Disease, established nearly 50 years ago and which some parties wanted to disband in 1993, must continue to play a major role. Foot-and-mouth disease is more than ever one of the world's leading diseases and its spread in recent months is very worrying.

Thank you all again for the efforts you have made to be here today in difficult circumstances.

I sincerely hope that this Session will help provide solutions to the present crisis and I wish you a productive Thirty-fourth Session.

I also wish you a pleasant stay in Rome, although I know that some of you will have to rush home because of the present situation.

Item 1 - Adoption of Agenda

Item 1. Agenda Provisional Agenda

Item 2. FMD situation in Europe and in other regions

- 2.a Situation Report on the Outbreaks of FMD in the United Kingdom during February and March, as of 20 March 2001
- 2.b Control measures in France: the situation as of 19 March 2001
- 2.c FMD in the Netherlands: the situation as of 21 March 2001
- 2.d FMD in the Republic of Ireland: the situation as of 23 March 2001
- 2.e Report on the outbreak in Greece in July 2000
- 2.f FMD situation in Europe and in other regions in 1999-2000-2001

Item 3. Report on the Commission's activities 1999-2000

Item 4. Situation in Turkey

- 4.a Report on the situation in Turkey
- 4.b Review of the FMD situation in Turkey

Item 5. FMD control in CIS countries

- 5.a Report of ARRIAH Vladimir, Russia on the situation in CIS
- 5.b Conclusions and Recommendations of the Expert Mission to Caucasus

Item 6. Report on the activities of the Research Group

Item 7. Report of the FAO World Reference Laboratory

Item 8. Progress in the implementation of contingency plans and destruction of carcasses

Item 9. Availability of vaccines in Europe

Item 10. Finance

- 10.a Financial matters - accounts 1999 and 2000; proposed budgets 2001, 2002 and 2003
- 10.b Summary of Implementing Agreement MTF/INT/003/EEC

Item 11. Election of Chairman, Vice-Chairmen, Members of the Executive Committee and Members of the Research Group

Item 12. Any other business

Item 13. Adoption of the draft report

The Agenda was adopted as presented.

Item 2 - Situation of FMD in Europe and in other regions

Item 2.a - Situation Report on the Outbreaks of FMD in the United Kingdom during February and March 2001

Dr A.J.M Garland, representing the United Kingdom, presented a report on the disease situation and the control measures employed in the United Kingdom up to 20 March 2001 (Appendix 1).

The last outbreak of FMD on the British mainland was in 1967/68. The last outbreak anywhere in Britain was on the Isle of Wight in 1981.

Clinical cases of FMD were detected during the ante mortem inspection of pigs at an abattoir in the County of Essex in the south-east of England on the 19 February 2001. The diagnosis was confirmed at the FAO/OIE World Reference Laboratory for FMD at Pirbright in the UK on 20 February. The causal agent was identified as the Type O, PanAsia strain of virus which has been spreading throughout Asia, the Far and the Middle East and which has recently caused outbreaks as far afield as Japan and South Africa.

On the basis of current epidemiological knowledge, the index case has been identified at a swill-feeding pig farm in the county of Tyne and Wear in the north-east of England. The date of the earliest introduction of the virus into the UK is estimated to have been 2 February 2001.

The disease spread locally to livestock surrounding the index case including cattle and principally to sheep. Clinical signs in sheep have to date been extremely mild. The average number of animals showing any lesions within an individual flock has been about 5%. These have mainly been mouth lesions with minimal foot involvement or lameness. The early cases were not detected. Following localised spread, mainly from sheep, the disease causes severe, classical, vesicular disease in pigs and in cattle.

Spread to many areas of the UK subsequently occurred via the movement of infected sheep, and principally of cull ewes destined for slaughter. The movement involved farmers, dealers and livestock markets, including especially the markets at Longtown, Welshpool and Northampton. These, mainly silently infected, sheep seeded the infection to cause new foci, with subsequent local spread to create clusters centred principally on the Counties of Devon in the south-west, Cumbria in the north-west of England and in the Scottish border counties of Dumfries and Galloway. The Counties of Anglesey, Durham, Herefordshire, Shropshire and Worcestershire have also been affected. Confirmed outbreaks have occurred in 29 of the 75 Counties in England, Scotland and Wales. Sheep from the market in Carlisle were transported to Northern Ireland to cause a single outbreak, detected on 1 March, from which there has to date been no extension.

Maps were displayed showing the location of the FMD outbreaks.

Local movement restrictions were immediately imposed around the initial outbreak in Essex on 19 February. The EU, OIE, EUFMD and national governments were informed of the confirmation of disease on 20 February. All the control measures specified in the EC Directive 85/511/EEC were activated as from the same date. On the 21 February the EEC Decision 2001/145 was enacted, prohibiting the export from the whole of the UK of live animals, germplasm, fresh meat, meat products, milk and milk products, and hides and skins of FMD susceptible species. This was later replaced by Decisions 2001/172 and 2001/190 on the 1 and 9 March respectively.

On 23 February UK legislation (Order 2001) was enacted making England and Wales a controlled area for the purposes of FMD control and prohibiting the movement of all susceptible animals and their carcasses except under licence and banning the holding of fairs, markets, shows or other gatherings of animals. This order was replaced on 2 March by Order 2002, which contained the same provisions but permitted the movement of live animals of any species direct to abattoirs for slaughter.

Restriction notices have been served on 1,548 farms, of which 296 were subsequently confirmed as positive for FMD, 899 were negative and the restrictions lifted, while 133 awaited results.

The control measures deployed have included: movement controls and the establishment of Protection and Surveillance Zones of at least 3.0 and 10 km radii respectively around infected premises, with extension as necessary to take account of prevailing wind conditions during the time between the introduction of infection and the first detection of disease. By 18 March infection had been confirmed on 296 holdings with a further 236 considered to be at risk of infection through contacts. A total of 209,123 animals (45,761 cattle, 160,301 sheep, 28 goats and 3,033 pigs) had been slaughtered and a further 73,547 (11,154 cattle, 52,569 sheep, 24 goats and 9,800 pigs) were awaiting slaughter on the in-contact premises. It is expected that the number of cases will increase for some time. Disposal has been by burning in the open and by the transport of carcasses in sealed lorries for rendering. Disinfection has been applied throughout the procedure.

Some 2,074 field samples had been received at Pirbright and laboratory confirmation was showing a turnaround time averaging 4.1 days for all samples with one day or less for positive samples and seven days for negative samples. Twenty four-hour shifts had been organised, with assistance provided by staff from other laboratories.

Predictive computer modelling was being used to investigate likely areas of spread. In particular, every outbreak involving pigs was immediately analysed in this way. To date no such outbreaks had been detected with any prediction of long range spread. UK specialists were being assisted by an epidemiological team from New Zealand, by the British and Danish Meteorological Offices and by a logistics team from the British Army.

The UK Contingency Plan includes emergency vaccination and this option has been kept under continuous review.

Efforts were being concentrated on five current objectives as follows: -

- to keep free those areas of the country still free of disease
- to halt the deteriorating situation in Devon
- to halt the spread of disease in the North of England and in the South of Scotland
- to minimise the spread of disease which had occurred via livestock markets
- to eliminate infection in flocks that have passed through dealers known to have handled infected animals.

Details were described for each of these objectives.

The Ministry of Agriculture greatly appreciated the assistance which was being provided by volunteers from both the UK and overseas, and from the international organisations, including the EUFMD Commission.

[Note: by 21 March, during the EUFMD General Session, the number of confirmed outbreaks in the UK had risen to 421, mainly by the extension of existing Foci]

Discussion

Speaking on behalf of the European Union, the delegate from Sweden expressed solidarity with the British authorities in their approach to the control of the outbreak once the disease had been detected. The speed of spread and the extent of the disease had been unprecedented in recent times in Europe. He wished to encourage the British State Veterinary Service in their arduous task of bringing the outbreaks to an end. Dr Nordblom also stated that Sweden would offer to send veterinary personnel to the United Kingdom to assist in the control of the crisis.

Note: The report of Dr John Ryan's work in the UK is in Appendix 2.

Item 2.b - Control measures in France as of 19 March 2001

France reported on the measures taken to prevent the spread of the disease after the import of sheep from UK (Appendix 3). All establishments having imported sheep or other susceptible animals between 15 January up to 21 February have been traced. They were first sequestered up to 27 February when it was decided to slaughter them. All imported animals (approximately 20 000 live sheep from which 10 000 were already slaughtered) and 30 000 contacts have been destroyed. Before slaughter and destruction animals were clinically examined - no clinical sign of FMD was found - and serum samples were collected from 10% of the animals. For all establishments with seropositive animals a 3 km protection zone was set around the holdings as a preventive measure. Some 47 000 animals (mainly sheep) have been destroyed (31 000 imported from UK, some through the Netherlands and 20 000 contacts).

A total of 4973 sera have been collected of which 28 have been confirmed as positive in 13 Departments by Neutralisation tests (NT) and ELISA tests. Six farms are still kept under a protection perimeter.

On 13 March FMD was clinically suspected on 2 animals in a 114 head cattle herd located in the Commune of Baroche Gondoin (Department of Mayenne very close to the Department of Orne). The farm was located at 500 m from an establishment which had received sheep from UK. The farm of origin was then confirmed as an FMD outbreak (No 11). The herd was slaughtered immediately after the suspicion together with two surrounding

pig herds and 7 other small holdings having received pigs from the farms (total 2000 pigs). Destruction of animals was carried out before the result of the laboratory confirmed the suspicion.

An alert system has been activated in the entire territory which led to the report of clinical suspicion of FMD in 54 of 31 Departments. 53 of these proved to be negative and one was confirmed (see above).

France reported that they face difficulties in obtaining reagents from the WRL for ELISA which has obliged them to carry out NT instead of ELISA. They eventually received an ELISA kit on 10 March.

Interpretation of the serology is complicated by false positives in the NT. These had occurred in up to 4.6% of the results from sera collected in 1997 from the population of sheep in France.

Item 2.c - Foot-and-Mouth Disease in the Netherlands

In addition to the report given by the delegate of the Netherlands during the Session, the following communiqué was provided:

21 March 2001 - In the Netherlands, on a farm in Olst, province of Overijssel, foot-and-mouth disease has been confirmed in four cows. The FMD emergency scenario has immediately been put into effect by Mr Brinkhorst, Minister of Agriculture, Nature Management and Fisheries. This implies that as of now temporary restrictions have been imposed on the movements of cattle, poultry, transport vehicles for cattle and poultry, semen, ova and embryos of ungulates, which apply to the entire country, i.e. also outside the surveillance zones. Additional restrictions apply to visitors of livestock farms.

It should be noted that in the whole territory of the Netherlands an additional movement ban applies to milk and animal products. All animals on the affected farm in Olst, 60 cows and 20 sheep, are being culled today. The farm has not bought or sold animals this year. The animals on the six farms within a one-kilometre radius of the infected holding will also be culled. All farms within a radius of three kilometres of the affected farm will be inspected for signs of FMD.

The affected farm lies within the 10-km zone imposed around the farm in Oene, in the province of Gelderland, which was suspected of FMD. This has confirmed that the farm in Oene is also affected by FMD. All farms within a one-kilometre radius of the farm in Oene will also be slaughtered, as will the animals on the suspected contact farm in Oosterwolde. This also applies to the animals on the farms within a one-kilometre radius of this farm and of the contact farm in Maren Kessel. If the culling cannot be carried out immediately the animals might be vaccinated to prevent the virus from spreading.

Vaccination has not yet started in the Netherlands. The proposed decision will be reviewed by the Permanent Veterinary Committee on Friday, 23 March 2001.

Item 2.d - FMD in the Republic of Ireland: the situation as of 23 March 2001

A report giving details of the control measures put in place after the outbreak in Northern Ireland and a report notifying the confirmation of a single outbreak in sheep in North County Louth, near the border with Northern Ireland, was given by the delegate of the Republic of Ireland during the Session.

Item 2.e - Report on the outbreaks in Greece in July 2000

The delegate of Greece presented a paper on the outbreaks of FMD Asia 1 in Greece in the Summer of 2000 (Appendix 4). 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 2000, in the Evros Delta on the Greek -Turkish border. The estimated date of primary infection is 2 July \pm 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

Item 2.f - Report on the FMD situation in Europe and other regions in 1999-2000-2001

The Commission notes with alarm the deteriorating FMD situation worldwide in 2000 and 2001 (Appendix 5). The PanAsia O strain has demonstrated a remarkable ability to jump out of traditionally endemic areas to infect countries that had been free of the disease for many years, such as Japan, Republic of Korea, Mongolia, South Africa, the United Kingdom, France, the Netherlands and Ireland. There were other noteworthy excursions of serotypes beyond their traditional endemic areas; type Asia 1 spread rapidly from South Asia to Iran, to Turkey, to Georgia and finally to Greece in 2000; and type SAT 2 was discovered for the first time outside Africa causing disease in Saudi Arabia and Kuwait.

We also witnessed a rapid deterioration in the FMD situation in South America, reversing some of the great gains made by the continent in the 1990's.

Argentina had its FMD free status suspended due to recent changes in FMD control policy following the declaration of outbreaks due to type A FMDV in five provinces namely: Buenos Aires, La Pampa, Cordoba, Santa Fe and San Luis, in March 2001. Strategic ring vaccination has been applied around the outbreaks and also generalised vaccination in the province of Formosa and in the centre of the country.

One occurrence of FMD was reported in Uruguay in the Department of Artiguas in October 2000. Uruguay regained its FMD free status without vaccination as from 25 January 2001.

The Brazilian state of Rio Grande do Sul also had 4 outbreaks of FMD (serotype O) in August 2000 after freedom from disease since December 1993. The FMD vaccination ban has been maintained in the States of Rio Grande do Sul and Santa Catarina, as has the ban on the entry of vaccinated animals into these States.

Conclusions

1. The risk of FMD has increased significantly in 2000 and 2001 due to many factors. These included: the specific characteristics of certain strains of virus (e.g. PanAsia O strain); increased trade and movements of animals and animal products; increased movements of people (tourists and migrants); the deterioration of

national veterinary services in many countries due to under-staffing, poor salaries and cut-backs in resources; and a general neglect of biosecurity issues and their hidden costs when driving forward trade liberalisation measures.

2. The outbreak of FMD in the United Kingdom due to the type O PanAsia strain was yet another example of the danger posed to livestock by this particular virus in many areas of the world. This danger has been recognised for several years and the propensity for its spread was clear from its involvement in recent outbreaks in areas normally free of FMD, or of this serotype, such as Japan, South Africa and now the UK, Ireland, France and the Netherlands.
3. The likely origin of the UK outbreak in swill-fed pigs again emphasised the severe risks associated with this method of animal husbandry, not only for the introduction of FMD, but also of other serious list A diseases.
4. The problem to detect the early cases was a major reason for the subsequent, wholesale spread of disease and may well demonstrate a lack of awareness on the part of some livestock owners after 32 years of freedom from the disease in the UK.
5. The UK outbreak underlined the danger posed by infected sheep as disseminators of infection, especially in a fully susceptible livestock population, and most particularly when the strain of virus involved causes inapparent clinical disease in this species.
6. The deficiencies in identification of sheep and the recording of their movements make the tracing process extremely difficult and, in some cases, impossible.
7. It is acknowledged that UK took very strong measures after the disease was detected, but there is as yet no sign that the control measures are slowing the progress of the disease. The full extent of the infection has yet to be determined.
8. The spread of virus before the detection of the disease in the UK to Northern Ireland and to the mainland of Europe, including to date France and the Netherlands, has been attributable to the transshipment of live animals, especially sheep, which were either silently diseased or incubating the disease. This is a particularly hazardous trade in respect of the dissemination of FMD and, potentially, of other serious diseases.
9. The outbreaks of FMD in Western Europe had revealed some serious deficiencies in the capability of some national authorities to effect diagnostic testing and serological testing on an adequate scale in the event of an emergency. This was in large part due to limitations in the immediate availability of reagents and kits for the detection and typing of viral antigen and for the detection antibodies.

Recommendations

1. **All European countries should now be especially vigilant against the possible introduction of the type O PanAsia toptotype of FMD virus into their susceptible livestock.**
2. **All countries should bear in mind that the prevalence of strains of FMD other than the type O PanAsia strain are also increasing markedly in different regions. A notable example was seen with the Asia 1 virus, currently prevalent throughout much of the Transcaucasus region and in Iran and Turkey and recently in Greece.**
3. **All countries recognise the increased risk of FMD and take advantage of the lessons learned by the affected member countries to improve their contingency planning and prevention measures for FMD.**
4. **State Veterinary Services should be funded, staffed, sized, structured and resourced to a level commensurate with their workload and responsibilities in order to maintain a surveillance of FMD and other epizootic diseases and to deal efficiently with major disease emergencies.**
5. **Much more specific attention should be given to the biosecurity dangers inherent in the structure of the animal production industry in Europe and internationally. Live animal movements, including both the transit and final destination of such movements, should be traced in relation to the likelihood of disease spreading from the UK, Ireland, France and the Netherlands.**

6. **Serious consideration should be given to improving the control of the trade in live animals within and between the member countries of the EUFMD Commission.**
7. **Serious consideration should be given to the comprehensive marking and registration of individual animals, and particularly of sheep and goats, throughout member countries of the EUFMD Commission.**
8. **Serious consideration should be given to the stricter control, or to the total prohibition of swill feeding throughout the member countries of the EUFMD Commission. In any event, waste food from ports, airports and motorway rest areas should be strictly controlled, collected and totally destroyed.**
9. **The review of national Contingency Plans should include the urgent consideration of requirements for and the immediate availability of adequate quantities of reagents and kits for the detection and typing of viral antigen and the detection of both neutralising antibodies and antibodies to the non-structural proteins of FMD virus. The National Veterinary Laboratories should evaluate their need and keep the appropriate stock as a reserve.**
10. **Measures should be investigated with WRL participation to develop possible means for the provision of test reagents/kits to EUFMD member countries in emergency situations.**
11. **It is essential to establish urgently a bank of reagents to be employed in standardised tests for the diagnosis and serological surveillance of FMD.**
12. **There is a need for further work on the formal and precise definition by the OIE of the terms "infection", "case" and "outbreak" in respect of FMD.**
13. **There is a need for clarification of sampling size and methods to be applied in the investigation of suspicion of FMD, during an outbreak and also for serosurveillance in Europe in collaboration with the OIE .**
14. **An international OIE/FAO conference on FMD should be urgently organised aiming in particular at questions related to: the conditions of declaration of disease outbreaks, the use of vaccination - especially the vaccination of endangered species and other zoo animals - and the risks linked to the exchange of animals and products including animals for non-food production.**
15. **The international community should provide enhanced support for surveillance and control of FMD in countries where the disease is still endemic.**

Item 3 - Report on the Commission's activities during 1999-2000

The Secretary presented his report for the period (Appendix 6). Europe had been free of FMD since October 1996 up to the occurrence of the Asia 1 outbreak in Greece in July 2000. The Commission's activities had focused on Turkey (see item 4) and the CIS (see item 5) . The FMD situation in both regions deteriorated in the last two years.

Considering the outbreak due to Asia 1 in Greece: Thrace was vaccinated in summer 2000 with a trivalent vaccine including the O, A , and Asia 1 strain donated by the EC from the EUVB. An FAO expert visited both I.R. of Iran and Turkey in the framework of an FAO Technical Co-operation Programme (TCP) to advise on the control of FMD. This FAO TCP is currently under implementation with the technical support of the EUFMD Secretariat.

The Executive Committee met on three and the Research Group on two occasions. Reports were circulated from all these meetings and these are also available online on the EUFMD Web site. The Secretariat participated in numerous other meetings, seminars and training courses.

The Tripartite FAO-EUFMD/EC/OIE Group for the Balkan countries met on two occasions and the new OIE/FAO-EUFMD/EC Tripartite Group established in 1998 for the CIS countries decided to establish a buffer

zone in the southern border of the Transcaucasian countries. A joint EUFMD/OIE/EC expert mission was organised by EUFMD to Russia (ARRIAH) and to the Caucasian countries of Armenia, Azerbaijan and Georgia in 1999. A second expert mission visited the Caucasus in Summer 2000 to assess the situation and the impact of the buffer zone project on FMD control (see item 5).

The Secretariat kept contact with member countries and supplied reagents to certain national laboratories. Close relations have been maintained with OIE and EC through joint meetings and workshops.

Extensive co-operation continued between the EUFMD and the WRL, including financial support, and also with national laboratories in Italy and other countries. Phase XVI of the collaborative laboratory standardisation exercise was completed with the participation of 23 laboratories. Standard sera have been defined for types O1 Manisa, A 22 Iraq and C1. These standard sera have been proposed as primary reference reagents to OIE. Phase XVII is being commissioned under a new Letter of Agreement between the Institute of Animal Health's WRL and the EUFMD-FAO. This will involve the preparation and distribution by Pirbright of reference sera for serotypes O PanAsia, A Iran 96 and Asia 1 for use as primary standard reagents in participating laboratories.

The Research Group has established a working group in charge of preparing proposals for modification of the FMD monograph of the European Pharmacopoeia (EP). These have been submitted to the EP Secretariat.

EUFMD organised jointly with EC a workshop on NSP ELISA for the Balkan countries at the IZSLE of Brescia with the participation of experts of the WRL Pirbright. Another workshop on the risk of introduction of FMD in Europe based on expert opinion elicitation has been organised in Bulgaria in September 2000, in conjunction with the Research Group meeting.

A workshop on FMD simulation exercises is being organised jointly by EUFMD and EC in June 2001.

A new EUFMD Web site has been prepared by the EUFMD Secretariat, which is updated on a regular basis. Information on FMD outbreaks is reported online on the Web site.

Item 4. - FMD situation in Turkey

Item 4.a - Report on the situation in Turkey

The delegates from Ministry of Agriculture and Rural Affairs (MARA) were unable to attend the Session and therefore the country report was not presented. It is included in this report as Appendix 7.

Item 4.b - Review of the situation in Turkey

Dr A.J.M. Garland presented a review of the Foot-and-Mouth Disease Situation in Turkey during the last decade, including a critical assessment of past national and international control programmes, and with recommendations for future control (Appendix 8).

The paper was prepared in accordance with the decision taken at the 65th Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease in November 2000.

Despite the national efforts of Turkey and the technical and financial assistance provided by international organisations, the attempts made to control foot-and-mouth Disease (FMD) in Turkey over many years have met with only limited success. Notable freedom has been achieved for significant periods in the geographically isolated region of Thrace, but elsewhere throughout the Anatolian Peninsula the disease remains endemic and new types and strains of virus continue to gain access, principally from the East. The disease has serious economic effects for Turkey and also constitutes a persistent danger of infection to the entirely susceptible livestock population of the European Union. The movement toward Turkish membership of the European Union gives increased emphasis to the need for more effective control of the disease in the region.

Conclusions

1. The existing strategy and tactics which have been developed by Turkey with assistance from international organisations are appropriate for the control of FMD. Notable success has been achieved by Turkey in the protection of Thrace and Europe. However, the disease remains endemic throughout Anatolia, due to numerous constraints which have prevented the full implementation of the control programme.
2. Given the existing economic circumstances in Turkey it would be very difficult for the country to implement the existing policies using only national resources. For this reason, the support of international organisations would be of great assistance in moving towards the medium-term objective of control and the longer-term objective of eradication.
3. The severity of the present FMD crisis in some of the western countries of the European Union should not be allowed to obscure the fact that the risk of the introduction of exotic viruses into Europe from Turkey remains as a persistent danger. In addition to the endemic type O virus, Turkey has at least two antigenically distinct type A viruses circulating (A Iran 96 and A Iran 99). Type Asia 1 had also recently become established and had spread into Greece. In addition, A22 like viruses were again known to be present in Iran and threatened the livestock of Turkey and the territories to the East and South of the Bosphorous.

Recommendations

- 1 **Both Turkey and international authorities should give serious consideration to the evaluation and selective implementation of the detailed recommendations and the priorities ascribed in the report.**
- 2 **Further timely support from the international community, including the EC, FAO, OIE and other organisations would be extremely valuable in the expeditious achievement of the recommended improvements.**
- 3 **The new status of Turkey as a candidate for EU membership could provide the opportunity for increased funding from the EU to enable a substantial FMD control programme to be progressed, always provided that Turkey ascribes the required level of priority to the programme.**

Item 5 – FMD control in the CIS countries

Item 5.a - Report of ARRIAH Vladimir, Russia on the situation in CIS

The representative of Russia presented the situation in Caucasus and other CIS countries. One FMD outbreak occurred on Russian territory at the border with China involving only pigs. It was due to the PanAsia type O strain. This outbreak was controlled by stamping out.

He stressed that the situation had deteriorated in CIS in the last years with type O outbreaks in Kyrgystan, Kazakhstan and Tajikistan, which directly threatened Russia.

The situation in Transcaucasian countries had also deteriorated as type O and Asia 1 are now endemic in several regions of Armenia and Georgia. Due to the low vaccination covering since 1999, the situation in Azerbaijan is also at high risk despite the absence of any report of FMD.

He suggested that the slaughter policy with a large ring vaccination (60 km) should be applied to control the disease in the region.

The Buffer zone in the Northern Caucasus on the Russian territory has been reinforced and 12 million animals have been vaccinated.

Item 5.b - Report of the Expert Mission to Caucasus in June - July 2000

The Secretary 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 Nakhichevan), 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 (LOAs) with FAO. 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 CVOs of two of the three countries. These conclusions and recommendations were then endorsed by the meeting of CIS CVOs held in Minsk in November 2000 (Appendix 9).

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) and type Asia 1 was identified from a sample collected in Georgia by the mission team. 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 and in 2000 with FAO. ARRIAH organised a serosurvey in 1999 and another in 2000. While this supply of vaccine has been useful in helping the countries to get FMD vaccine, and the serosurvey provided evidence of circulation of FMDV, the mission considered that the objective of establishing a buffer zone at the southern border has not been reached.

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

At the end of the presentation the Secretary stated that the question was, under which form should the project be continued? 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, such as:-

- introduction of basic measures for surveillance and control of FMD
- re-examination of the input of ARRIAH in the surveillance
- examination of the possibility of establishing a vaccine bank for the region.

Recommendations

- 1** Despite the modest outputs of the project as assessed by the mission, the project permitted - through a close co-operation between EUFMD/EC/OIE - a much better understanding of the situation of FMD and therefore should have a follow-up.
- 2** ARRIAH is encouraged to continue to monitor the situation of FMD in the region.

- 3 **ARRIAH acting as an OIE Reference Laboratory should encourage the countries in the region to report their FMD occurrence to OIE, EC and EUFMD.**
- 4 **There is a need for further discussion about the activities to be carried out in the region for FMD control. The new programme in the region, if decided upon, should take into account the conclusions.**

Item 6 – Activities of the Research Group 1999/2000

Dr. Kris De Clercq, Chairman of the Research Group, presented his report (Appendix 10).

Recommendations

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. **A full assessment of the risk associated with trade in intestines for sausage casings should be carried out with a view to introducing measures to reduce any significant risks found.**
3. **Further research is encouraged on the epidemiology of FMD, FMD diagnostics and reference sera, including sera for NSP ELISA.**
4. **Risk analysis should be developed further and future elicitation 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 should be organised.**
5. **Serosurveillance is an essential component of FMD Control and the NSP test is a highly valuable tool, despite its limitations. The utilisation of the 3 ABC test should be encouraged.**
6. **Regular active surveillance programmes for FMDV are encouraged in the Balkans and especially in Thrace. The sampling rate should be decided on a statistical basis.**
7. **It is essential to establish urgently a bank of reagents to be employed in standardised tests for the diagnosis and serological surveillance of FMD.**
8. **The Session endorsed the proposals for modification of the FMD Monograph of the European Pharmacopoeia (EP) as proposed by the Working Group, and encouraged the Chairman of the Research Group to continue and formalise the contacts with the EP and EMEA. OIE should be informed.**
9. **The Committee recommended that vaccines for emergency use have a potency of at least 6 PD₅₀.**

The conclusions and recommendations of the Research Group were endorsed by the Session.

The Chairman thanked the Research Group warmly for their contribution and noted the great importance of having this independent, expert body to advise the Commission.

Item 7 – Report of the FAO World Reference Laboratory

The UK representative presented a summary of the report on behalf of the FAO/OIE World Reference Laboratory (WRL) for FMD at Pirbright in the United Kingdom for the period 1999 – 2000 (Appendix 11).

In Europe, nucleotide sequencing of virus isolates from outbreaks in Iran, Turkey and Greece had shown them to be very similar.

In Africa the Maghreb countries remained free of FMD after the outbreaks of 1999. Type SAT 1 was widespread in southern African countries. The first ever outbreak of type O virus due to the Pan Asia toptotype was reported from the Republic of South Africa in 1999, where infected waste food from a visiting ship was believed to have infected swill-fed pigs and then spread to cattle.

In Asia, types O, A (of at least two antigenically different strains) and Asia 1 are circulating, although the distribution of the A viruses is not well defined. Outbreaks of type O have been widespread throughout Western Asia and, for the first time, type SAT 2 was reported from Saudi Arabia, probably originating from North East Africa, where genetically similar viruses have been circulating during 1999.

The type O PanAsia toptotype remains endemic throughout much of Central Asia and has caused large epidemics in Turkmenistan, Kazakhstan and Kyrgystan. FMD was also abundant in South East Asia, including types O, A and Asia 1. The pig adapted type O strain persisted in the Philippines and in Taiwan, but in the latter a new introduction has caused disease in cattle and goats.

In March 2001 there were outbreaks of type O due to the Pan Asia toptotype in both Japan and the Republic of South Korea, the first in these countries since 1908 and 1934 respectively. Soon after there was an outbreak of type O in a pig farm close to Vladivostock in Russia and also in South-East Mongolia in cattle, sheep, goats and camels. These outbreaks were all due to the PanAsia strain, which probably originated in China.

In South America, FMD was again recorded after years of freedom in Argentina, Southern Brazil and Uruguay. The type A 24 virus recovered in Argentina was closely related to a vaccine strain, whereas in Brazil and Uruguay, type O was involved.

For the fourth year running the WRL received no samples containing type C virus.

In 1999 the WRL received 512 samples collected in that year from a total of 40 countries. Of these 235 were due to type O; 8 to type A; none to type C; 42 to type SAT 1; 11 to SAT2; none to type SAT 3; 7 to ASIA1; and 10 to Swine Vesicular Disease; while no virus could be recovered from 200 samples.

In 2000 the WRL received 338 samples collected in that year from a total of 26 countries. Of these 75 were due to type O; 21 to type A; none to type C; 2 to type SAT 1; 16 to SAT2; none to type SAT 3; 17 to ASIA 1, and 3 to Swine Vesicular Disease, while no virus could be recovered from 199 samples.

In addition to these samples from 2000, the WRL received 96 samples collected between 1997 and 1999 from a total of 11 countries. . Of these 47 were due to type O; 6 to type A; none to type C; 3 to type SAT 1; none to SAT 2; 3 to type SAT 3; 4 to ASIA 1, and 7 to Swine Vesicular Disease, while no virus could be recovered from 26 samples.

The laboratory received 13 visitors during the period for training and scientific discussions. Reagents were supplied to 35 countries for purposes of diagnosis, research or vaccine production. WRL staff visited 12 countries either to run or assist in training courses, or to provide advice on the epidemiology, diagnosis and control of FMD.

Conclusion

The delegate from Norway expressed the appreciation of the delegates for the work done by the WRL.

Recommendation

The essential requirement was stressed for all countries to send representative samples from outbreaks to the WRL, even when a country had a national diagnostic capability. The number of samples from which

no virus could be recovered was also suggestive of the need for the despatch of samples of good quality under adequate conditions of conservation.

Item 8 - Progress in the implementation of Contingency Plans and destruction of carcasses

Due to the outbreak in the UK, the Secretariat regretted that it did not have time to complete the analysis of questionnaires on Contingency Planning and Carcass Disposal. John Ryan outlined the findings of his literature review on the subject.

In summary there are still only 3 practical options for the disposal of large numbers of carcasses in an FMD emergency. Namely, burying, burning, and rendering. Due to environmental legislation in certain member countries the on-farm options of burying or burning are not allowed. However, these methods are preferable to transporting and rendering carcasses off-farm, because they reduce the risk of virus dissemination by transporting infected carcasses and they do not pose restrictive constraints.

The importance of negotiating with environmental agencies in advance of an emergency was emphasised to keep as many of the on-farm options open as possible. Countries could conduct a geological survey in advance of an outbreak, highlighting areas where it was safe to bury carcasses. The absence of good scientific evidence on the environmental risks of the different disposal options makes comprehensive analysis difficult.

Conclusions

Disposal of carcasses remains a very difficult problem in implementing a successful slaughter policy and can become a significant bottleneck.

There is insufficient evidence at the moment of viable alternative options to rendering, burning and burial for large scale disposal of carcasses, although there are many approaches used for the small scale disposal of carcasses.

Countries should negotiate in advance with the environmental authorities what options are available for use in different areas of the country. The agreed options should be included in the contingency plans.

Recommendation

That the carcass disposal problem be examined co-operatively on a Europe-wide basis and that funds be dedicated for thorough research on this problem.

Item 9 - Availability of Emergency Vaccines in Europe

John Ryan reported the preliminary results of a questionnaire circulated by the Secretariat of the Commission on the availability of emergency vaccine in member countries (Appendix 12). He reported that 7 countries have made no arrangements, 17 countries have made one arrangement and 9 countries have made more than one arrangement for the supply of emergency FMD vaccine.

Five countries have changed their position since the previous report in 1999. All four changes were in the arrangements for the national vaccine bank. There was one new contract with a commercial manufacturer to hold inactivated antigen. The other 3 changes were in the amounts and strain composition of the National FMD Vaccine Banks. In general, the changes reflected a trend towards including more A strains, particularly the "new" Middle-Eastern A strains of A/Iran/96 and A/Iran/99.

The International Vaccine Bank holds antigen equivalent to 3.5 M doses of formulated vaccine of seven serotypes and is accessible to 6 Commission members. The EUVB antigen stocks are equivalent to 31.2 M doses of seven serotypes and are accessible to the 15 EU member countries (and possibly other countries on a case by case basis). National vaccine banks in member countries currently hold antigens and formulated vaccine

equivalent to 35.375 M doses of formulated vaccine and cover 6 serotypes. Thus there are antigen stocks and formulated vaccine equivalent to 70.075 M doses in member countries.

The EC representative reported that the contract had recently been signed for the long delayed safety and potency testing of vaccines produced in Turkey. The WRL for FMD in Pirbright, UK will carry out the testing in the near future.

Dr. Leforban warned of the dangers of not having an arrangement for the supply of emergency vaccine and encouraged the 7 member countries in this position to rectify the situation. He continued by stressing that it was not safe to assume that the EUVB would supply vaccine in an emergency, as the EU may decide to restrict their vaccine to their own members.

The EC representative, indicated that the EUVB had not purchased 50 million doses of vaccine (5 million doses of 10 strains) as planned in the original decision authorising the EUVB, because it was subsequently deemed unnecessary to have such large quantities of strains very unlikely to infect Europe e.g. SAT strains.

On the question of whether there were guidelines and procedures for transport, handling and administering emergency FMD vaccines: it was explained that the protocols were well established for the transport of vaccine and the monitoring of the cold chain for FMD vaccines, but that they were not available currently as guidelines for distribution to member countries. In addition, information of this type is available in the data sheet that accompanies commercial vaccines. It would be useful to enquire whether emergency vaccines from vaccine banks would also carry similar data sheets.

Conclusions

The Commission notes with disquiet that 7 member countries still have no arrangements made for the supply of emergency FMD vaccine.

The Commission warns that, in a crisis situation, vaccine from the European Union Vaccine Bank may not be available for non-members, as member countries will be accorded first priority.

The Commission notes with satisfaction that the long delayed contract for the testing of FMD vaccine from Turkey has finally been awarded.

The Commission notes that there is some uncertainty among member countries on the correct procedures for transport, handling and administration of emergency FMD vaccines.

Recommendations

1. That all member countries should make arrangements for the supply of FMD vaccine in an emergency.
2. That the Commission prepare guidelines on the correct protocols for the transport, handling and administration of Emergency FMD Vaccines.

Item 10. - Finance

Item 10.a - Financial report

Ms Joan Raftery presented the financial reports (Appendix 13) which had been prepared by the FAO Finance Division and by the Secretariat.

She tabled detailed statements for the Commission's three Trust Funds, numbers TF904200 (European Commission for the Control of FMD); TF909700 (non-EC Trust Fund for FMD Emergency Aid Programmes) and TF911100 (EC Trust Fund for FMD prevention in south-eastern Europe). These were showing balances of US\$ 195,665; US\$ 43,168 and US\$ 218,878 respectively as of 31 December 2000.

The Finance Division statement number 1 showed that the balance of funds held by FAO on behalf of the EUFMD Commission Trust Fund TF904200 as of 31 December 2000 was US\$195,665. Contributions from member countries for 2000 amounted to US\$322,225, including annual subscriptions, arrears and an advance contribution from Norway. Details were also provided of individual members' contributions. Of the 33 members, all but 5 were up-to-date in their payments for 2000. The account had earned interest at US\$9,855, while administrative costs amounted to US\$310,707. Accommodation and facilities, provided without charge by FAO, have been estimated at US\$50,000.

Details of the EUFMD Commission budgets for 2001 were also tabled, together with proposed budgets for 2002 and 2003. The annual contribution of the Commission to the WRL amounts to US\$ 35,000. The contribution for phase XVII of the FAO collaborative study covering the years 2001 and 2002 amounted to US\$22,400.

The representatives from Finance Division (AFF) present at the meeting undertook to explore ways and means of streamlining the procedure for tracing the annual contribution from member countries.

**Item 10.b - Report on the EC/FAO Agreement on the utilisation of Trust Fund 911100
MTF/INT/003/EEC (TFEU970089129)**

The Secretary presented the agreement between EC and FAO/EUFMD for establishing a new framework for the utilisation of the EC/EUFMD Trust Fund (Appendix 14). Following the meeting held in Rome on 25 February 2000, 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 1,5 million US\$ 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 the EC.

It is proposed that:

- The project should cover the period 2001 – 2004.
- 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 except for routine activities up to a ceiling of US\$30,000.
- The deadline for the EC response to EUFMD should be 30 days.

Item 11 - Election of Chairman, Vice-Chairmen, Members of the Executive Committee – Members of the Research Group

Dr. Y. Cheneau, Chief, Animal Health Service, FAO, reminded delegates of the constitutional requirements and of the accepted practice which has evolved towards achieving a balanced representation of the different regions of EU, non-EU countries in the membership of the EUFMD Executive Committee. Dr Cheneau then reviewed the membership of the Executive Committee elected in 1999.

Dr. Marabelli confirmed that he would be standing down from the Chairmanship of the Executive Committee.

The Commission was then requested to vote for the designation of one Chairman, two vice-Chairmen and five members of the Committee.

| | | Proposed by | Seconded by |
|----------------------|---------------------------------------|--------------------|------------------------------------|
| Chairman | Dr Ignacio Sánchez Esteban (Spain) | Cyprus | Hungary Portugal |
| First Vice-Chairman | Dr Leos Celeda (Czech Republic) | Hungary | Turkey Sweden Belgium |
| Second Vice-Chairman | Prof. Werner Zwingmann (Germany) | Sweden | Cyprus Greece Czech Republic |

Dr. Ignacio Sánchez Esteban was unanimously elected to the position of Chairman.

Dr. L. Celeda was elected as first Vice-Chairman and Prof. W. Zwingmann as second Vice-Chairman, both unanimously.

For the election of members of the Executive Committee the following persons were proposed and seconded and a ballot had to be held since there were seven candidates for the five vacancies on the Committee:

| | | Proposed by | Seconded by |
|---------|-----------------------------------|---------------------------------------------|--------------------------------------------|
| Members | Dr Dionisis Panagiotatos (Greece) | Cyprus | Albania Germany |
| | Dr Romano Marabelli (Italy) | Malta | Cyprus UK Belgium Spain Israel |
| | Dr Preben Willeberg (Denmark) | Iceland | Czech Republic Finland UK |
| | Dr Tibor Soós (Hungary) | Czech Republic | Spain Israel France |
| | Dr Yanko Ivanov (Bulgaria) | Former Yugoslav Republic of Macedonia | Romania Hungary Sweden |
| | Dr Musa Arik (Turkey) | Cyprus | |
| | Dr Pavlos Economides (Cyprus) | Malta | Slovenia Greece Iceland |

The membership of the Executive Committee for the period 2001 - 2003 was confirmed as:

| | |
|-----------------------|----------------------------|
| Chairman: | Dr Ignacio Sánchez Esteban |
| First Vice-Chairman: | Dr Leos Celeda |
| Second Vice-Chairman: | Prof Werner Zwingmann |
| Member: | Dr Tibor Soós |
| Member: | Dr Romano Marabelli |
| Member: | Dr Preben Willeberg |
| Member: | Dr Dionisis Panagiotatos |
| Member: | Dr Yanko Ivanov |

Dr Sánchez Esteban thanked the delegates for their confidence in electing him as Chairman and pledged that the Committee would do everything possible to assist in the control of FMD during the present crisis and to work towards the prevention of future incursions of disease.

Dr Kris De Clercq, Chairman of the Group, explained the current composition of the Research Group and its rationale. He then proposed a list of members which was unanimously accepted by the Session.

The following members were elected to the Research Group:

| | |
|----------------------------------------------------------|-----------------|
| Dr F. De Simone | Italy |
| Dr K. De Clercq | Belgium |
| Dr A. Dekker | The Netherlands |
| Dr C. Griot | Switzerland |
| Dr B. Haas | Germany |
| Dr P. Have | Denmark |
| Dr F. Moutou | France |
| Dr V. Palfi | Hungary |
| Dr J. Sanchez-Viscaino | Spain |
| Dr N. Unal | Turkey |
| Dr H. Yadin | Israel |
| Representative of the World Reference Laboratory for FMD | |

The Research Group subsequently elects its own Chairman.

Dr Marabelli thanked the Research Group for the excellent support that they had provided, and Dr De Clercq who had given outstanding service as Chairman. He stated that he was sure that the exemplary collaboration between the Committee and the Research Group would continue.

Item 12 - Any other business

Update of the disease situation in Europe as of 23 March 2001

- UK

- the number of confirmed outbreaks totalled 479, but the new cases were all within existing infected areas and no new areas of the country had so far been infected.

- France

- the situation was unchanged, with one outbreak in the Mayenne department.

- The Netherlands

- the situation remained as before with 3 confirmed outbreaks and 5 possible contacts under investigation.

- Republic of Ireland

- the situation was unchanged, with a single outbreak in North County Louth.

The delegate from Bulgaria proposed that, when suspicion of FMD arises, the restrictions on the movements of animals should be enforced as soon as possible throughout the entire country, rather than just locally.

On behalf of countries currently free of FMD, Dr Celeda, Czech Republic, expressed his solidarity with the infected countries and asked that all the lessons learned from the current situation should be applied in all countries.

The Secretary requested that member countries should regularly and promptly report their FMD situation, including preventive measures, to the EUFMD Secretariat so that the information can be circulated to all member countries.

Personnel of the EUFMD Secretariat

The Secretary informed the Commission that the former (and first) Administrative Assistant of the Commission, Ms Doris Guarino (Italy) had died in November 1999. Her service to the Commission during its early years had been outstanding and of unestimable value.

The Secretary then informed the meeting that the present Administrative Assistant, Joan Raftery, following 24 years service with the EUFMD, had handed in her resignation and would be leaving the Organization at the end of June. She had very much enjoyed her work with the Commission and wished to thank all those she had met over the years for their support and friendship. To the newly appointed Executive Committee and Research Group she extended warmest wishes for success in their work. She extended best wishes also to the laboratories she had had close connection with over the years, in particular the WRL, the Brescia Institute, and the Lindholm and Lelystad Institutes. She extended special thanks to the Chairmen with whom she had worked, particularly to Professor Andreas Nabholz (Switzerland) Chairman of her first EUFMD meeting held in Norway in 1976, and to Dr. Romano Marabelli (Italy); she extended best wishes to all the Chairmen of the Research Group she had met during her years of service, in particular Professor J.G. Van Bekkum (Netherlands), and Dr Kris De Clercq (Belgium). Finally, she extended best wishes to her first supervisor with the EUFMD, Dr Mario Boldrini (Italy) and to the present Secretary of the Commission, Dr Yves Leforban (France).

Associate Professional Officer (APO)

The Secretary announced that Dr J. Ryan was leaving the Commission at the end of October 2001 after two and half years of excellent service as an APO. Requests had been made to member countries participating in the FAO APO program to consider his replacement. So far no official responses have been received. He asked that urgent consideration should be given to his replacement as this is essential to the efficiency of the Commission.

Dr Ryan had made a very valuable contribution to the work of the EUFMD, including the development and updating of the EUFMD website, mapping, risk analysis, participation in workshops, follow-up of the TCP project in Turkey and Iran and other activities of the Commission. Dr Marabelli also expressed the appreciation of the Commission for Dr Ryan's contribution. Dr Ryan replied that he had found his work very interesting, useful and enjoyable. He thanked the Commission for all the support he had received.

OIE/FAO meeting on FMD

The Director General of OIE announced that a joint meeting of FMD experts of OIE and FAO would be held at OIE HQ in Paris on 17-18 April 2001 (see the recommendation under Item 2).

The 66 th Session of the Executive Committee in 2001

The delegate of the Netherlands extended an invitation to hold the next session of the Executive Committee of EUFMD in her country.

Membership of the Federal Republic of Yugoslavia

The observer from FR of Yugoslavia expressed his appreciation for the invitation to attend the Session and indicated that his country would like to join the EUFMD as soon as possible.

Item 13 - Adoption of the draft report

The draft report was adopted with the reservations that the agreed amendments would be made and that points 12 and 13 would be distributed to the delegates for approval and/or amendment immediately after the session.

Closure of the Session

The Chairman thanked the delegates for their contributions to the meeting, which, despite the very difficult disease situation in Europe, had been very successful. There had been a valuable exchange of information even though the circumstances did not permit the planned discussion on strategy. He thanked the Secretariat for the excellent work carried out during the last two years, including the meetings of the Executive Committee and of the Research Group, the various workshops, country visits and the Tripartite Group meetings. He thanked all who had worked for the success of the Session, including the interpreters. He gave a special note of appreciation for the rapporteur who under very difficult circumstances had not only efficiently reported the proceedings of the Session, but had also acted as the Representative of the UK and of the WRL.

Dr Marabelli especially welcomed Dr Sánchez Esteban as the new Chairman of the EUFMD and wished him every success.

Dr Sánchez Esteban thanked all the delegates for their confidence in electing him as the new Chairman and expressed his intention to give his best endeavours to the work of the EUFMD.

Finally Dr Marabelli wished all participants a safe journey home.

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**Situation Report on the Outbreaks of FMD in the United Kingdom during
February and March, as of 18th March 2001**

1. SUMMARY

1.1 An outbreak of Foot and Mouth Disease was confirmed pigs at an abattoir in Essex on 20 February 2001. Laboratory examinations carried at the Institute for Animal Health Pirbright out on tissue samples taken from the affected animals, showed that the virus was FMD type O, Pan Asia strain. This strain has been associated with outbreaks of FMD in Japan, Korea, Russia, Mongolia.

1.2 The total number of confirmed outbreaks of Foot and Mouth Disease in Great Britain currently stands at 296. A single outbreak of FMD was also confirmed in N. Ireland on 1 March 2001.

1.3 The majority of outbreaks have involved sheep destined for slaughter, though disease has been diagnosed in cattle and pigs. In addition to holdings on which disease has been confirmed, animals on 236 holdings considered to be at risk from FMD through contacts with an infected holding, have also been killed. A total of 209,123 animals (45,761 cattle, 160,301 sheep, 28 goats and 3,033 pigs) are affected on the 296 holdings where FMD has been confirmed and 73,607 animals (11,154 cattle, 52,569 sheep, 24 goats and 9,860 pigs) on the 236 holdings considered at risk from FMD.

1.4 On the basis of current epidemiological knowledge, a pig holding in the County of Tyne and Wear is thought to have been the source of the subsequent outbreaks, infection having spread to pig holdings in the County of Essex through the movement of pigs and people and local airborne spread, and to sheep and cattle holdings in the Counties of Tyne & Wear. Thereafter disease spread to other counties in Great Britain and to Northern Ireland through the movement of animals, people and vehicles.

1.5 All the measures foreseen in Council Directive 85/511/EEC have been applied. Protection and surveillance zones with radii of at least 3-km and 10-km have been imposed around each infected holding, the surveillance zones having been extend to take account of the prevailing wind conditions at the time between in the introduction of disease and its first detection.

1.6 On 23 February, The Foot and Mouth Disease Declaratory (Controlled) Area Order 2001 was made making England and Wales a controlled area for the purposes of FMD control and prohibiting the movement of all FMD susceptible animals and their carcasses in the whole of England and Wales except under license and banning the holding of fairs, markets, shows or other gatherings of animals. This Order expired on 2 March and was replaced by The Foot and Mouth Disease Declaratory (Controlled Area)(England &

Wales)(No 2) Order 2001 which, while, continuing to prohibit the movement of all FMD susceptible animals and their carcasses in the whole of England and Wales, provides for the movement of animals of any species direct to abattoirs for slaughter. The controlled area was further extended without time limit by The Foot and Mouth Disease Declaratory (Controlled Area)(England & Wales)(No 3) Order 2001 which came into force on 16 March 2001.

1.7 On 21 February, Commission Decision 2001/145 (replaced on 1 March by Decision 2001/172 and on 9 March by Decisions 2001/190) came into force and banned the export from the whole of the UK of live animals, germplasm, fresh meat, meat products, milk and milk products, hides and skins of FMD susceptible species. Derogations to the export ban were given for the above commodities subject to the conditions laid down in Decision 2001/145. The ban does not apply to poultry, horses, cats and dogs. It has been implemented through The Export Restrictions (Foot & Mouth Disease) Regulations 2001.

2. POSITION AS AT 18 MARCH 2001

2.1 Current position

2.1.1 The total number of confirmed outbreaks of Foot and Mouth Disease in Great Britain currently stands at 296. A single outbreak of FMD was also confirmed in N. Ireland on 1 March 2001.

2.1.2 The majority of outbreaks have involved sheep destined for slaughter, though disease has been diagnosed in cattle and pigs. In addition to holdings on which disease has been confirmed, animals on 236 holdings considered to be at risk from FMD through contacts with an infected holding, have also been killed. A total of 209,123 animals (45,761 cattle, 160,301 sheep, 28 goats and 3,033 pigs) are affected on the 296 holdings where FMD has been confirmed and 73,607 animals (11,154 cattle, 52,569 sheep, 24 goats and 9,860 pigs) on the 236 holdings considered at risk from FMD.

2.1.3 Confirmed outbreaks have occurred in 29 of the 75 Counties in England, Scotland and Wales. The Counties of Cumbria (82), Dumfries and Galloway (40) and Devon (40) have been particularly affected as have Co. Durham (20), Powys (12) and Tyne and Wear (11). The other affected Counties have each had less than 10 outbreaks.

2.1.4 Of the confirmed cases, suspicion of disease was first reported by the owner in 203 instances, by a private veterinary surgeon in 14 instances while 43 outbreaks were detected as a result of tracing from a confirmed outbreak and 18 were detected by MAFF State Veterinary Service staff in the course of patrols in the 3-km protection zones established around all confirmed outbreaks. Nine (9) outbreaks were identified in flocks/herds destroyed as dangerous contacts, 8 were detected in abattoirs by the Official Veterinary Surgeon.

2.1.5 A total of 1,548 holding have been placed under official movement restrictions because of suspect FMD. Restrictions have been lifted from 899 holding, FMD has been confirmed on 296 holding and the outcome of investigations on 113 holding are awaited. In addition, susceptible species on an additional 240 holding have been killed because they were considered at risk of disease through contact with a holding where FMD had been confirmed.

2.1.6 A map showing the location of confirmed FMD outbreaks in Great Britain is at Annex 1.

2.2 Legislative controls

2.2.1 All the measures foreseen in Council Directive 85/511/EEC have been applied. Protection and surveillance zones with radii of at least 3-km and 10-km have been imposed around each infected holding, the surveillance zones having been extend to take account of the prevailing wind conditions at the time between in the introduction of disease and its first detection.

2.2.2 On 23 February, The Foot and Mouth Disease Declaratory (Controlled) Area Order 2001 was made making England and Wales a controlled area for the purposes of FMD control and prohibiting the movement of all FMD susceptible animals and their carcasses in the whole of England and Wales except under license and banning the holding of fairs, markets, shows or other gatherings of animals. Identical legislation was made in Scotland.

2.2.3 This Order expired on 2 March and was replaced by The Foot and Mouth Disease Declaratory (Controlled Area)(England & Wales)(No 2) Order 2001 which, while, continuing to prohibit the movement of all FMD susceptible animals and their carcasses in the whole of England and Wales, provides for the movement of animals of any species direct to abattoirs for slaughter. Local movements (upto 5-km), under license, have also been permitted for welfare or reasons of essential farm operation but these latter movements may not exceed 0.5-km and movements must take place within the boundaries of the same holding

2.2.4 The controlled area was further extended without time limit by The Foot and Mouth Disease Declaratory (Controlled Area)(England & Wales)(No 3) Order 2001 which came into force on 16 March 2001.

3. EPIDEMIOLOGY

3.1 A diagram showing the believed epidemiological links between confirmed cases is shown at Annex 2.

3.2 It is believed that disease was first introduced into a pig-fattening unit in Northumberland (FMD 2001/04). From epidemiological investigations, it has been estimated that the earliest date for the introduction of virus to these holding was the 2nd February 2001.

3.3 From here, infected pigs were moved to an abattoir in Essex where the disease was first confirmed on 20th February (FMD 2001/01). By the time the source farm was identified, windborne spread of virus had infected cattle and sheep on nearby farms and some holding up to 8km distant.

3.4 The first holding in the Northumberland area that showed disease held both cattle and sheep (FMD 2001/06). Disease first became evident in cattle on these holdings on 23rd February, with no clinical signs in the sheep. Upon veterinary inquiry, it was found that sheep had been sold through local markets (Hexham, Northumberland and Longtown, Cumbria) during mid-February before FMD had been recognized in the UK. These sheep were either infected or incubating disease while at the market. They infected other animals within the markets and FMD was then distributed around the country by onward movement via markets, dealers and livestock vehicles.

3.5 The evidence from the epidemic to-date suggests that the widespread dissemination of disease in the sheep flock is continuing to cause disease outbreaks. Disease appears to be cycling unseen in flocks that were infected by movements before 23 February when a standstill on animal movements in Great Britain was first imposed.

3.6 A preliminary analysis of the animals held on FMD infected premises shows that the most common animals held are sheep and cattle (59%), sheep only (17%) and cattle only (12%). With time, the proportion of newly infected "sheep only" holdings has decreased and those with both sheep and cattle or cattle only has increased. The frequency of infection on holdings with sheep is greater than would be expected if all parts of the animal population were equally at risk. The majority of holdings infected are farms although dealers account for a small proportion of the total.

3.7 The proportion of holdings becoming infected due to local spread appears to have increased and that due to the movements of animals, people and vehicle movements has decreased.

3.8 Clusters of infection appear to be occurring with a large number of outbreaks occurring in defined geographical areas, notably in the Counties of Essex, Durham, Devon, Dumfries & Galloway and Cumbria. These appear to be due to a combination of movement related and local spread though overall, the movement related spread accounts for a notable proportion of outbreaks in these clusters.

Essex

3.9 A cluster of diseased holdings occurred around the abattoir in Essex (FMD 2001/01). Cattle and pigs were infected by personnel movements and contiguous spread. Two sheep holdings also showed disease and windborne spread or mechanical transmission by wild birds from the infected pig holding are being investigated as the possible means of introduction.

Durham

3.10 Disease was introduced into the County by infected sheep bought in markets by dealers. Longtown, Hexham and Darlington markets were implicated in these movements. Some of these sheep had disease diagnosed in an abattoir lairage where they infected pigs present already present in the abattoir. Windborne spread from the pigs, local spread from contiguous holdings and within the 3km surveillance zones is thought to have been responsible for subsequent local spread to cattle and sheep.

Cumbria, Dumfries and Galloway

3.11 Longtown market had infected animals passing through it for 6 days before disease was first recognized in the UK. Infection was spread via the movement of infected sheep and sheep incubating disease. In addition, further spread occurred via contaminated livestock vehicles and mechanical transmission by people and equipment visiting the market. Epidemiological investigations indicate that further local spread then occurred by the movement of people, vehicles and other equipment in contact with both the market and the sheep

3.12 More cattle are becoming infected and may be acting as a source of infection, though this is thought to be a consequence of local spread and sheep are still the main source of introduction of infection into an area.

Devon

3.13 Infected sheep from Longtown market were moved into Devon by a dealer (FMD 2001/07) who then moved them between his other holdings in the area and county markets. His stockmen moved feed, hay and straw between the holding on vehicles. This may have spread contamination over the local roads in the area.

2.14 Local farms have sheep and cattle. Many sheep are kept in groups away from the home farm so movements between them are numerous with many local roads in common use. These movements may have been responsible for the local spread following the original introduction of infection into the area. There were further movements of sheep and vehicles between different holdings and markets in the area and it is thought that the methods of local spread are similar to those in Cumbria although the initial weight of infection in the Devon area was much less.

Other areas

3.15 Other movements of sheep to abattoirs and markets throughout the UK have introduced disease into areas such as Wales, Scotland, Northamptonshire, Staffordshire, Worcestershire, Wiltshire and Gloucestershire. From this introduction local spread has occurred by means which vary according to the local farming methods in those areas.

3.16 In all new cases, sheep were the virus-introducing species and it is likely that disease is still circulating unnoticed in infected groups of sheep. It is thought that these sheep are still likely to cause disease in other more susceptible species, such as cattle, if either the sheep or contaminated people or equipment used among them, come into contact with them.

4. FUTURE DIRECTION OF CONTROLS

4.1 There are five key disease control aims.

- keep free of disease those areas of the country still free of FMD;
- halt the deteriorating disease situation in Devon;
- stop the spread of disease in the North of England and Southern Scotland;
- minimize the spread of disease from Longtown, Welshpool and Northampton markets;
- eliminate infection in flocks that have passed through dealers known to have handled infected animals.

Keep free of disease those areas of the country still free of FMD

4.2 It is anticipated that new types of control areas will be established aimed at avoiding the importation of FMD into these areas by the movement of animals from areas where infection exists. High risk movements of sheep which took place before 23 February into these areas will be identified and removed

Devon

4.3 Disease is occurring mainly in cattle and is easier to identify. The topography and farm structure (lots of small farms, dense animal populations, movements of people and vehicles) is not suited to a large scale preventive slaughter campaign, though individual farms or areas could be cleared on a case by case basis. The strategy will be to undertake intensive foot patrols in the 3-km area around infected farms with individual farms being visited by veterinary staff to ensure FMD cases are identified as early as possible to prevent onward spread.

Southern Scotland and Northern England

4.4 There is a large focus of infection in this area, mostly concentrated in sheep flocks, with the potential for rapid spread to adjacent holdings. It is proposed that all sheep and pigs within 3-km of an FMD infected holding should be killed. Symptoms of FMD are difficult to identify in sheep and the consequences of failure to identify infected sheep are greatest. In the case of pigs, there is a risk of substantial aerosol spread in the late stages of incubation before symptoms become apparent.

Spread of disease from Longtown, Welshpool and Northampton markets

4.5 There is clear evidence that sheep from markets in Welshpool, Longtown and Northampton markets were exposed to infection and there is reason to suspect that with the passage of time, numbers of flocks into which these sheep have been imported may be infected. These flocks will be killed as dangerous contacts.

Sheep that have passed through dealers known to have handled infected animals

4.6 Flocks associated with the movements of sheep handled during the high-risk period by two major dealers, may similarly be infected and will also be killed as dangerous contacts.

Report of Mission to UK, 01 - 14 Mar 2001

John Ryan, EUFMD Secretariat.

Introduction

On learning of the outbreak in the UK, FAO and the EUFMD secretariat contacted the Chief Veterinary Officer (CVO) of the UK, Dr. J. Scudamore, to offer whatever assistance it could give to the UK during the Foot-and-Mouth Disease (FMD) crisis. On 28 Feb 2001, Dr. Scudamore and Dr. Donaldson decided that they would accept a two week secondment by the author and that his skills would be most usefully applied in the Institute for Animal Health (IAH), Pirbright, UK, the front line FMD diagnostic laboratory in the current outbreak.

Itinerary and Timetable

As well as assisting at the IAH, the author expressed a wish to visit a suspect case in the field and would have liked an opportunity to visit Dr. Scudamore and the staff at MAFF HQ, Page St., London. Under the crisis situation, it was not possible to accommodate these visits. This is understandable because there was always a risk that the author would simply get in the way rather than contribute something useful. The author did get to meet and work closely with all the senior officers of the IAH where it was decided that the author could be most usefully employed.

The author spent the entire visit in the IAH with a team developing a new database to track the samples coming from the field, helping to ensure a smooth flow of information to and from the lab and acting as liaison between MAFF HQ and the IAH. The author also took the opportunity to observe, at first hand, animal infection experiments using the current UK outbreak strain in the disease secure isolation facilities at the IAH, Pirbright.

Lessons Learned

The author dedicated his time to working with the staff of the IAH instead of travelling widely to inspect and investigate the outbreak and the actions of the veterinary services, because the mission was not an inspection but was intended to support the efforts of the UK in controlling the outbreak. Therefore, a standard mission report would not be appropriate in this situation. However, the author would like to share the lessons that he learned during his visit, in the hope that they may be of assistance to other countries in preventing the disease and in contingency planning. The main points are listed as follows:

1. That farmer awareness of the clinical signs of FMD and the consequences of the infection is critical to early identification of FMD. Farmers are the front line defence and the time it takes to notify a veterinarian about a suspect case will make a critical difference in whether the outbreak will be limited or widespread.
2. That ante-mortem and post-mortem inspections by veterinarians at slaughterhouses still play a critical role in not only food safety but in epidemiological surveillance.
3. That swill feeding is extremely dangerous in a world of global trade and travel and needs to be very strictly controlled or totally prohibited.
4. That FMD can be difficult to suspect in sheep flocks where there are normally large numbers of individual animals, where each animal is not closely monitored on a daily basis and where in normal circumstances a small proportion of animals may be lame due to other mundane causes.
5. This difficulty can be compounded if the strain is not very pathogenic in sheep, does not display dramatic clinical signs and does not have a high attack rate in infected flocks. (Lesions are only apparent in 5% of animals on average in infected flocks.)
6. As a result of these two factors it is likely that early FMD in sheep can go unnoticed and with the extremely high numbers of movements of sheep between dealers and markets, sheep can become very efficient transmitters of the disease whilst evading detection.
7. If sheep are not identified and dealers not controlled then comprehensive tracing can become extremely difficult. (Sometimes the dealers themselves cannot trace all the movements!)

8. That when contingency planning for FMD, the temptation is to consider an introduction into high density pig/cattle areas as a worst case scenario and to only consider a large single focus or low foci, regionalised outbreaks. The outbreak in the UK has demonstrated that a delay in identifying the index case leading to large, multi-foci, country-wide outbreaks with the involvement of many dealers and markets should be explicitly considered and may in fact be the worst-case scenario, particularly if measured in terms of resource drain. This is due to the extensive tracing required and the need to spread limited veterinary and other resources over extensive geographical areas.
9. That a large outbreak of FMD places extreme pressure on all the resources, (personnel, equipment, contractors, finance etc.) of a National Veterinary Service and any front-line laboratory. It is impractical for any one country to maintain the spare capacity necessary to be able to meet the sudden abrupt surge in demand for key skills and resources that comes with a large outbreak of FMD (e.g. veterinarians with experience in FMD, skilled epidemiologists, trained laboratory staff, slaughtermen, contractors to dispose of carcasses etc.)
10. That it is impossible to instantly scale up the operations of a laboratory by a factor of at least 50 to meet the new workload without sacrificing some performance measures until new people and systems are integrated effectively. The IAH adjusted rapidly in these circumstances.
11. That introducing new people to a laboratory can be very disruptive at least initially before they become a seamless part of the operations. The ability to call upon previous workers or trained and experienced laboratory staff from abroad is extremely important and should be part of the laboratory's contingency plan for FMD.
12. That systems that work very well in peace time can very easily be overwhelmed when a large outbreak occurs. This is particularly true of information systems that seek to gather too much information either in the field, in HQ or in the laboratory.
13. That developing and implementing new systems of reporting in the middle of an outbreak is extremely difficult and risks confusion and total collapse.
14. That positive laboratory results are easy to report and track, but that this focus on getting positive results back quickly can lead to a neglect of reporting negative results that are equally important but naturally much slower to get out. (An ELISA positive on an original suspension can be returned in 4-6 hours, but a negative on virus isolation can take 4 days assuming that all samples from the farm were put up on the first day.)
15. That waiting for negative results from a laboratory ties up valuable veterinary resources and causes great stress for a farmer especially when the suspect cases do not develop FMD.
16. That the period of quarantine for vets who have visited an infected or potentially infected farm has a huge impact on the availability of veterinary resources for further investigations.
17. That the true objectives of taking samples at farm level can easily be confused in an outbreak. Samples should only be taken if there is a doubt that the clinical picture is FMD or for tracing purposes.
 - Too many samples - especially blood samples - from a farm with a suspect case can overwhelm the laboratory's processing capacity.
 - Over-sampling necessitates the prioritising of samples processed and can lead to some samples not being processed on the day of receipt.
 - This can result in a longer return of a negative result than the minimum 4 days because a negative result cannot be given by the laboratory until all the samples from a premises have been processed fully.
 - Careful thought and training should help the field veterinarian decide if he needs:
 - 1 or 2 good epithelial samples or blood samples for virus isolation/antigen detection on clinical suspects
 - or
 - a statistical sample of bloods for virus isolation/antigen detection if the clinician suspects the animals are incubating the disease and there are no clinical signs
 - or

- a statistical sample of sera for antibody detection to see if the disease has been present where lesions are healed or inconclusive.
 - Well designed sample submission forms can help the veterinarian chose the appropriate number and type of samples.
18. That veterinarians are indispensable in veterinary diagnostic laboratories to prioritise sample processing, to troubleshoot problems and to relate the activities of the Lab to work in the field
 19. That employment terms and conditions should be sufficiently enticing to retain and attract key veterinary expertise in national veterinary services and in national veterinary laboratories.
 20. That adequate staffing and adequate terms and conditions of employment for veterinarians in the national veterinary service are essential pre-requisites in the prevention and control of infectious diseases.

Conclusions

My experience of the performance of the IAH staff in a crisis situation was unreservedly positive. Problems were quickly and quietly resolved and every staff member endured the hard work and very long hours selflessly. I can find no fault with their performance in this crisis. I have no basis of experience to comment on the performance of MAFF.

Protection Measures Implemented in France against Foot-and-Mouth Disease

1 - Measures for animals at risk

1.1. Veterinary surveys

Since 21 February 2001, a survey based on the ANIMO system has been underway on the introduction of animals of susceptible species onto the national territory since 15 January 2001. The findings reveal that 23 farms have served as first destination of sheep from the United Kingdom. The farms, spread over 17 departments, have received 60 consignments, with a total of 19 660 sheep. A survey of the movement of these animals on the national territory from point of first destination has:

- indicated that some 10 000 animals were destroyed before 21 February: the carcasses have been handed over, then destroyed or sent back to the United Kingdom; and
- identified 58 farms with sheep originating from the United Kingdom (of the 23 farms of first destination, 22 still had sheep originating from Britain; 36 farms received the sheep as their second destination). No movement of other susceptible species has been identified.

In addition, the findings of a survey conducted by the Netherlands veterinary services on the movement of UK sheep introduced into the Netherlands since 1 February 2001 and subsequently transferred to other Member States has identified a further 19 farms that have received animals "at risk", covering 14 departments: 37 animal consignments for a total of 9 372 sheep have been introduced this way.

This means that sheep from the United Kingdom have been delivered to 25 French departments.

The following preventive measures have been implemented on all farms with animals "at risk":

- quarantine of the farms and clinical test of the animals;
- on-site slaughter of sheep from the UK and of all animals of susceptible species that have come into contact with animals of British origin;
- on-site burial or incineration of carcasses of destroyed animals;
- blood sampling of 10% of destroyed animals of British origin (with a minimum of 30 samples per consignment) and dispatch of the samples to the AFSSA (national reference laboratory) for serological and virological analysis;
- animals of non-susceptible species present on farms where culling has occurred are placed in quarantine for a period of seven days following the last slaughter.

1.2 Results of ongoing surveys (as of 16 March 2001)

To date, 41 892 animals have been destroyed (18 202 sheep and 1 pig originating from the UK, 23 045 "contact" sheep, 486 "contact" cattle, and 158 other "contact" animals).

A total of 4 883 blood samples have been taken and the preliminary results communicated by the AFSSA (16 March 2001 - 18.00 hours) indicate:

- 3 497 negative samples;
- 288 seropositives from 15 holdings that have kept sheep originating from the UK.

The final results from the AFSSA have allowed surveillance to be lifted from 110 seronegative farms, after disinfection.

The 15 seropositive farms mentioned above are located in the following 13 departments:

- Aisne (02) - 1 farm on which 19 "contact" sheep and 900 other sheep originating from the UK have been destroyed. This farm no longer had any sheep of British origin;
- Cher (18) - 2 farms on which 90 sheep originating from the UK, 594 "contact" sheep and 65 "contact" cattle have been destroyed. Samples were taken from two bovines showing symptoms of foot-and-mouth disease but these proved negative (negative serology and virology);
- Loire-Atlantique (44) - 1 farm on which 30 sheep from the UK and 190 "contact" sheep have been destroyed;
- Loiret (45) - 1 farm on which 2 539 sheep from the UK and 1 410 "contact" sheep have been destroyed;
- Mayenne (53) - 3 farms on which 769 sheep from the UK, 523 "contact" sheep, 1 "contact" cow and 3 "contact" pigs have been destroyed;
- Oise (60) - 3 farms on which 291 sheep from the UK and 1 700 "contact" sheep have been destroyed;
- Rhône (69) - 1 farm on which 42 sheep from the UK, 45 "contact" sheep, 80 "contact" cattle and 40 "contact" pigs have been destroyed;
- Seine-et-Marne (77) - 1 farm on which 400 sheep from the UK, 1 400 "contact" sheep, 30 "contact" cattle, and 12 "contact" pigs have been destroyed;
- Vienne (86) - 1 farm on which 346 sheep from the UK, 2220 "contact" sheep and 10 "contact" cattle have been destroyed;
- Seine Saint-Denis (93) - 1 farm on which 810 sheep from the UK have been destroyed;

All animals of susceptible species have been destroyed. Prefectoral decrees have also been issued establishing 3 km exclusion zones around these farms in the departments concerned.

Results of reported clinical suspicions

Since implementation of the tighter surveillance measures for foot-and-mouth disease, a total of 54 clinical suspicions have been formally reported to the veterinary services in 31 departments. To date, all the results have been negative, except for the outbreak.

1.3 Information on the outbreak of foot-and-mouth disease declared on 13 March 2001 at the OIE.

Following the discovery of six cattle with clinical signs of foot-and-mouth on 12 March 2001 on a farm in the department of Mayenne, samples were taken and the six cattle were

immediately slaughtered. As the preliminary results of the tests carried out at the AFSSA of Maisons-Alfort were positive, the 114 dairy cows and bull calves also present on the farm were all slaughtered during the night of 12-13 March, then destroyed and incinerated on-site.

The infection came from proximity contact with sheep imported from the United Kingdom. These sheep kept on a farm 500 metres away were slaughtered then destroyed on 27 February (as were the contact animals). They had come from British outbreak number 11 (Llanclouduy, Hereford).

The activation of the foot-and-mouth alert by the prefecture of Mayenne resulted in the introduction of a 3 km protection zone and a 10 km surveillance zone around the farm concerned, as envisaged in community and national regulations.

In addition, two pig farms (total of 2 500 animals) located in an area with potential airborne exposure to the virus had their stock slaughtered and destroyed as a precautionary measure on 14 March 2001. Pigs from these two farms that had been transferred to seven other farms were also slaughtered as a preventive measure.

A decision by the Commission was approved by the European Union's Standing Veterinary Committee on 13 March. This decision calls for action on two fronts:

The departments of Mayenne and Orne are to be subject to the same measures as those imposed in the United Kingdom: ban on the movement of livestock of susceptible species (ruminants, pigs), of their genetic material (semen, ova, embryos), and of animal products from such animals (unless the products are from animals slaughtered before 16 February, or from animals raised and slaughtered outside these departments, or if they have been treated against the foot-and-mouth virus).

It is also made mandatory to systematically cleanse and disinfect, after each journey, vehicles used to transport animals in these departments.

At the same time, there is a ban in all other departments of metropolitan France on the movement of livestock of susceptible species and their genetic material (shipments to other Member States or exports to third countries).

Trucks collecting milk from farms with animals of susceptible species have to be cleansed and disinfected before leaving the department.

This decision was formally adopted at midnight on 14 March 2001 and will remain in effect until 27 March. It will be reviewed in the light of developments by the Standing Veterinary Committee meeting of 20 March.

2 - Measures to control the movement of animals

2.1 Measures for departments where serological tests have proved positive.

Measures restricting the movement of animals were introduced by prefectural decree on 4 March 2001 in the departments concerned:

- ban on the movement and transportation of animals of susceptible species;

- restrictions within a 3 km radius of farms testing positive:
 - ban on the grouping of animals of all species (markets, fairs, shows);
 - ban on the transportation of all animals (whatever the species);
 - ban on animals of susceptible species entering or leaving the demarcated zone;
 - identification, isolation and quarantine of farms with animals of susceptible species;
 - disinfection of animals and containers used for the transportation of animal carcasses, milk, meat and other materials that could carry the virus;
 - ban on artificial insemination;
 - introduction of disinfection facilities for tyres of vehicles and shoes of personnel in establishments at risk (abattoirs, rendering plants, dairy plants, feed stores...);
 - introduction of a separate milk collection route for farms located in the zone under increased surveillance.

2.2 Other measures to control movement on the national territory

The movement and transportation on the national territory of animals of susceptible species (cattle, sheep, goats, pigs and other cloven-hoofed animals) and horses has been banned by ministerial decree. These restrictions apply to domestic movement, exports, imports, as well as to the transit on the national territory of animals from other countries.

The transit of animals for slaughter in holding centres and the collection on any one journey of animals from different farms before delivery to the abattoir are forbidden.

However, livestock may be taken directly from farm to French abattoir. In the case of transfer from French farm to French abattoir, the animals need a veterinary permit allowing their transportation.

Animals for slaughter may also be introduced into the national territory on condition that they have a veterinary certificate as animals for slaughter issued by the veterinary authorities of the country of origin and that they are **directly** taken to the abattoir of destination situated in France or in another country.

There are exemptions for horses on the ban on movement and transportation, subject to notification of travel to the veterinary services of the departments of departure and arrival, and subject to compliance with regulations on the disinfection of vehicles, horses and accompanying persons.

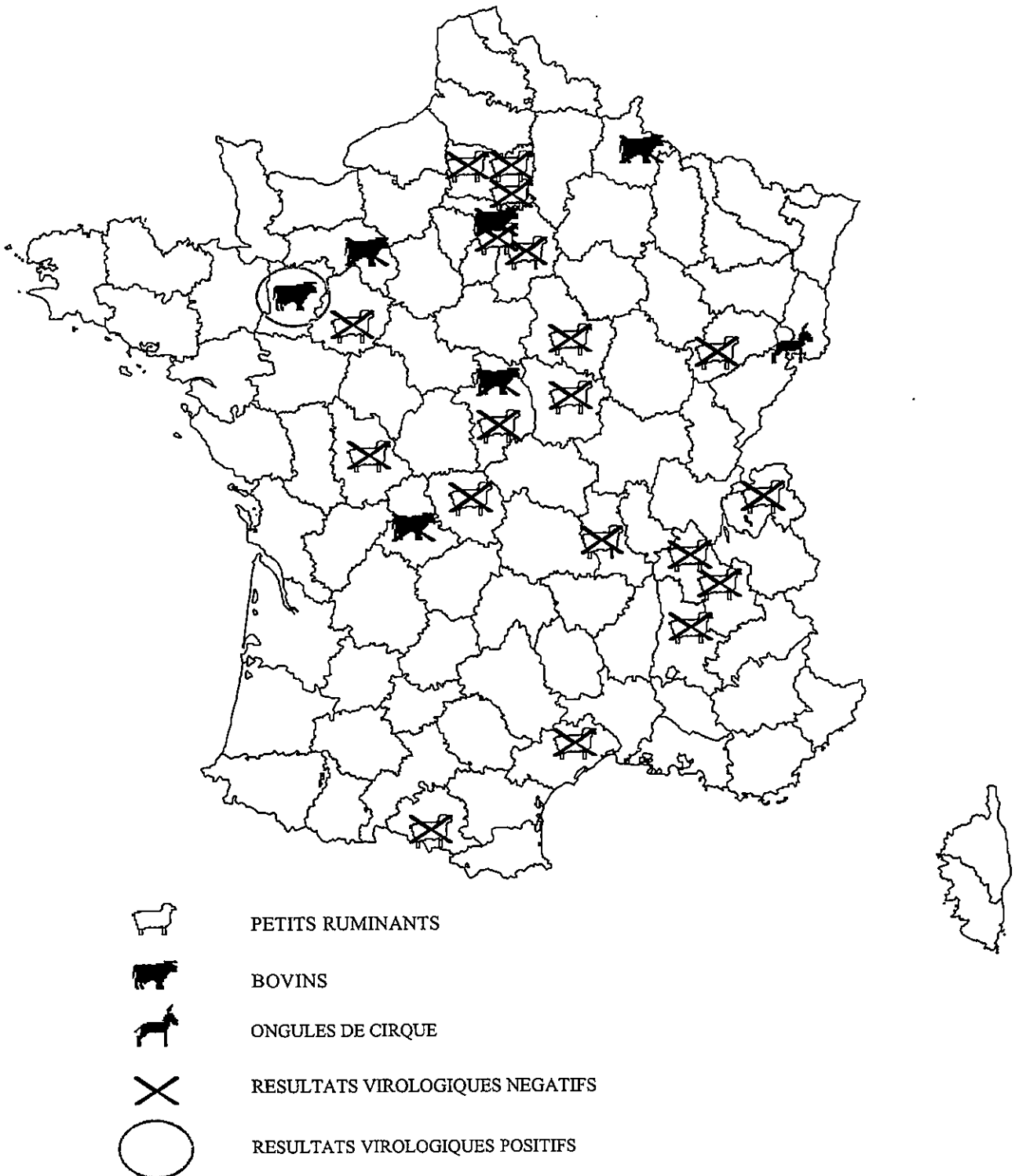
These conditions also apply to horses introduced into France from other countries: notification of introduction must be made to the veterinary services of the department of destination on French territory.

All transit of horses on French territory is authorized subject to the following conditions: no intermediate reloading;

- routing exclusively on main trunk roads;
- cleansing and disinfection of vehicles before animal loading.

Hauliers transporting horses from the United Kingdom must have a certificate of disinfection. Such horses must be accompanied by a health certificate stating that they have not been in a protection or surveillance zone in the 14 days prior to the date of certification.

LOCALISATION DES 26 SUSPICIONS CLINIQUES
AU 19 MARS 2001



**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,
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1. INTRODUCTION

Foot-and-Mouth disease (FMD) – type O₁ – 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 | Bovines | 138 | 12 | 11.07 | clinical | 11.07 | VD |
| 00/02-Second. | Delta, | Bovines | 55 | 5 | 10.07 | clinical | 11.07 | VD |
| 00/03-Second. | EVROS | 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, | Bovines | 160 | 0 | 17.07 | contact | 20.07 | serology |
| 00/07-Second. | EVROS | 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, | Bovines | 89 | 10 | 19.07 | clinical | 24.07 | serology |
| | EVROS | | | | | | | |
| 00/09-Second. | Potamia, | Bovines | 122 | 60% | 07.08 | clinical | 08.08 | serology |
| | XANTHI | | | | | | 09.08 | VD |
| 00/11-Primary | Mandra, | Bovines | 58 | 8 | 17.08 | clinical | 18.08 | VD |
| | EVROS | | | | | | | |
| 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, | Bovines | 72 | 3 | 19.08 | clinical | 24.08 | VD |
| | XANTHI | | | | | | | |

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 | Surveillance |
|----------------------------------------------------|---------------------|---------------------------------|
| | Forecasted Samples | 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.

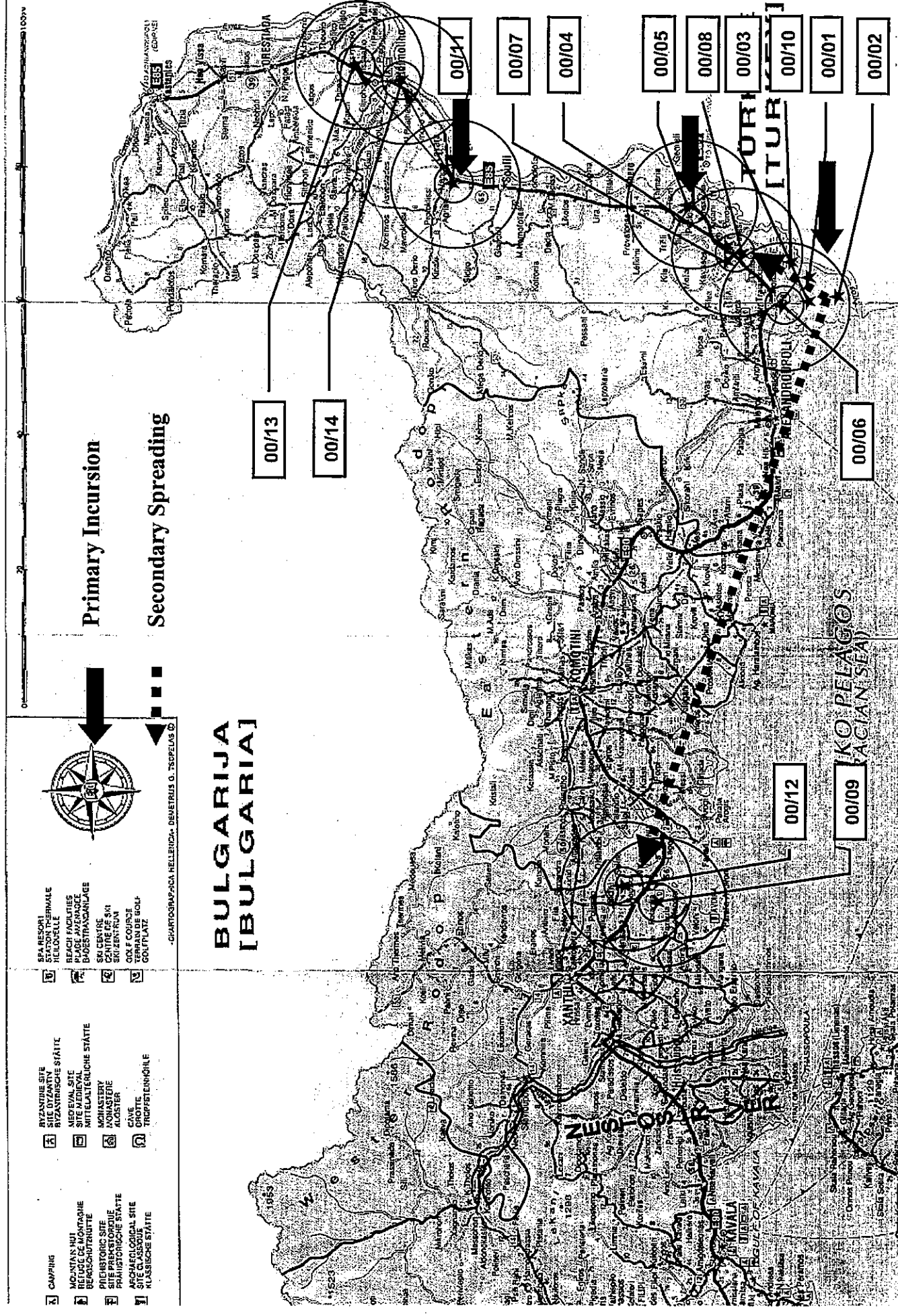
b) Financial actions

- 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]**

- BEACH FACILITIES
- BEACH AVENUE
- BASE TRANSLATION
- SKI CENTRE
- SKI CENTRE
- SKI CENTRE
- SKI CENTRE
- SKI CENTRE
- SKI CENTRE
- SKI CENTRE

- RYZANINE SITE
- RIZANINE SITE
- MEDIA SITE
- MEDIA SITE
- MEDIA SITE
- MEDIA SITE
- MEDIA SITE
- MEDIA SITE
- MEDIA SITE
- MEDIA SITE

- CAMPING
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT
- MOUNTAIN HUT

CHARTORAV-PASA NELLERICH - DEMETRIUS O. TSEPELAS

TUR
TUR

KOPELAGOS
(AEGIAN SEA)

FMD Situation in Europe and other Regions in 1999 and 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, 2000 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.....

59 countries officially reported outbreaks of FMD to the OIE, WRL or FAO. Forty two countries reported outbreaks of only one serotype - predominately type O - and 18 countries reported outbreaks of 2 or more different serotypes. Serotype O was reported in 37 countries, A in 13 countries, Asia 1 in 7 countries, SAT 1 in 7 countries, SAT 2 in 4 countries, SAT 3 in 1 country and C in 1 country.

EUROPE 1999/2000

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 Préfecture of Evros, and two further outbreaks were reported in the Préfecture of Xanthi, linked epidemiologically to the Evros outbreaks.

See Report of Greece.

TURKEY 1999/2000

Although there were no reported outbreaks of FMD in European Turkey (Thrace), it is likely that Turkey was the origin of the Greek outbreaks in 2000 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 in 2000 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 Report of Turkey.

CIS COUNTRIES 1999/2000

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 (inactivated) 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 Caucasus 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 Kazakhstan.

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 5.

MIDDLE EAST 1999

FMD type O outbreaks were reported from Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates and Yemen.

FMD type A outbreaks were reported from Georgia, Iran and Turkey. The WRL has reported that a new type A strain (A/Iran/99) has been identified in Iran. Its characterisation by nucleotide sequencing indicated a significant difference in the sequence of the gene coding for the structural protein - VP1 - in comparison with previous isolates, including A/Iran/96. All but one of the type A outbreaks in Turkey were located close to the borders with Iran and Georgia and also were significantly different from both A/Iran/96 and the standard vaccine strain (A Mahmatli) used in Turkey. ARRIAH, Vladimir,

reported that the A virus responsible for the outbreaks in Georgia was analogous to A/Iran/96.

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

MIDDLE EAST 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.

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 1999

FMD type O outbreaks were reported from Algeria, Burundi, Côte d'Ivoire, Ethiopia, Gambia, Guinea, Kenya, Mali, Morocco, Sudan, Tunisia and Uganda.

FMD type A outbreaks were reported from Kenya and Mali.

FMD type SAT1 outbreaks were reported from Burundi, Kenya, Tanzania, Uganda and Zimbabwe.

FMD type SAT 2 outbreaks were reported from Burundi, Kenya, Mali, Tanzania, Uganda & Zambia.

FMD type SAT 3 occurred in Zimbabwe.

In addition to the above, outbreaks of FMD were reported from Cameroon, Chad, Ghana, Mauritania and Senegal where no serotype has been identified.

AFRICA 2000

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

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, Swaziland, 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, Ghana, Niger, Nigeria and Senegal 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 1999

FMD type O outbreaks were reported from Bangladesh, Bhutan, Cambodia, China, Hong Kong, India, Laos, Malaysia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Taiwan Province of China, Thailand and Vietnam.

China resumed reporting disease outbreaks to OIE after some years of silence. A new strain of FMD type O was reported to be spreading across mainland China in both cattle and pigs. It has been officially reported from the Provinces of Fujian, Hainan and Tibet. The disease is under control according to officials in Beijing who denied that the disease caused a widespread epidemic. The FMD situation is monitored by the Lanzhou Veterinary Research Institute. Pork prices fell by 60% in central Provinces and Russia has banned imports from China.

FMD type A outbreaks were reported from Bangladesh, India, Malaysia, Myanmar, Nepal, Pakistan and Thailand.

FMD type Asia 1 outbreaks were reported from India, Laos, Malaysia and Myanmar.

ASIA 2000

FMD type O outbreaks were reported from Bangladesh, 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 Laos and Thailand.

SOUTH AMERICA 1999

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

FMD type A outbreaks were reported from Bolivia, Columbia Peru and Venezuela. FMD (type A) returned to Peru after an absence of 27 months (April 1997). The disease was detected in the Province of Sullana and resulted in the slaughter of 161 animals towards the end of July. Emergency vaccination has been carried out in Sullana and in the nearby Ayabaca province. Peru's Veterinary authorities have stepped up their campaign against FMD in recent years. Measures have included tighter control over vaccine quality and the number of animal vaccinated in each county in each campaign. However the Government has been unable to stop illegal import of cattle from Ecuador and Bolivia. Cattle smuggled from Ecuador are thought to be the cause of this latest outbreak.

SOUTH AMERICA 2000

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

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

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

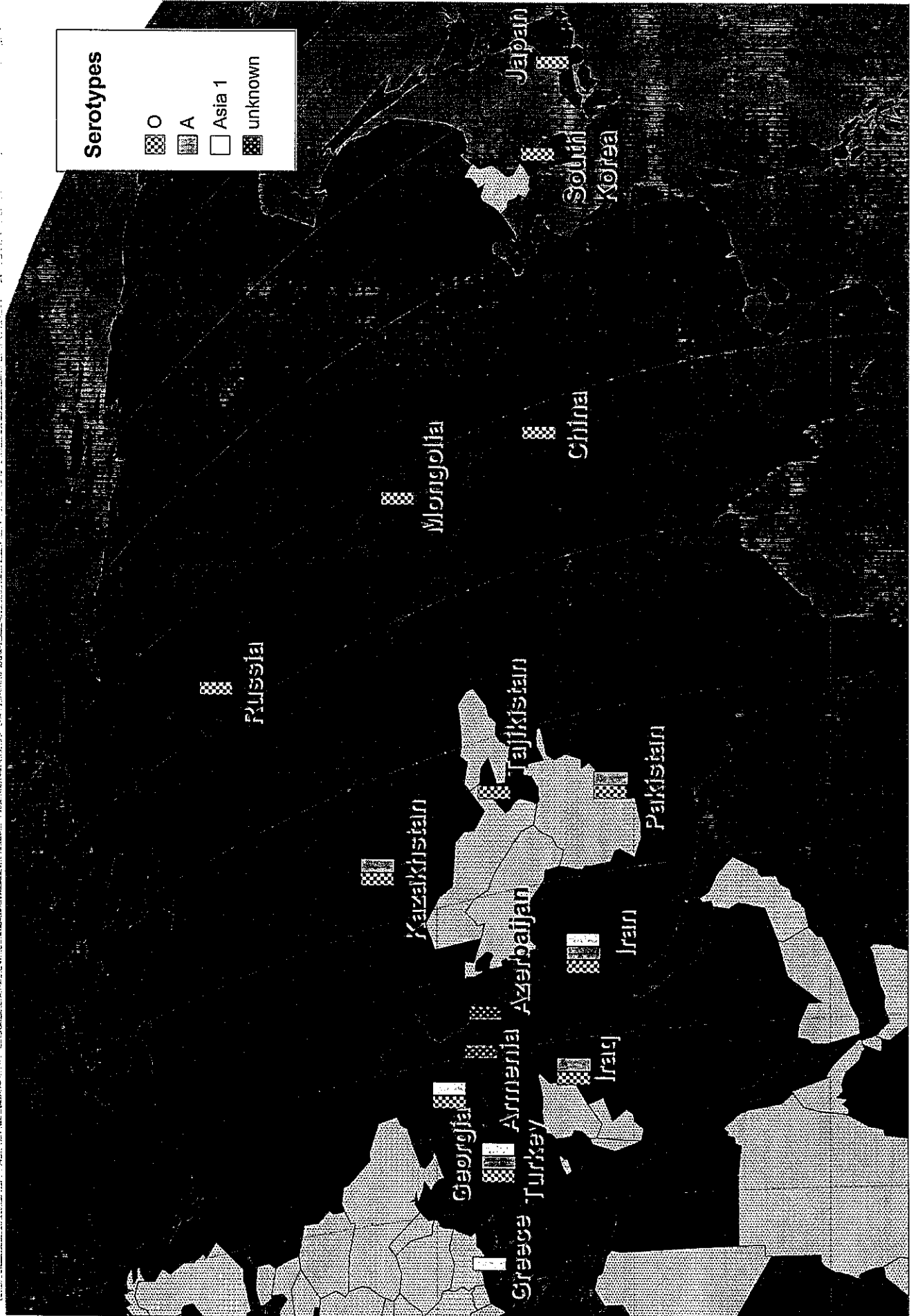


FMD Type C as officially reported to OIE, WRL, FAO

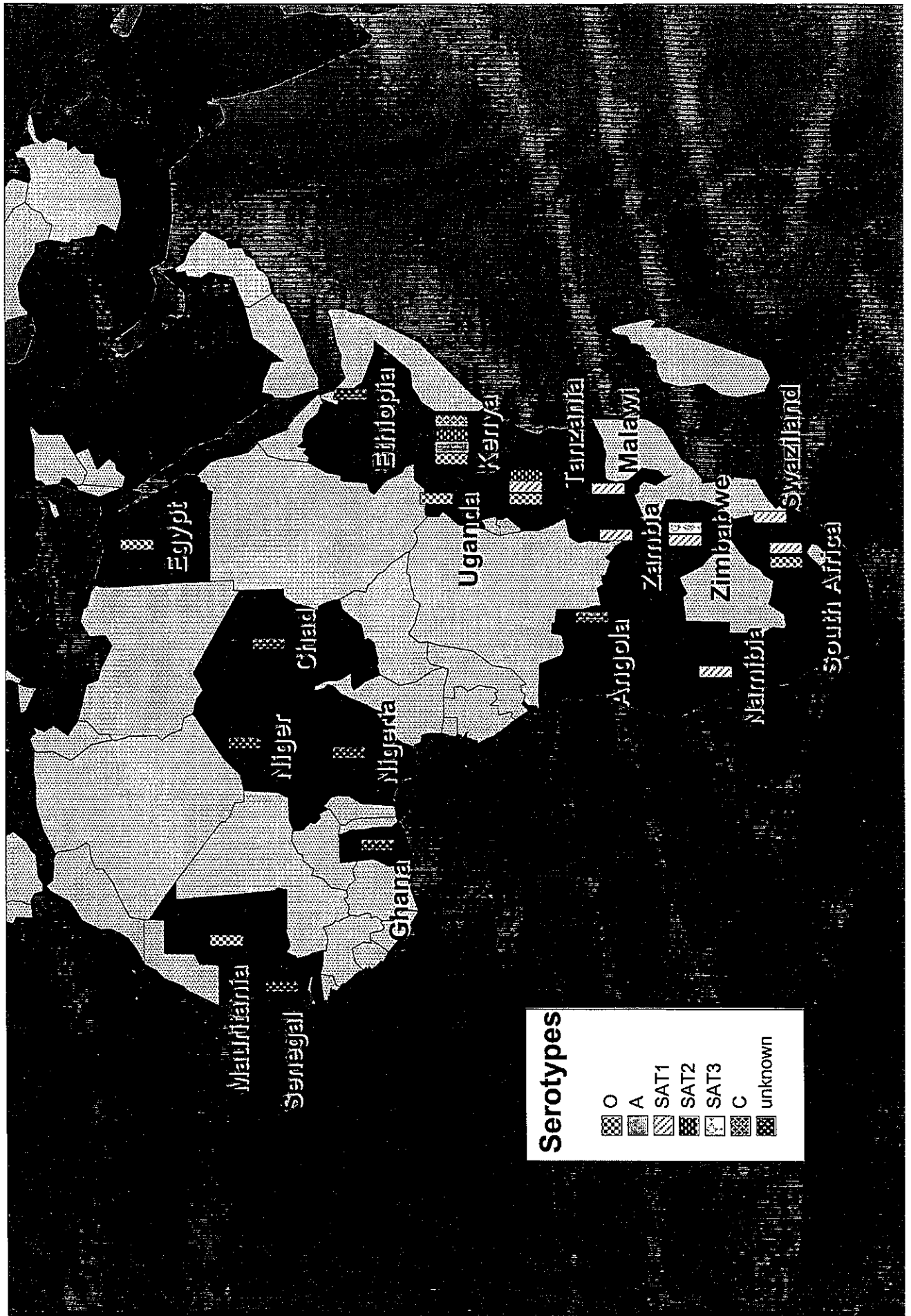
Middle East Outbreaks 2000



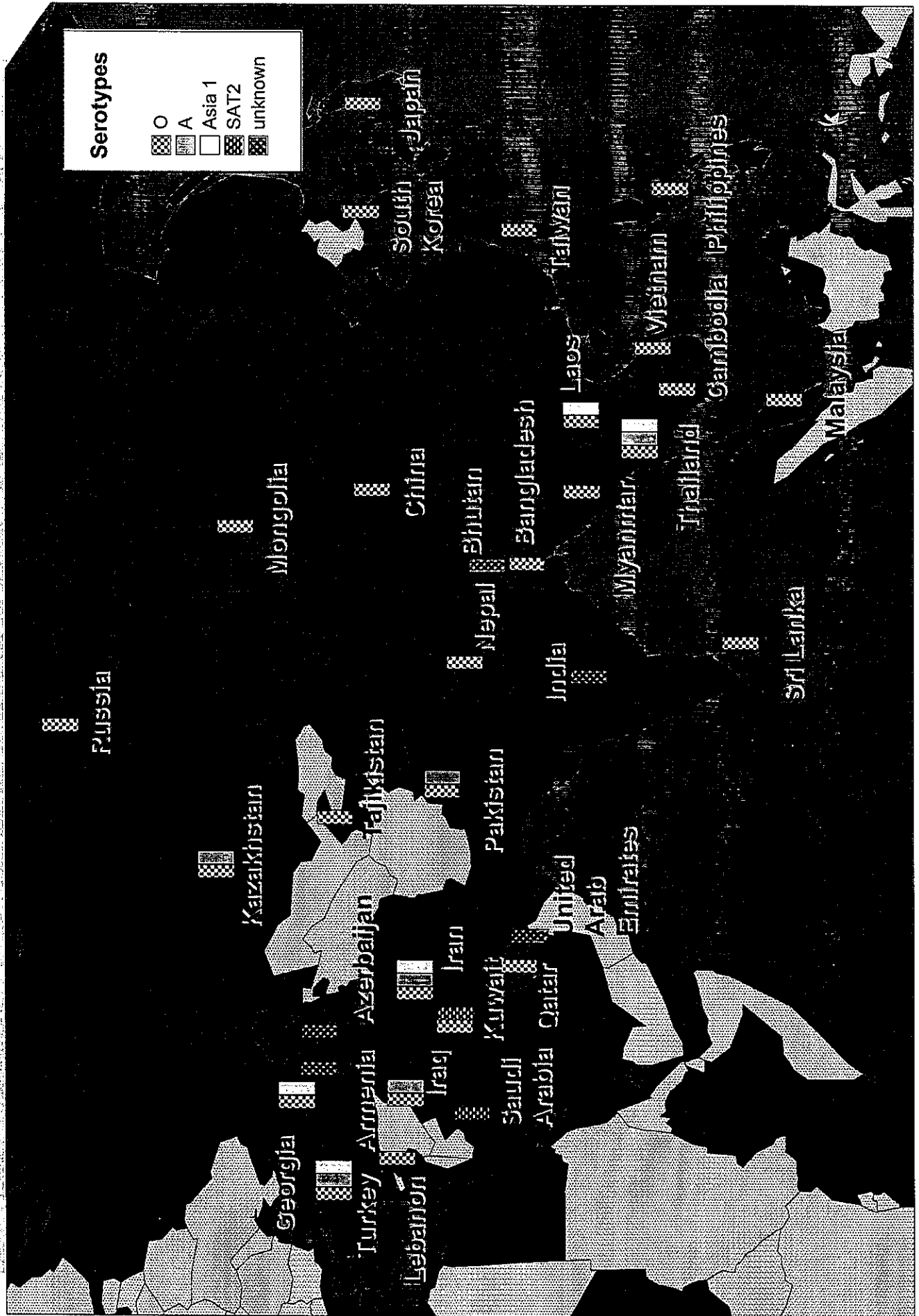
FMD in West Asia and CIS Countries 2000



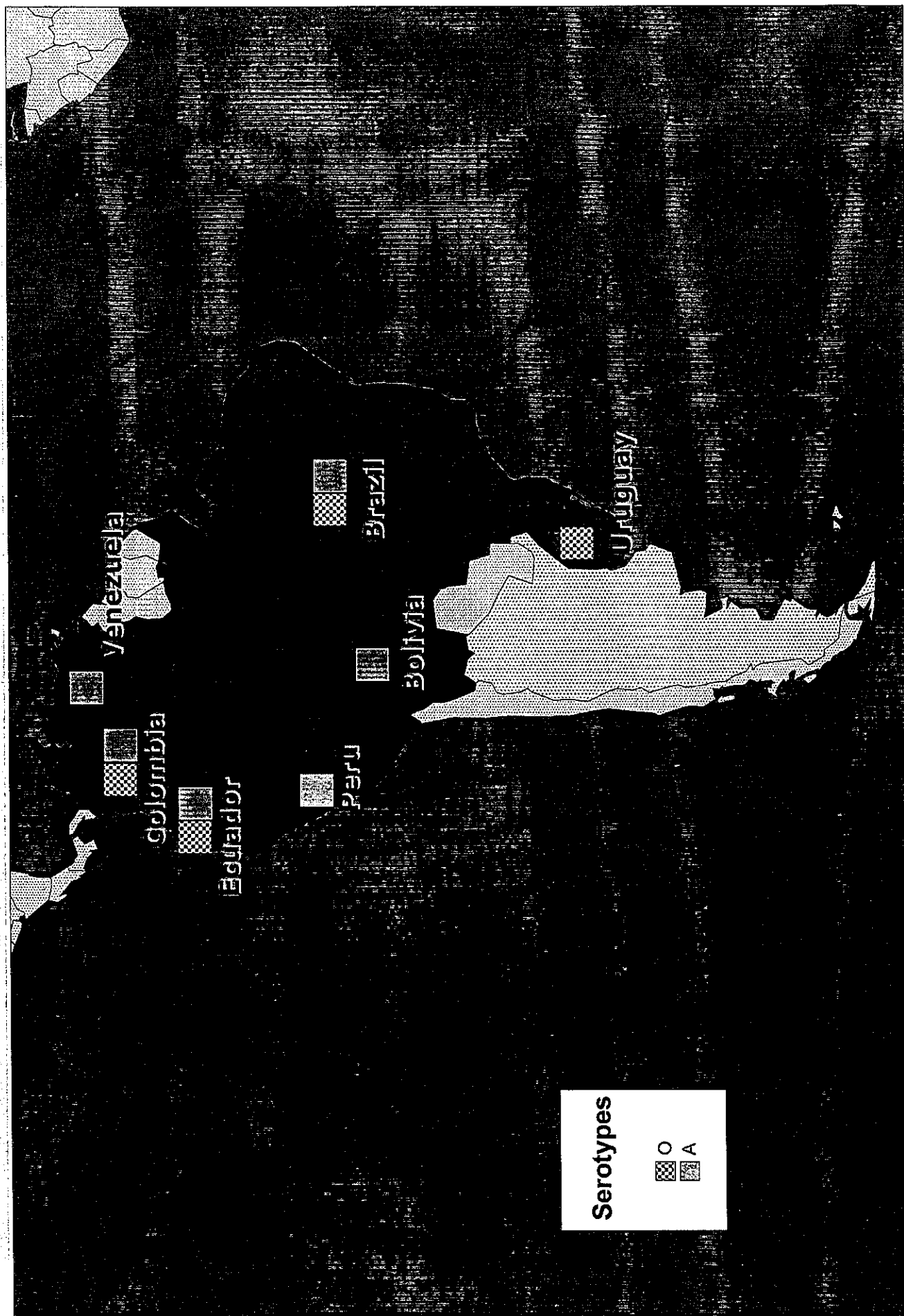
FMD in Africa 2000



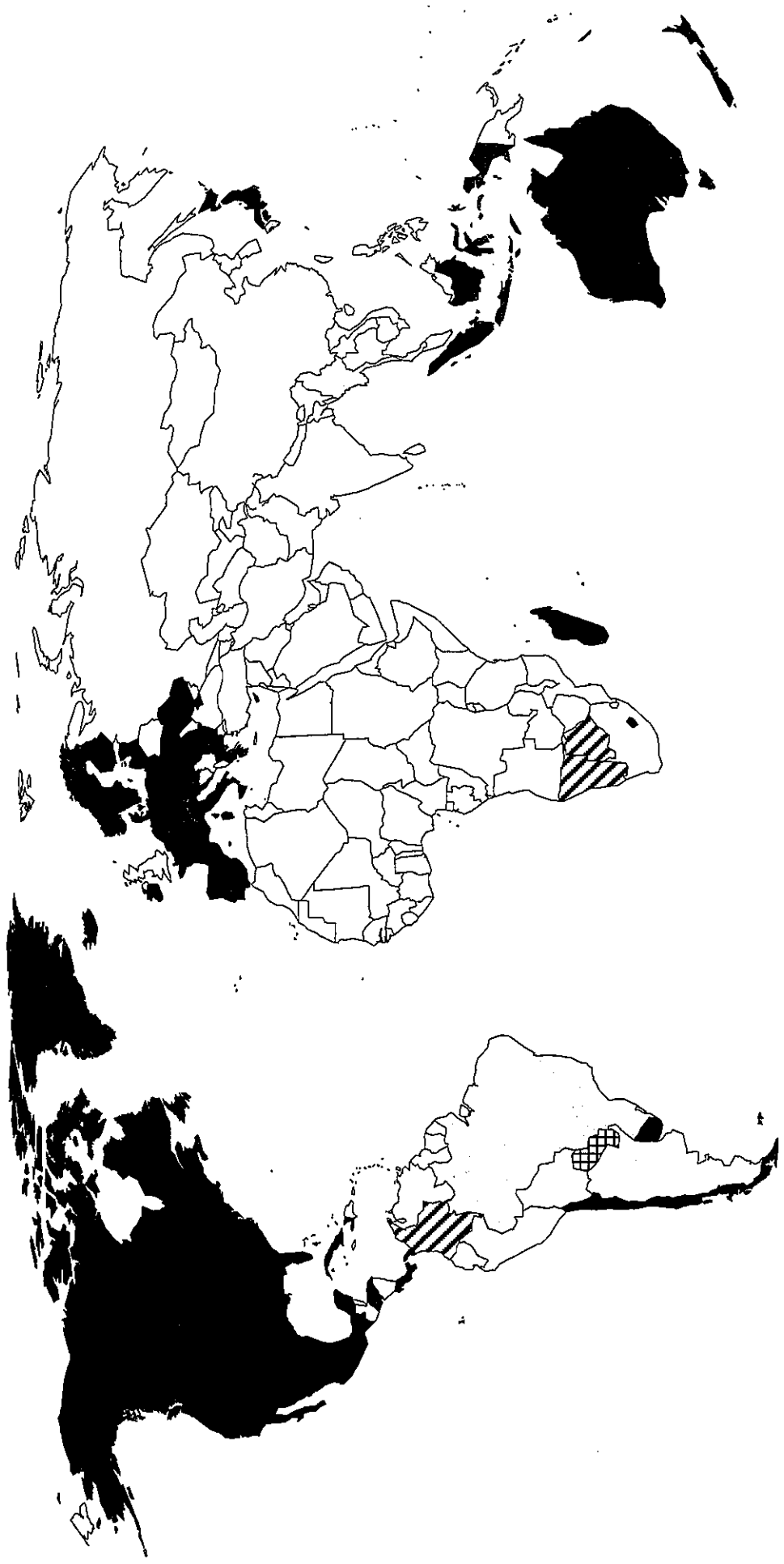
FMD in Asia 2000







FMD in South America 2000

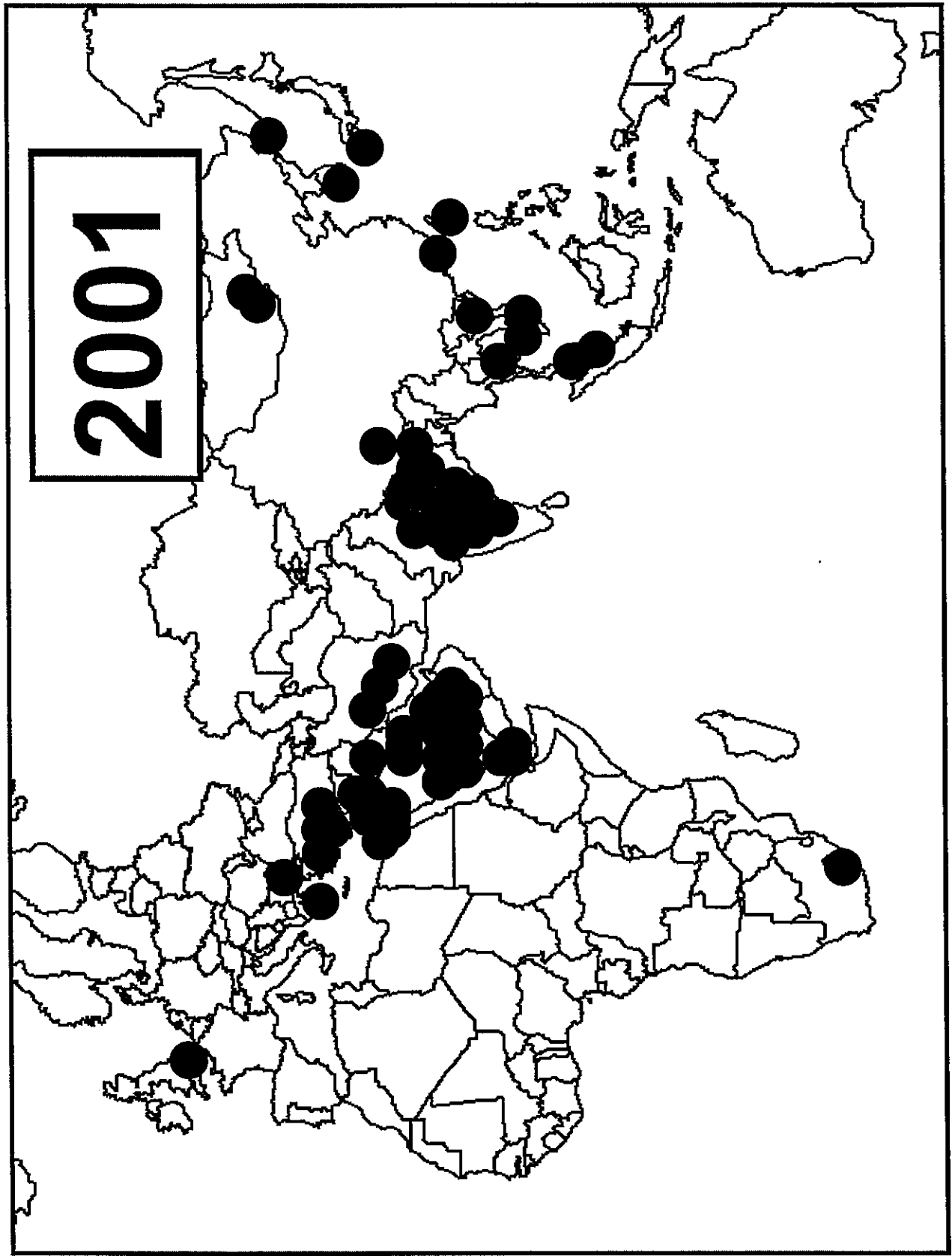


OIE Status as of 28 Feb 2001



| | | | |
|---------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------|-------------------------------------|
|  | = Free without Vaccination (52) |  | = Free Zone with Vaccination (1) |
|  | = Free with Vaccination (1) |  | = Free Zone without Vaccination (3) |

Evolution of PanAsian strain



FMD outbreaks 2001 to date



All serotypes as officially reported to OIE, WRL, FAO

Appendix 6

Report of the Commission's activities in 1999-2000

GENERAL

Europe enjoyed a period of peace with respect to FMD from late 1996 to July 2000. The last outbreak had been reported in October 1996 in Bulgaria and no further outbreak was reported in Europe until the emergence of type Asia 1 outbreaks in Greece near the Turkish border in July 2000. During the period 1999-2000, the Commission's activities were directed towards Turkey and the Community of Independent States (CIS), particularly the Caucasus countries.

The situation in **Turkey** deteriorated during the course of 1999 - 2000 (see Agenda item 4); 57 and 100 outbreaks of FMD were reported in 1999 and 2000 respectively. There are three types of virus (O, A and Asia 1) in circulation in Turkey. The FMD epidemiological situation is not significantly different in the old western buffer zone than in the rest of Anatolia. As in previous years, a bivalent or trivalent vaccine produced locally by the FMD Institute of Ankara was used for preventive vaccination in Anatolia and Thrace. The level of vaccination cover in Anatolia - including the strategic vaccination zone of western Anatolia - was insufficient to ensure real protection. No incursion of the FMD virus was reported in Turkish Thrace where preventive vaccination was formally resumed from January 1997. In view of the gravity of the situation, particularly regarding type Asia 1 which has reached Istanbul, in September 2000 the EC provided Turkey with the trivalent vaccine including serotype Asia 1 from the Community's vaccine bank in Thrace.

This period was also characterized by the identification in Iran (and Turkey) of a new variant of FMD virus type A (A/Iran 99) which was not covered the vaccine strains currently available. A technical cooperation project was developed by FAO (TCP/INT/89/92). Under this project, backstopped by the EUFMD, an international expert visited Iran and Turkey to advise the National Veterinary Services and Institutes of Ankara and Teheran on how best to deal with FMD.

On behalf of the CIS, the **Russian Federation** informed OIE, EC and EUFMD of the deteriorating FMD situation in the Caucasus and of the risk of the disease spreading to Russia and Europe. The three organizations established a Tripartite Group to deal with the situation (see Agenda item 5).

SPECIFIC ACTIVITIES

1. **The Executive Committee** held three ordinary sessions, the 63rd in Sithonia, Greece, 4-5 November 1999, the 64th in Boullion, Belgium, 30-31 March 2000 and the 65th in Leverkusen-Monheim, Germany, on 16-17 November 2000. The reports of the sessions - in English and French - were sent to all member countries and are available on the EUFMD Website.
2. **The Research Group** of the Standing Technical Committee of the Commission held two sessions during the biennium: one restricted to members of the group organized by France at the French Agency for Food Safety (AFSSA), Maisons-

Alfort, from 29 September to 1 October 1999; the other open to observers and organized by the National Veterinary Service of Bulgaria at Borovets, 5-8 September 2000. The reports of the two sessions were sent to all European FMD research institutes and laboratories and were posted on the EUFMD Website. The Chairman of the Research Group was also actively involved in the activities of the Commission: internal and external meetings, field missions, etc. (see Agenda item 6).

3. **The EUFMD/EC/OIE Tripartite Group for the Balkan Countries** met twice in 1999-2000 to discuss the FMD situation with representatives of Bulgaria, Greece and Turkey. The meetings were held on 13 October 1999 in Athens, Greece, and on 20 October 2000 in Istanbul, Turkey. The latter meeting was essentially devoted to a review of the situation caused by the new type Asia 1 virus in Turkey and its incursion into Greece.

4. **An OIE/FAO-EUFMD/EC Tripartite Group for the CIS Countries** had been set up in 1998 along the same lines as the Tripartite Group for the Balkans. This Group dealt with the new situation in the CIS countries, particularly the Caucasus. After several meetings in 1998/99, a mission of European experts visited the Caucasus and ARRIAH, Vladimir, Russia, to study the feasibility of establishing a buffer zone. The Executive Committee agreed that a buffer zone programme be established with the help of ARRIAH on the southern borders of Armenia, Georgia and Azerbaijan. In 1999, this buffer zone received funding from Trust Fund EC/EUFMD-FAO amounting to US\$ 340 000. The same programme was implemented in 2000.

At the end of 1999, it was decided by the EC and the EUFMD Executive Committee that a second mission led by the Secretary would be sent for an in situ assessment of programme impact. The mission from 24 June and 9 July 2000 concluded that the general economic situation in the countries concerned and the limited capacities of their veterinary services prevented a maximization of benefits from the control measures (vaccination and surveillance) proposed and financed by the project.

5. **The Secretariat of the Commission** kept in close touch with member and non-member countries, especially those infected or threatened by disease (North Africa in 1999), and with the other international organizations (EC, OIE). The Secretary participated as an observer in the meetings of the OIE's Commission on FMD and other Epizootics.

- **Missions** to the countries concerned were undertaken by the Secretary and experts. These missions and visits were usually carried out jointly with those of the EU and sometimes the OIE (see section on missions below).

- Information **Bulletins** were faxed or e-mailed to all member countries whenever judged necessary (epidemic in North Africa in March 1999 and new type Asia 1 in Turkey in late 1999). The bulletins were usually prepared in the two languages of the Commission.

COLLABORATION WITH THE WORLD REFERENCE LABORATORY AND OTHER NATIONAL LABORATORIES

The Commission's activities were made possible by the scientific and technical support of the World Reference Laboratory (WRL) of the Animal Health Institute of Pirbright (see Agenda item 7). WRL experts took part in virtually all the Commission's activities. The WRL isolated and characterized the strains causing outbreaks throughout the world. The Commission continued to help finance the activities of the WRL together with FAO's Animal Health Service. Comparison of strains through nucleotide sequencing provided vital epidemiological information on the outbreaks of both type A and type O and, more recently, type Asia 1. The Commission also helped finance the WRL coordination and standardization of laboratory tests for serological diagnosis of FMD (Phase XVI).

The WRL also made a major contribution to the Commission's activities with its assistance in training staff in FMD national laboratories. A workshop for the transfer of ELISA NSP technology was jointly organized by the WRL and the Institute of Animal Disease Control, in Brescia, Italy, for the three Balkan countries in early 2000. The reagents needed for the validation of assays by the national laboratories were also supplied to the three countries by the EUFMD.

MISSIONS

During the period under consideration, the following missions were undertaken by experts and the Secretary in connection with the Commission's activities, the costs generally being covered by the Commission's trust funds.

1999

by the Secretary and other Secretariat personnel:

- Paris, OIE, 18-22 January, Tripartite Meeting for the CIS countries and meeting of the OIE Commission on FMD and other Epizootics (Secretary)
- Madrid, Zaragoza, Spain, 8-14 February, visit to the veterinary services and laboratory of INIA-CISA, Valdeomos, and presentation of a paper on FMD at the seminar "Planning and Implementation of Campaigns of Animal Disease Control" jointly organized by CEHEAM and FAO in Zaragoza (Secretary)
- Brussels, EC, 22 February, preparatory meeting for the expert mission to the Caucasus and ARRIAH (Secretary)
- Tunis, Tunisia, 9 March, participation in the joint FAO/OIE/EC meeting on the control of FMD in North Africa (Secretary)
- Moscow, Russian Federation, 23-26 March, organization of and participation in the meeting between the group of experts and experts of ARRIAH (Secretary)
- Brescia, Italy, 10-12 May, visit to IZSLE (Secretary, APO)
- Paris, OIE, 21-28 May, participation in the 67th General Session of the International Committee (Secretary)
- Bratislava, Slovakia, participation in the OIE workshop on risk analysis (John Ryan)

- Paris, OIE, 12-19 September, meeting of the OIE Commission on FMD and other Epizootics (Secretary)
- Maisons-Alfort, France, 29 September - 1 October, organization of and participation in the meeting of the Research Group (Secretary, APO, Administrative Assistant)
- Athens, Greece, 12 October, organization of and participation in the meeting of the FAO/OIE/EC Tripartite Group for the Balkans (Secretary)
- Sithonia, Greece, 4-5 November, organization of and participation in the 63rd Session of the EUFMD Executive Committee (Secretary, APO and Administrative Assistant)
- Algiers, Algeria, 16-23 November, participation in a workshop on the planning of FMD surveillance and control

by experts / member country representatives

- Dr Moutou, France, Dr Ivanov and Prof. Tekerlekov, Bulgaria, Dr Amadori, Italy, Dr Barnett, WRL, Dr Dekker, Netherlands: 22 February, preparatory meeting in Brussels, EC, for the expert mission to the Caucasus and ARRIAH
- Dr Moutou, France, Dr Ivanov and Prof. Tekerlekov, Bulgaria: 8-26 March, participation in the EUFMD/EC evaluation mission to the buffer zone in the Caucasus (Georgia, Armenia, Azerbaijan)
- Dr Amadori, Italy, Dr Barnett, WRL, Dr Dekker, Netherlands, participation in the mission of evaluation of the situation at ARRIAH, Vladimir, for the creation of a buffer zone in the Caucasus, 20-26 March

2000

by the Secretary and other Secretariat staff

- Brescia, Italy, 17-19 January, organization of and participation in the workshop on ELISA NSP (Secretary, APO)
- Paris, OIE, 22-30 January, meeting of the OIE Commission on FMD and other Epizootics (Secretary)
- Teheran and Ankara, Iran and Turkey, 31 January - 15 February, participation in the international expert mission for Technical Cooperation Project TCP/INT/89/92 (Dr Ryan)
- Tunis, Tunisia, 16-19 February, meeting of the Radiscon project and discussion of a regional FMD project for the Maghreb (Secretary)
- Bouillon, Belgium, 29-31 March, organization of and participation in the 63rd Session of the EUFMD Executive Committee (Secretary, APO, Administrative Assistant)
- Paris, OIE, 21-28 May, participation in the 68th General Session of the International Committee (Secretary)
- Georgia, Armenia, Azerbaijan, 26 June - 9 July, organization of and participation in the joint EUFMD/EC mission to evaluate the buffer zone in the Caucasus (Secretary)
- Alexandroupolis, Greece, 24-28 July, participation in the joint mission to evaluate the situation in the Evros delta, Greece (Secretary)
- Borovets, Bulgaria, organization of and participation in the session of the Research Group (Secretary, APO)

- OIE, Paris, 26-28 September, meeting of the OIE Commission on FMD and other Epizootics (Secretary)
- Thrace, Turkey, 2-6 October, joint EC/FAO mission to evaluate the vaccination campaign (Dr Ryan)
- Istanbul, Turkey, 20 October, organization of and participation in the meeting of the FAO/EC/OIE Tripartite Group for the Balkans (Secretary)
- Leverkusen-Monheim, Germany, 14-19 November, organization of and participation in the 64th session of the EUFMD Executive Committee (Secretary, APO, Administrative Assistant)
- Zaragoza, Spain, 13 December, presentation of a paper on FMD to the seminar on "Planning and Implementation of Campaigns of Animal Disease Control" jointly organized by CEHEAM and FAO (Secretary)

by experts / member country representatives

- Dr Tony Garland accompanied by Dr Ryan, Teheran and Ankara, Iran and Turkey, 31 January - 15 February: international expert mission for Technical Cooperation Project TCP/INT/89/92
- Dr Amadori, Italy, Dr Moutou, France: Georgia, Armenia, Azerbaijan, 26 June - 9 July, participation in the joint EUFMD/EC mission to evaluate the buffer zone in the Caucasus
- Dr Ivanov, Bulgaria, Dr Stylas, Greece, 20 October, participation in the meeting of the FAO/EC/OIE Tripartite Group for the Balkans
- Dr Kris De Clerq, Chairman, represented the Commission's Research Group at a meeting with the Secretary of the European Pharmacopoeia in Strasbourg in October 2000, and at another meeting with the Director of the EMEA in London in December 2000

NEW MEMBER COUNTRIES

No new country joined the Commission in 1999-2000. Contacts were established with the following countries and information supplied: Armenia, Azerbaija, Bosnia-Herzegovina, Estonia, Georgia, Latvia, Slovakia.

ASSISTANCE TO NATIONAL LABORATORIES

Supply of reagents:

The Commission supplied reagents to the following laboratories:

- National Laboratory for Exotic Disease of Bulgaria
- National Laboratory of Latvia
- ARRIAH, Vladimir (for serosurveillance in the Caucasus in December 2000)
- Reagents for the internal validation of ELISA 3 ABC tests supplied to the National Laboratories of Bulgaria, Greece and Turkey.

Training in Specialized Institutes

- Four-day workshop on ELISA 3 ABC for the three Balkan countries (Bulgaria, Greece, Turkey) jointly organized by EUFMD, IZSLE and WRL in January 2000 at the Institute of Animal Disease Control in Brescia, Italy

- Training of a scientist from Romania in ELISA 3 ABC at IZSLE, Brescia

OTHER TRAINING AND INFORMATION ACTIVITIES OF THE COMMISSION

Working group on revision of the Monograph on Foot-and-Mouth Disease of the European Pharmacopoeia: this working group, created on the initiative of the Research Group and made up of experts of national institutes and representatives of European producers held three meetings in 1999 - 2000. Proposed amendments to the Pharmacopoeia were drafted and sent to the Secretariat of the Pharmacopoeia for consideration, with an information copy to OIE and EMEA.

A Web site on the Commission's activities and other activities connected with FMD control and prevention in Europe has been produced in English. The first version appeared in January 1997. The present version launched in November 2000 is regularly updated. A French version will soon be available.

REPORT ON THE SITUATION OF FMD IN TURKEY

1. Introduction

Foot-and-mouth disease (FMD) is one of the most important diseases causing significant economical losses in Turkey. FMD continued to be endemic in Turkey where 110 outbreaks have been reported in 2000. 3 FMDV serotypes (O, A, Asia 1) were circulating 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. Although very strict measures have been implemented to prevent illegal animal movements, occurrence of illegal animal movements can not be ruled out totally. Animal movements within the country are also from east to the western parts of the country, where big consumption areas are located.

National veterinary services are spending great 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 then.

2. Disease control strategy

Active surveillance and monitoring, vaccination, quarantine, restrictions on animal and animal product movements are being applied for the control of the disease. Our aim is to reach at least 70 % of vaccination coverage in large ruminants. Based on regionalisation approach Turkey will continue to apply this control programme.

The list of outbreaks, broken down by monthly, is given for 2000 in Table 1 and first month of 2001 in Table 2 below. Type O and Asia 1 was responsible for most of these outbreaks.

Table 1: FMD Outbreaks in 2000

| MONTH | OUTBREAKS | | | | Total | SUSCEPTIBLE | | INFECTED | | DEATHS | |
|--------------|-----------|-----------|-----------|----------|------------|---------------|--------------|-------------|------------|-----------|-----------|
| | Type | | | | | 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 | 11387 | 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 | 2517 | 109 | 0 | 0 | 0 |
| October | 0 | 2 | 2 | 0 | 4 | 4975 | 3180 | 276 | 0 | 0 | 0 |
| November | 1 | 3 | 2 | 0 | 6 | 3052 | 0 | 72 | 0 | 1 | 0 |
| December | 1 | 2 | 1 | 0 | 4 | 4617 | 5050 | 55 | 0 | 1 | 0 |
| TOTAL | 6 | 48 | 55 | 1 | 110 | 100259 | 24143 | 3705 | 422 | 76 | 85 |

NT: Not typed

Table 2: FMD Outbreaks in 2001

| MONTH | OUTBREAKS | | | | SUSCEPTIBLE | | INFECTED | | DEATHS | |
|---------|-----------|---|--------|-------|-------------|-------|----------|-------|--------|-------|
| | Type | | | Total | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep |
| | A | O | Asia 1 | | | | | | | |
| January | 1 | 4 | 3 | 8 | 4248 | - | 60 | - | - | - |

Outbreaks of FMD due to serotype Asia 1 was notified by OIE with an emergency case message on September 1999 in Iran. First occurrence of FMDV type Asia 1 was on October 1999 in Turkey. The disease was gradually spread westwards from Eastern Turkey near the Iranian border, in 1999 to Western Buffer Zone, in 2000.

2.1. Active surveillance

Active surveillance and monitoring programme has been carried out in the field especially in surveillance zone (Kars, Ardahan, Iğdir, Agri, Van, Hakkari and Sırnak Provinces) for detection and control of FMD. Based on the active surveillance carried out, there was no evidence of clinical FMD in Thrace. Main components of the active surveillance is as follows:

- 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. For this purpose a team composed of a specialist veterinarian from Sap Institute, Ankara and an epidemiologist from GDPC was employed for the 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,
- Investigation of all susceptible cases,
- Disinfection of all vehicles crossing through the borders,
- All animal markets were closed and strict restrictions were applied on the movements of livestock from these provinces,
- More strict security and traffic controls of the trucks on the overland routes,
- Regular controls and disinfection of the animal markets,
- Awareness the farmers about the importance of the situation,
- Sending regular development reports to MARA,
- Application of the legal measures and penalties if necessary.

2.1. Vaccine Production

The vaccine production has normally continued at the FMD Institute (ŞAP Institute). Vaccine production figures in 2000 are given in Table 3. A total of 11.555.140 cattle doses of FMD vaccine, mainly trivalent, have been used. The private company (VETAL) could not produce FMD vaccine in 2000.

On the other hand, The European Union (EU) was supplied 1.300.000 doses of trivalent FMD vaccine, containing serotypes O, Asia 1 and A to be used in Thrace. In addition 750.000 trivalent FMD vaccine have been imported from a commercial company for the autumn vaccination campaign.

Table 3. Vaccine production in 2000

| Vaccine strain | Amount of vaccine produced (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 | 5,832,140 |
| Total | 11,555,140 |

Although the privatisation process of the vaccine production is in progress and supported by the Ministry of Agriculture and Rural Affairs (MARA), 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.

2.2. Vaccination Program

General Directorate of Protection and Control (GDPC) formed a new control programme for the year 2000. Biannual mass vaccination programmes were applied.

2.2.1. Spring Vaccination Programme

The spring vaccination programme in Turkey was applied as follows:

2.2.1.2. Thrace and Marmara Region

Vaccination of all ruminants with a bivalent vaccine containing serotypes O and A in Thrace region (Edirne, Tekirdag, Kırklareli, Istanbul and Canakkale) and provinces surrounding the Marmara Sea (Balıkesir, Bursa, Yalova, Kocaeli, Sakarya, Bilecik, Bolu, Anatolian parts of Istanbul and Canakkale).

2.2.1.3. Black Sea Region

Strategic vaccination of large ruminants with a monovalent vaccine containing serotype O in the Black Sea region. (Artvin, Giresun, Gumushane, Kastamonu, Ordu, Rize, Samsun, Sinop, Trabzon, Zonguldak and Bartın Provinces). Disease has not reported for many years in this region.

2.2.1.4. In the other regions

Vaccination of all large ruminants with a monovalent vaccine containing serotype O in the remaining regions.

Additional ring vaccination with a monovalent vaccine in case of type A or other type of outbreaks.

Spring vaccination campaign completed within two months, February and March, in all Provinces. Spring vaccination figures is given in Table 4.

Table 4. 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 | |

2.2.2. Autumn Vaccination Program

GDPC decided to review the vaccination program after the occurrence of Asia 1 FMD outbreak in the region. So that it has been decided to use a trivalent vaccine (A, O₁ and Asia 1) in all regions of the country for the autumn vaccination campaign. Vaccination program in Turkey for the autumn campaign was as follows:

2.2.2.1. Thrace Region

Following the Asia 1 outbreak in Greece the EU has decided to donate a trivalent FMD vaccine (A₂₂ Mahmath, O₁ Manisa and Asia 1 types) to be used in Turkish Thrace including the Anatolian part of Istanbul and Canakkale. A total of 1.3 million doses of vaccine delivered and this vaccine were applied in this region. Vaccination campaign started from the Greek and Bulgarian borders.

The amounts of vaccine delivered in the region is given in Table 5 and vaccination figures for Thrace region is given in Table 6.

Table 5. The amounts of delivered vaccine for Thrace region

| Province | Animal population | | Vaccination program | | Delivered vaccine |
|------------|-------------------|-----------|---------------------|-----------|-------------------|
| | Large Rum | Small Rum | Large Rum | Small Rum | Cattle Doses |
| CANAKKALE | 106.258 | 632.500 | 105.426 | 593.020 | 401.936 |
| EDIRNE | 112.234 | 237.586 | 112.234 | 237.586 | 231.027 |
| ISTANBUL | 94.606 | 91.680 | 80.507 | 91.680 | 126.347 |
| KIRKLARELI | 90.200 | 266.800 | 90.200 | 266.800 | 223.600 |
| TEKIRDAG | 95.180 | 168.650 | 95.180 | 168.650 | 179.505 |
| TOTAL | 498.478 | 1.397.216 | 483.547 | 1.357.736 | 1.162.415 |

Table 6. FMD vaccination figures for Thrace region

| Province name | Vaccination program | | Vaccinated | | Vaccination % | |
|---------------|---------------------|-----------|------------|-----------|---------------|-----------|
| | Large Rum | Small Rum | Large Rum | Small Rum | Large Rum | Small Rum |
| CANAKKALE (E) | 9.881 | 68.420 | 8.210 | 56.066 | 83 | 82 |
| CANAKKALE (A) | 95.545 | 524.600 | 82.748 | 439.851 | 86 | 84 |
| EDIRNE | 112.234 | 237.586 | 96.314 | 193.210 | 86 | 81 |
| ISTANBUL(E) | 60.952 | 73.080 | 49.827 | 59.352 | 82 | 81 |
| ISTANBUL(A) | 19.555 | 18.600 | 17.210 | 14.933 | 88 | 80 |
| KIRKLARELI | 90.200 | 266.800 | 79.458 | 227.552 | 88 | 85 |
| TEKIRDAG | 95.180 | 168.650 | 79.311 | 139.310 | 83 | 83 |
| TOTAL | 483.547 | 1.357.736 | 413.078 | 1.130.274 | 85 | 82 |

E: European Side, A: Anatolian Side

Average vaccination percentage is 85% and 82% large and small ruminants respectively.

2.2.2.2. Serological survey in Thrace

A serological survey was planned after the application of this vaccine. For this purpose a total of 35 villages were randomly selected. It was planned to collect from each village 15 cattle and 15 sheep/goat sera from different age groups at days 0, 28 and 120. The initial results of this serosurvey were given below. Following the completion of this serosurvey the results will be made available to the EUFMD commission.

Table 7. Results of 279 cattle and sheep sera obtained before vaccination.

| | Positive | % | Negative | % |
|-------------|----------|----|----------|----|
| Type O | 87 | 31 | 192 | 69 |
| Type A | 115 | 41 | 164 | 59 |
| Type Asia 1 | 6 | 2 | 273 | 98 |

Table 8. Results of 523 cattle sera taken on day 28.

| | Positive | % | Negative | % |
|-------------|----------|----|----------|----|
| Type O | 428 | 82 | 95 | 18 |
| Type A | 454 | 87 | 69 | 13 |
| Type Asia 1 | 391 | 75 | 132 | 25 |

Table 9. Results of 466 sheep sera taken on day 28.

| | Positive | % | Negative | % |
|-------------|----------|----|----------|----|
| Type O | 308 | 66 | 158 | 34 |
| Type A | 357 | 77 | 109 | 23 |
| Type Asia 1 | 305 | 65 | 161 | 35 |

Table 10. Results of 989 cattle and sheep sera taken on day 28.

| | Positive | % | Negative | % |
|-------------|----------|----|----------|----|
| Type O | 736 | 75 | 253 | 25 |
| Type A | 811 | 82 | 178 | 18 |
| Type Asia 1 | 696 | 70 | 293 | 30 |

Table 11. Results of 523 cattle sera taken on day 28 by age groups.

| | 0-1 years (n=189) | | | | 1-2 years (n=150) | | | | >2 years (n=184) | | | |
|--------|-------------------|----|----|----|-------------------|----|----|----|------------------|----|----|----|
| | + | % | - | % | + | % | - | % | + | % | - | % |
| O | 150 | 79 | 39 | 21 | 132 | 88 | 18 | 12 | 146 | 79 | 38 | 21 |
| A | 144 | 76 | 45 | 24 | 140 | 93 | 10 | 7 | 170 | 92 | 14 | 8 |
| Asia 1 | 147 | 78 | 42 | 22 | 116 | 77 | 34 | 23 | 128 | 70 | 56 | 30 |

Table 12. Results of 466 sheep sera taken on day 28 by age groups.

| | 0-1 years (n=189) | | | | 1-2 years (n=150) | | | | >2 years (n=184) | | | |
|--------|-------------------|----|----|----|-------------------|----|----|----|------------------|----|----|----|
| | + | % | - | % | + | % | - | % | + | % | - | % |
| O | 91 | 72 | 35 | 28 | 110 | 66 | 56 | 34 | 107 | 62 | 67 | 38 |
| A | 99 | 79 | 27 | 21 | 124 | 75 | 42 | 25 | 134 | 77 | 40 | 23 |
| Asia 1 | 94 | 75 | 32 | 25 | 107 | 64 | 59 | 36 | 104 | 60 | 70 | 40 |

Table 13. Results of 989 cattle and sheep sera taken on day 28 by age groups.

| | 0-1 years (n=189) | | | | 1-2 years (n=150) | | | | >2 years (n=184) | | | |
|---------------|-------------------|----|----|----|-------------------|----|----|----|------------------|----|-----|----|
| | + | % | - | % | + | % | - | % | + | % | - | % |
| O | 241 | 77 | 74 | 23 | 242 | 77 | 74 | 23 | 253 | 71 | 105 | 29 |
| A | 243 | 77 | 72 | 23 | 264 | 84 | 52 | 16 | 304 | 85 | 54 | 15 |
| Asia 1 | 241 | 77 | 74 | 23 | 223 | 71 | 93 | 29 | 232 | 65 | 126 | 35 |

It was also decided to test these sera with 3 ABC-ELISA for non-structural proteins, but we haven't received the reagents yet. When we receive the reagents the test will be carried out and the results will be made available as soon as possible.

2.2.2.2. In the other regions

Vaccination of all large ruminants with a trivalent FMD vaccine, containing serotypes O₁ Manisa, Asia 1 and A Aydın 98. 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 were applied.

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

Autumn vaccination campaign was started in September and finalised in December. Vaccination figures are given in Table 16.

Table 16. Vaccination figures for the autumn vaccination campaign in the other regions

| | Vaccination program | | Vaccinated | | Vaccination % | |
|--------------|---------------------|-----------|------------------|------------------|---------------|-----------|
| | Large Rum | Small Rum | Large Rum | Small Rum | Large Rum | Small Rum |
| Total | 8.977.674 | | 5.202.728 | 2.209.922 | 58 | |

Average vaccination percentage is 58% for large ruminants.

3. Vaccination strategy in 2001

If sufficient vaccines are available (production and/or importation) strategies is as follows;

- Application of routine mass vaccination using trivalent vaccine to all ruminants in the Thrace and Marmara regions,
- Application of routine mass vaccination using trivalent vaccine to all large ruminants in other regions,
- Application of strategic vaccination using trivalent vaccine to large ruminants in the Black Sea region,
- Application of strict quarantine measures and ring vaccination around outbreaks.

4. Major Constraints, Problems and Solution

4.1. Advantages of Foot and Mouth Diseases Control in Turkey.

- There is a specific institute that is responsible for only foot and mouth disease.
- Pig population, playing an important role for increasing of FMD viruses, is very low.

- Thrace and western Anatolian livestock systems have been changed recently.
- Private sector has been started to produce FMD vaccine.
- Veterinary services in provinces and districts are quite effective.
- Number of private veterinarians has been increasing continuously.
- Importation of FMD vaccine is always possible.
- Security on border of Turkey has been provided.
- There is no any security problem within the country.
- Cooperation and transparency policies have been assumed.
- Notification and surveillance of each case is obligatory.
- There is more Veterinary Faculty within the country.
- Identification and registration systems of large ruminants put into practice.

4.2. Disadvantages of Foot and Mouth Diseases Control in Turkey.

- Production of FMD vaccine is not enough within the country.
- Illegal animal movement within the country is not effectively controlled.
- Identification and registration system is not adequately completed.
- Animal husbandry system is not suitable.
- Local breed animals usually have very slightly FMD and most of the farmers do not consider the disease.
- Knowledge of farmers is not enough.
- Lack of budget allocation on disease control.
- Contribution of private veterinarian is not adequately.
- Because of the insufficient vaccine production, low coverage of vaccination for sheep population.
- Most of farmers are poor and could not pay money for vaccination.
- Limited support to Turkey instead of large programme for protecting of Europe by EU.

4.3. Solution

Turkey should be considered a high-risk area regarding the transmission of the disease to Europe. Following actions would support to solve the problem:

- Assistance for FMD vaccine production and transferring the new technology to FMD Institute in Turkey.
- Improving of quality assurance and quality control system for the vaccine production in Turkey.
- Support to a nationwide control programme for at least 3 years.
- Providing of technical assistants.
- Improving of identification of animals, animal markets, border inspection posts, road inspection posts etc.

A Review of the Foot-and Mouth Disease Situation in Turkey during the Last Decade, including a Critical Assessment of Past National and International Control Programmes, and with Recommendations for Future Control

by AJM Garland, Independent Consultant.

1. Preamble

This paper was prepared in accordance with the decision taken at the 65th Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease in November 2000, calling for the preparation of a critical review of the control programmes for foot-and-mouth disease in Turkey, together with recommendations for improved control in the future.

2. Summary

Despite the national efforts of Turkey and the technical and financial assistance provided by international organisations, the attempts made to control foot-and-mouth Disease (FMD) in Turkey over many years have met with only limited success. Notable freedom has been achieved for significant periods in the geographically isolated region of Thrace, but elsewhere throughout the Anatolian peninsula the disease remains endemic and new types and strains of virus continue to gain access, principally from the East. The disease has serious economic effects for Turkey and also constitutes a persistent danger of infection to the entirely susceptible livestock population of the European Union. The movement toward Turkish membership of the European Union gives increased emphasis to the need for more effective control of the disease in the region.

There is little in the way of strategy or tactics that can be recommended to strengthen the control of FMD in Turkey which has not been recommended in the past or already adopted, at least in principle.

What is now needed is the necessary political commitment, from both Turkey and the International Organisations, together with the provision of all the resources essential to implement fully the existing strategies. These are prerequisites in order to achieve the medium term objective of control and to move towards the longer-term objective of eradication.

Further timely support from the international community, including the EC, FAO, OIE and other organisations would be extremely valuable in the expeditious achievement of these objectives.

Recommendations are given and priorities ascribed for the future control of the disease in Turkey.

3. The Importance of FMD to Turkey and to the European Union

There are three principal reasons why the control of FMD in Turkey is important.

3.1. The first reason is that FMD is a persistent drain on the overall Turkish economy. The disease has particularly severe socio-economic consequences for the farming community in a country where around half of the population is directly dependent upon agriculture. In 1998 a study on the direct and indirect losses attributable to FMD estimated that the disease was costing the country between 6 to 7 million US dollars every year [1]. The review included the cost of the partial vaccination policy then (and now) practised, but also estimated that the cost of comprehensive annual vaccination would be in the region of 16 million US dollars.

3.2. The second reason is that many of the measures required for the effective control of FMD are equally relevant to the control of other important infections of livestock currently present in Turkey, such as Peste des Petits Ruminants, Sheep Pox, Bluetongue, Tuberculosis and Brucellosis, as well as in preventing the possible reintroduction of Rinderpest.

3.3. The third reason concerns the protection of Europe from the threat of spread of FMD from Turkey. This threat has long been recognised (see **Section 4**), but was markedly increased following the eradication of FMD and the cessation and prohibition of FMD vaccination throughout the European Union (EU) in 1991. Since then the dense cattle, sheep and pig populations of the EU have become completely susceptible to infection. The threat has in fact been realised on a number of occasions during the last decade. Thus FMD has occurred in Greece (type O in 1994 and 1996 and type Asia 1 in 2000) and in Bulgaria (type O in 1991, 1993 and 1996). These outbreaks all occurred close to the respective borders with Turkey. The origins of these outbreaks have not been definitively determined, however, evidence from molecular epidemiology strongly suggests that the disease originated in Turkey. Fortunately, the incursions have to date been limited to the periphery of the EU, thanks to early recognition and the prompt application of control measures in Bulgaria and Greece. Emergency measures were also applied in Turkish Thrace.

The financial costs of a potential European FMD epidemic or pandemic are not readily calculable. Some indication is given by the cost of the devastating 1967/68 outbreak in the United Kingdom at £177 million, equivalent today to around £1.75 billion.

The risk of spread of FMD is mainly attributable to the movement of infected animals and animal products and contaminated persons and fomites, while airborne spread can also be a factor. The export of animals and their products from Turkey into mainland Europe is officially prohibited and controlled, but illegal movements have been detected. Control in border areas is problematical, since the geographical barriers are but partial (particularly in the case of the Meric/Evros river at the border between Greece and Turkey), ethnic groups and families are divided across the borders, and communal grazing is practised. There is also large scale, cross border movement of people, both into and out of Turkey, legally and illegally. Official figures for 1995 supplied by the National Office of Statistics in Turkey show that 129,938 persons entered Turkey from Greece and 86,000 from Bulgaria while 20,870 from Turkey

entered Greece and 166,977 entered Bulgaria. Some 1.5 million Turks work in Europe, principally in Germany. It is to be anticipated that overall movement would increase should Turkey becomes a member of the EU.

4. An Outline History of the Epidemiology of FMD in Turkey

Epidemics of FMD were first reported in Turkey in 1914 and 1923, although at that time the virus type was undetermined. Typing was effected at Pirbright until 1952 when the capability was installed nationally. Routine typing is now effected at the SAP Institute. Since typing began type O has predominated, being recorded every year and showing a wide geographical distribution. The type O virus has remained antigenically constant. Type A is the next most commonly recorded, although generally at a lesser frequency and distribution than type O, and there have been years when it was not recorded. In contrast to type O, the type A viruses have shown marked antigenic differences. Analysis at Pirbright of Turkish type A viruses isolated between 1964 and 1998 detected 6 distinct genetic lineages, each successively and completely replacing the earlier virus [2]. Type A22 was introduced in 1965 and was predominant until the most recent outbreaks caused by the Eastward spread of the genomically and antigenically distinct A Iran 96 and A Iran 99 related viruses into Turkey. The continuing emergence of new type A viruses has created serious difficulties for vaccine production and vaccination (see **Section 6.4**). It is to be noted that the current emergence of viruses related to the type A22 topotype in Iran constitute a new threat to Turkey.

Type C virus has not been recorded since 1969.

There have also been epidemics due to virus types considered to be exotic to Turkey as follows:

Type SAT 1 between 1962-65;

Type A 22 between 1965-98 (subsequently the virus became endemic)

Type Asia 1 between 1973 -76 and between 1999-2000.

It is important to note that on several occasions when these viruses penetrated into Anatolia they also spread across the Bosphorous into Thrace. The rapidity of spread of exotic viruses constitutes a further risk factor for both Turkey and neighbouring European countries. Taking the most recent type Asia 1 epidemic as an example: Iran had been free of Asia 1 since 1991 until infection was reported from the Central and North-eastern Provinces in September 1999. This virus had been circulating in Pakistan. By October it had spread to Tokat Province in eastern Turkey and by November to Ankara Province. Asia 1 outbreaks were subsequently reported throughout Anatolia. Turkish Thrace apparently escaped any clinical disease, but in July and August 2000 outbreaks were reported from the Evros Province of Greece adjacent to the Turkish border with Thrace. Type Asia 1 had last been recorded in Greece in 1961. Nucleotide sequencing demonstrated that the virus samples isolated from all of these outbreaks were virtually identical.

The number and serotype of outbreaks officially reported during the period 1990 to 2000 are shown in **Table 1**. It is noteworthy that the annual incidence of reported

outbreaks has diminished significantly over this period, from over a thousand to around a hundred or less per year. However, FMD remains endemic in Anatolia.

TABLE 1 : The Reported Incidence of Foot-and-Mouth Disease in Turkey by Year and by Serotype: 1990 – 2000.

| YEAR | Number of Reported Outbreaks | | | | REMARKS |
|------|------------------------------|--------|-------------|-------|---------------------------------------|
| | Type O | Type A | Type Asia 1 | Total | Remarks |
| 1990 | 474 | 698 | - | 1172 | Types O1/A ₂₂ |
| 1991 | 16 | 70 | - | 1109 | Types O1/A ₂₂ |
| 1992 | 248 | 30 | - | 278 | Types O1/A ₂₂ |
| 1993 | 217 | 4 | - | 221 | Types O1/A ₂₂ |
| 1994 | 158 | - | - | 158 | Types O1/A ₂₂ |
| 1995 | 96 | 11 | - | 107 | Types O1/A ₂₂ |
| 1996 | 132 | 1 | - | 133 | Types O1/A ₂₂ |
| 1997 | 51 | 3 | - | 54 | Types O1/ A Iran 96 |
| 1998 | 34 | 13 | - | 68 | Types O1/ A Iran 96. 21 untyped |
| 1999 | 42 | 6 | - | 48 | Types O1/ A Iran 96/ A Iran 99. |
| 2000 | 43 | 4 | 52 | 110 | Types O1/ A Iran 99/ Asia 1. |

Sources for Table 1:

The Ministry of Rural Affairs (MARA), Ankara, Turkey; The Office International des Epizooties, (OIE), Paris, France; The European Commission for the Control of FMD (EUFMD), FAO, Rome Italy; The World Reference Laboratory for FMD (WRL-FMD), Pirbright, United Kingdom.

Notes for Table 1:

- Some minor discrepancies are apparent in the annual statistics from the different sources.
- The number of outbreaks which were untyped is not always readily apparent.
- The figures for 2000 are provisional.

The SAP Institute in Ankara serves as the main centre for epidemiology and vaccine production in Turkey. Production capacity was greatly expanded during 1984/86 with assistance from Italy, with plant designed for a maximum output of 36 million monovalent cattle doses per annum. Both complement fixation and ELISA testing are used for diagnosis and the latter technology is also used for the estimation of antigen concentration and for neutralising antibody assay. The intention is to extend the application of ELISA to the measurement of antibodies to the non-structural proteins of FMD virus to differentiate between responses due to either infection or vaccination and to incorporate this in the ongoing programme of serological surveillance. Reagents and training will be funded by the EUFMD. This programme should be progressed as soon as possible.

The overall capability of the SAP Institute has been greatly strengthened by the provision in 1997 of a laboratory for molecular epidemiology with staff trained at Pirbright and Brescia. It is to be hoped that this laboratory will soon be fully operational and that, importantly, every field outbreak will be fully investigated, including both the forward and backward tracing of animal movement.

5. The Evolution of FMD Control Strategies in Turkey

National efforts to control FMD in Turkey have been augmented by the international community for the past 40 years, providing personnel, technical and scientific advice, vaccines, equipment, materials, training and funding. Assistance has been co-ordinated by the Tripartite Committee - comprising the European Economic Community (latterly the European Commission), the Office International des Epizooties (OIE), the Food and Agriculture Organisation (FAO) of the United Nations and its European Commission for the Control of FMD (EUFMD). At least 18 countries, 7 national research institutes and several vaccine companies have also given assistance. The input between 1963 and 1975 has been detailed by Boldrini [3], including the financial provision amounting to US \$ 7 million.

Details of developments since 1975 are available in the annual reports from Turkey to the OIE, in the reports of the EUFMD (including the General Sessions, the Executive Committee Meetings and the Research Group Meetings) and in the reports of meetings of the Tripartite Committee [4, 5, 6, 7].

An epidemiological unit was established within the GDPC with assistance from the German GTZ organisation in the late 1980s, equipped with computerised information systems for the recording and analysis of field data and giving a clearer picture of the disease situation as a basis for the application of control measures.

In 1996 a joint EC-EUFMD-Turkey mission delivered a detailed report on the FMD situation in Turkey with many recommendations for improvement [8]. These included inter alia the topics of: vaccine production, testing and vaccination; control of animal movement; animal identification and recording; cleaning and disinfection of vehicles; contingency planning; education and training; research and development; and options

for the control of FMD in Turkey together with cost-benefit analyses. Following lengthy evaluation, a three-year programme of aid was agreed in 1998 with EC funding in the sum of US\$ 230,000 for the first year to implement a number of recommendations. These included the strengthening of border posts and highway checkpoints, improved means of disinfection, animal identification, training, and an element of independent vaccine testing. Unfortunately there were bureaucratic delays and failures to meet some preconditions so that the programme could not be completed.

Following limited success in an initial Turkish project for ear tagging of animals in 1994, international methods for animal identification and recording were investigated by means of a workshop and an overseas study tour in 1998. Pilot schemes were organised and the tagging of cattle in Thrace completed. The scheme has now been extended to include some of the eastern provinces with the eventual objective of comprehensive tagging throughout Turkey.

FMD training was also provided for Turkish personnel during the 1980s and 1990s, at a number of overseas centres of excellence, including the World Reference Laboratory at Pirbright in the UK and at Brescia in Italy. Training was given in the application of molecular biology methods, monoclonal antibody production and use, ELISA technology and epidemiology.

In 1998, at the suggestion of Greece, a regional workshop was held on aspects of FMD for laboratory staff from Greece, Bulgaria and Turkey, together with international experts. This is to be followed by a second workshop on the use of assays for antibodies to the non-structural proteins of FMD in 2001.

Following the emergence of A Iran 96 throughout Iran and its spread into Turkey in 1997 an EUFMD mission visited these countries in 1998. A Technical Co-operation Project (TCP) was proposed, funded by FAO, to include the reciprocal visits of laboratory staff between Iran and Turkey, exchange of viruses and antisera, overseas training in vaccine production and testing and in Good Manufacturing Practice, and also the supply of equipment and materials. Bureaucratic delays within FAO resulted in an interval of two years between the delivery of this proposal and its implementation, but the TCP is now in progress. The indicative budget for this TCP is \$US 360,000.

It is to be hoped that such scientific and technical meetings will be held regularly and that regional co-ordination can be developed in controlling FMD and other diseases by means of co-ordinated border controls, surveillance programmes and other appropriate measures. Consideration should be given to the extension of regional co-ordination to include those countries to the east of Turkey which are not yet involved.

The national strategy for the control of FMD in Turkey has been evolving since the early 1960s. Until recently the country was divided into three zones for the purposes of control: Thrace; the Western Buffer Zone (WBZ); and Residual Anatolia. The evolution of the control measures in the original 3 zones may be briefly summarised as follows:-

Thrace: comprises the 5 provinces situated in the European part of Turkey and that part of the two provinces which also lie on the Asiatic side of the Bosphorous. It has a current population of 498,478 large and 1,397,216 small ruminants. The region is geographically separated from Asiatic Turkey and occupies a crucial position for the protection of Europe.

In 1963, following the penetration of type SAT 1 virus into Thrace, the threat to Europe catalysed the formation of the Tripartite Committee working in collaboration with Bulgaria, Greece and Turkey. A buffer zone of vaccination was then created in Thrace and in the border areas of Bulgaria and Greece. By 1969 the responsibility for vaccination in this zone passed to the three countries directly involved, although the international community continued to collaborate and to fund emergency vaccination, especially against exotic viruses, including types A22 in 1964, type C in 1969 and Asia 1 in the early 1970s. A favourable FMD situation ensued from 1978 onwards and mass, compulsory vaccination was officially discontinued in Thrace in 1989. At the same time the Western Buffer Zone of vaccination was established on the other side of the Bosphorous.

Following the official cessation of mass vaccination in Thrace, limited vaccination was applied in 1999 - along the border with Bulgaria - and some vaccine was also applied in 1993.

Thrace remained free of FMD until type O outbreaks occurred in 1995 and 1996. Ring vaccination was applied around the outbreaks. Compulsory mass vaccination was reintroduced in 1997. Since the 1996 outbreaks the area has remained free of clinical disease.

All large ruminants in Thrace are to be routinely vaccinated twice a year and small ruminants once a year against FMD. Bivalent type O and A22 vaccination has been practised since 1997 and was supplemented with EU funded vaccine in 1998 (1.3 million doses of monovalent type A Iran 96 vaccine) and with an equal number of trivalent doses (O1/A22/Asia 1) in 1999. Movement of animals into this area is prohibited unless they have been vaccinated, maintained in the Western Buffer Zone for at least 3 months and have the necessary permits. However, as the events of 1995 demonstrated, movement control has not been consistently effective.

The buffer vaccination of Thrace has played a major role in the protection of Europe since 1963. However, several Tripartite evaluation missions to the area, including the most recent in October 2000, have recommended further improvements to the control programme.

The Western Buffer Zone of Anatolia (WBZ): was instituted in 1989 and originally comprised the 15 most westerly provinces of Asiatic Turkey with a current population of 2,062,000 large and 5,608,000 small ruminants. In 1999 the zone was reduced to the 7 Provinces providing a buffer around the Bosphorous and Marmara areas in the hope that the zone could be made more effective by improving the previous low level of vaccination cover and

reducing the frequency of FMD outbreaks. Cattle in this region are to be routinely vaccinated against FMD biannually and sheep and goats annually. Animals may not officially move into this area unless accompanied by the required vaccination and health certificates.

Residual Anatolia: comprises the other 62 provinces of Asiatic Turkey to the east of the WBZ with a current population of 8,622,000 large and 32,817,000 small ruminants. Government vaccination in this region is focused strategically along the principal highways and in certain projects while ring vaccination is applied around outbreaks. Farmers may also have their animals vaccinated privately. Animals may not legally move westwards from this zone unless they are clinically inspected and have the necessary vaccination and health certificates.

In 1999, following the appointment of a National FMD Control Commission in Turkey, the zoning policy was modified. In addition to Thrace and the reduced WBZ the rest of Anatolia was subdivided into 3 additional zones covering the central, northeastern and southeastern Regions. Appropriate control strategies are to be developed for each of these.

6. Analysis of the Principal Challenges in the Control of FMD in Turkey

6.1. Geographical, Socio-Political and Economic Considerations:

Turkey faces formidable challenges in the control of FMD. Some are inherent in the size of the country with an area of 780,580 square km and in the inaccessible nature of much of the terrain, particularly in the winter. Turkey also has extensive land borders with eight neighbouring countries, running for 2,181 km in the east and south east with Georgia, Armenia, Azerbaijan, Iran, Iraq and Syria and for 446 km in the west with Bulgaria and Greece. In many countries to the east animal diseases, including FMD, are endemic. Moreover, in several of these countries the epidemiological information is incomplete, disease control is limited and there is political instability.

Turkey has many competing priorities for her resources, notable among which have been the long running civil disturbances in the eastern provinces and the aftermath of natural disasters such as the recent earthquakes. In these circumstances it is unsurprising that the General Department of Protection and Control (GDPC), responsible for animal health within the Turkish Ministry of Agriculture and Rural Affairs (MARA), considers that the efficient discharge of its responsibilities is seriously constrained by lack of physical and financial resources.

Many of the above difficulties are not susceptible to easy or early amelioration, although it is important to try to do so. However, there are a series of other factors which are vital to the control of FMD and which are more readily open to improvement, as detailed below.

6.2. Transboundary Animal Movement

The movement of animals into and out of Turkey is officially subject to government control. There are controls at the western borders, at the Bosphorous, and at the chain of highway checkpoints surrounding the WBZ and also across the centre of the country. Recently the Turkish authorities have increasingly attempted to minimise the introduction of FMD from the east and south east, where the greatest focus of risk resides and where, as the result of market forces, there is extensive transboundary movement of live animals. The price of meat increases around 6 times between Pakistan and Afghanistan, through Iran to the major markets in Western Turkey.

Renewed efforts have been made to minimise the illegal transborder movement of animals in these regions and collaborative agreements exist with Iran and Syria in this respect. Nevertheless, such movements continue and the extent of the problem is exemplified by the seizure of 500 cattle and 49,000 sheep and goats during the year 2000 in the border province of Hakkiri at the south-eastern border of Turkey. These animals were unmarked and their ownership could not be established. The dealers involved were taken to court.

It should be recognised that, despite ongoing determined efforts, the full control of the movement of people, animals and animal products eastwards into Turkey may well be unattainable at the present time.

A recent Turkish initiative has been to provide financial incentives for the slaughter of animals in the east of Turkey to encourage the transport of meat, rather than live animals, to the west. This is an especially welcome development, deserving of support from the international community.

6.3. Animal Movement Control within Turkey

The movement of infected animals is by far the most important cause of the spread of FMD in Turkey. In addition to direct contact between infected and non-infected animals, indirect contact via contaminated animal transport vehicles is also an important factor. Movement for breeding and slaughter is overwhelmingly from east to west, following traditional practices and seasonal transhumance, accentuated by trade differentials. Animal movements peak at the time of religious festivals involving the ritual slaughter of thousands of animals. Moreover, the principal highway network has been developed to the point where vehicular traffic can traverse the country from east to west within 24 hours. Two land bridges in Istanbul and the ferry at Cannakale connect Asia to Europe. Vehicle checkpoints exist at these crossings and there are also 6 checkpoints on the main highways across the middle of Anatolia between Girsun in the north and Gaziantep in the south. The functionality of these checkpoints has been questioned [8].

Turkey has recently initiated a programme for the identification and recording of individual cattle. Commendable progress has been made in that animals have been ear tagged throughout Thrace and the scheme is also in progress in the eastern provinces. The eventual intention is to cover all large ruminants throughout the

country. The completion of this objective of national identification should greatly facilitate the effective control of animal movement. However the facts that small ruminants are not included in the tagging scheme and, most importantly, the lack of a comprehensive system of recording – strongly linked to movement control and vaccination - remain as weaknesses.

6.4. Legislation

By and large the existing Turkish legal framework is adequate for the control of animal diseases, including FMD. Legislation exists to control animal movement, including legal procedures to deal with transgressions. However, prosecutions are few and existing penalties do not appear to be an effective deterrent. It is recommended that the law be strengthened to make it effective in this respect and then rigorously enforced with the assistance of the police and armed forces.

Legislation is in place authorising the slaughter of animals with compensation to control FMD. However, the application of this measure has been very limited due to financial constraints. Means should be investigated to increase the funding of this measure.

6.5. Disinfection

The routine disinfection of animal transport vehicles and premises such as animal markets, abattoirs and border inspection points is an important control measure. Turkey has been making efforts to strengthen this aspect, but much remains to be done in providing sufficient disinfectants and disinfection equipment throughout the country.

6.6. Vaccination

Vaccination is a vitally important element in the control of FMD. Its importance is especially crucial where the disease is endemic and where the control of animal movement into and within a country cannot be guaranteed, as is the case in Turkey. The efficiency of vaccination depends on the incorporation of appropriate virus types and strains, the quantity and quality of the vaccines, proper conservation during storage, transport and application, and adequate levels of coverage in vaccination and revaccination.

Turkey produces vaccine at the governmental SAP Institute with a maximum annual capacity of some 60 million monovalent cattle doses and also has one private manufacturer, Vetal, with a maximum annual capacity of around 10 million monovalent cattle doses. The maximum theoretical capacity has rarely been attained. Turkey has around 11 million large and 39 million small ruminants. With the need to produce type O, one or more type A and now type Asia 1 antigens - plus the requirement to vaccinate at least twice annually - the total national capacity is insufficient to allow comprehensive vaccination.

The supply situation has recently been exacerbated by the recent temporary closure of production at the SAP Institute during refurbishment and the installation of air filtration and also by difficulties in producing vaccines against the new type A

viruses. Thus SAP output was limited to around 15 million monovalent doses as mono, bi or trivalent vaccine in 2000.

The importation of vaccine is also permitted under government control and previous restrictions on the level of importation have recently been lifted. However, choices have had to be made in deploying the available vaccine and a combination of vaccine shortage plus epidemiological considerations lead to the recent policy of maintaining bivalent type O and A (and now Asia 1) vaccination in Thrace but only vaccinating against type O in Anatolia, with type A and Asia 1 vaccines being deployed there only in the face of outbreaks. This policy clearly carries a risk.

The SAP Institute overcame earlier production problems with the quality of water and also improved the safety of the vaccine by the substitution of formalin by aziridine for vaccine inactivation. In respect of potency, the SAP Institute is responsible not only for the manufacture of vaccine, but also for the assessment of the quality of its own vaccines and also those of Vetal and of imported vaccines. Difficulty in providing sufficient numbers of susceptible cattle, together with their cost, has meant that very few batches have been able to be fully tested according to internationally recognised pharmacopoeial criteria. Thus the potency of the vaccines is largely unknown. The government has recognised the desirability of independent testing and a separate disease-secure animal facility has recently been constructed at the National Veterinary Quality Control Laboratory in Bornova, in which it is proposed to carry out independent vaccine control. The EC with the agreement of the Turkish authorities, has also pledged to fund limited testing of Turkish vaccines in a European laboratory (EC Decision 98/64/EC). Regrettably, there have been long delays in implementing both the operation of the Bornova laboratory and the EU testing of vaccines, first mooted in 1996.

The level of vaccination coverage in Turkey has long been a cause for concern, since it has often fallen well short of the recommended minimum level of 80 %. As an example the levels achieved in the first half of 1999 are shown in **Table 2**.

Table 2 : Vaccination coverage in Turkey during the first half of 1999.

| REGION | % Large Ruminants Vaccinated | % Small Ruminants Vaccinated |
|----------------------------|-------------------------------------|-------------------------------------|
| Thrace | 68 | 25 |
| Western Buffer Zone | 40 | 20 |
| Residual Anatolia | 31 | 4 |
| TOTAL | 38 | 6 |

Source : Report on the FMD Situation in Turkey, as presented in the Report of the 63rd Session of the Executive Committee of the European Commission for the Control of FMD. Greece. November 1999, pages 46 – 54.

It is important to note that some of these animals would have been vaccinated previously, and also that another round of vaccination was still to come in the second half of the year. Nevertheless, the levels achieved would not have engendered effective herd immunity.

Higher vaccination coverage has been reported on occasions, particularly from Thrace. Thus coverage in the 1998 campaign was reported as 99.5% for large ruminants. Figures for the latest campaign in 2000 were 85% and 82%. These figures illustrate that better levels can be achieved. However, in Asiatic Turkey the situation remains much less favourable. For example, the coverage reported for the Spring 2000 campaign in Anatolia was 51% of large and 8% of small ruminants. The importance of consistently achieving at least the minimum required level of coverage throughout the entire country cannot be overemphasized.

The majority of FMD vaccine produced in Turkey is formulated using alhydrogel-saponin adjuvant. Recommendations for the adoption of oil-adjuvanted FMD vaccine date back to at least 1996, such vaccine having been associated with successful control in other countries, particularly in South America. The Vetal Company now uses this technology. It is also partly installed at the SAP Institute with technical assistance from Brazil. Equipment is needed for the large-scale concentration of viral antigen. This should be installed and oil vaccine production initiated at the SAP Institute as soon as possible.

7. Recommendations for Future Control Programmes

There is little in the way of strategy or tactics that can be recommended to strengthen the control of FMD in Turkey which has not already been recommended in the past, or already adopted, at least in principle.

What is now needed is the necessary political commitment, from both Turkey and the International Organisations, together with the provision of all the resources essential to implement fully the existing strategies. These are prerequisites in order to achieve the medium term objective of control and to move towards the longer-term objective of eradication.

The immediate priorities are listed below. Items considered to be of prime importance are emphasised by the use of **bold type**.

7.1. In Thrace:

7.1.1. Maintain freedom from FMD by continued, prophylactic, biannual vaccination of cattle and annual vaccination of sheep and goats with appropriate valencies at a minimum of 80% coverage.

7.1.2 Vaccination campaigns should be completed in the shortest possible time, ideally within two months.

7.1.3. Institute routine, statistically based, serological surveillance for vaccinal immunity levels and the possible presence of subclinical infection.

7.1.4. Maintain the identification and recording of animals.

7.1.5. Reinforce the rigorous control of movement of animals, animal products, people and suspect fomites into Thrace.

7.1.6. The vaccination policy should be kept under continuous review, but should, in any event, be continued until the WBZ can be shown to be reliably free of FMD.

7.2. In the Western Buffer Zone:

7.2.1. Determined application of all the control measures recommended in Section 7.1 in the WBZ, including vaccination, animal identification, recording and surveillance as in above.

7.2.2. In particular, strengthen the control of animal movement from the rest of Anatolia into the WBZ.

7.2.3. Consider the total prohibition of the movement of all susceptible animals from the WBZ (and all of Anatolia) into Thrace.

7.3. In the Eastern Provinces:

7.3.1. Continue the efforts to prevent the illegal movement of animals into Turkey.

7.3.2. Complete and maintain the ear tagging of cattle together with comprehensive registration and recording.

7.3.3. Maintain vaccination and surveillance as above.

7.3.4. Increase the use of financial incentives for the slaughter of animals in the border area to encourage the westward movement of meat rather than live animals.

7.4. In all Turkey:

7.4.1 Increase vaccination cover throughout the rest of the country.

7.4.2. Strengthen the legal provisions against illegal animal movement.

7.4.3. Further strengthen Border and Road Inspection Posts.

7.4.4. Strictly enforce movement controls with the assistance of the police and the armed forces.

7.4.5. Consider the feasibility of the registration of animal dealers and transporters.

7.4.6. Complete and maintain the identification of individual animals, together with comprehensive recording. Computerised record keeping would facilitate the process and the linkage between identification, vaccination and movement control.

7.4.7. Increase the budget allocation for the slaughter of animals with compensation.

7.4.8. Continue education in the importance of FMD and the measures for its control for veterinarians and auxiliary staff in the private public sector, for the farming community and those in allied occupations, and for police, army and customs personnel.

7.5. For Vaccines and Vaccination:

7.5.1. Provide equipment for the large-scale concentration of viral antigen and introduce the production of oil vaccine at the SAP Institute as soon as possible.

7.5.2. Expedite the independent testing of FMD vaccine at the Bornova facility. Consider the importation of susceptible cattle for this purpose.

7.5.3. Implement the EU decision for the potency testing of selected Turkish FMD vaccines.

7.5.4. Continue to give freedom for the import of FMD vaccine tested to EU standards from commercial sources into Turkey.

7.5.5. Investigate means by which the international community might further assist Turkey in the early purchase/supply of inactivated antigen and/or finished vaccine to offset current vaccine shortages and to increase vaccine coverage. As a short-term measure the supply of materials from existing vaccine banks could be useful in this context. However, it will be vital to avoid the stopgap nature of some previous supplies of this sort, and to define a consistent strategy to ensure adequate yearly supply of vaccine.

7.5.4. Expedite the proposed privatisation of vaccine production at the SAP Institute.

7.6. For Disinfection:

7.6.1. Strengthen the provision of facilities, materials and equipment for disinfection and enforce its routine use for the disinfection of animal premises

and animal transport vehicles (particularly the interior compartment of such vehicles).

7.7. For International Collaboration:

7.7.1. Continue and strengthen existing International Collaborative Control Schemes between Greece, Bulgaria and Turkey and between Iran, Syria and Turkey.

7.7.2. Consider the extension of international collaboration to other neighbouring countries, particularly those to the east of Turkey.

7.7.3. Harmonise control measures, including vaccination and surveillance, in border areas.

7.7.4. Continue scientific and technical exchanges between Turkey and neighbouring countries on a regular basis.

7.7.5. Continue participation and collaboration with International Animal Health Agencies, including EC, OIE, FAO, EUFMD, the World Reference Laboratory for FMD and other centres of scientific and technical excellence.

7.7.6. Seek to minimise bureaucratic delays in any future provision of aid from international organisations, such as the EC and FAO, which have on occasions impeded the timely provision of aid for the control of FMD in Turkey.

7.7.7. Consider the appointment of permanent EC observers to monitor and assist in the control of FMD in Turkey.

7.7.8. Consider the participation of EU state veterinarians in the actual control of outbreaks and in simulation exercises in Turkey.

Note : Of the above recommendations, special priority should be accorded to the provision and application of sufficient vaccine of appropriate strain composition and potency, the control of animal movement and the subsidisation of animal slaughter in the east of Turkey.

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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^х 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-ordinationРегиональная 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 programsНациональные 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.**Control of the outbreaksКонтроль вспышек заболевания.

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.

VaccinationВакцинация.

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 адьювантом в данном Регионе следует поддержать.

ReportingПредоставление 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.

ImportИмпорт.

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 testsЛабораторные 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.

SerosurveyСерологическое 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.

Report of the Activities of the Research Group for the period 1999 – 2000¹

Kris De Clercq²

Item 1 Epidemiology

Based on epidemiological and surveillance data it was concluded that the pandemic strain of FMDV serotype O with variable pathogenicity is a major threat to Europe. The FMD situation in Turkey and Iran with 3 FMDV serotypes circulating is of high concern. Of particular concern was the variation in type A between 96-99 and the type Asia1 outbreaks. Also the FMD situation in the CIS countries, North Africa and the Middle East remains of concern. Serosurveillance and a selective vaccination strategy for control of the disease was suggested. Continued submission to the WRL of outbreak samples from various parts of the World and from each of the detected serotypes is of capital importance.

Disease awareness can be sub-optimal in a country, which has not experienced FMD for a long period of time.

Item 2 Risk analysis

A preliminary qualitative risk analysis of the introduction of FMD from Transcaucasian countries to Europe through Russia based on the 3-week mission of OIE/FAO/CE in March 1999 indicated that the risk is currently relatively low due to the limited commercial exchange between Europe and these countries. However, 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.

As an introduction to a workshop on risk analysis a presentation was given of the computer simulation model aiming to quantify the risk and economic consequences of the introduction and spread of FMD and CSF within the Netherlands.

The effect of density, herd size, and distance between the herds was also discussed. Determining the minimal aerosol infective doses of FMDV for pigs is essential to predict airborne spread and for use in simulation models.

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?

¹ Manuscript based on the Report of the meetings 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.

- 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 results and conclusions are presented in the appendix below.

Item 3 Serosurveillance and Control of FMD

1. In all surveys in North Africa there was a very clear clustering of seropositive animals within flocks and of seropositive flocks within provinces which was consistent with the known distribution of clinical disease. The NSP ELISA proved to be very useful in differentiating infected from vaccinated animals. However, it cannot be used as reliable indicator of current virological status of individual animals i.e. whether or not the animal is a carrier. Therefore there is still a need for techniques which identify the agent itself. In respect of the situation in North Africa, the following was recommended :
 - Increasing awareness of travellers and tourists.
 - The maintenance of coastguard patrols in the western Mediterranean.
 - The vigilance and cooperation of customs officials at ports and airports in Europe.
 - The destruction of foodstuffs removed from ships and aircraft.
2. 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 by Dr Donaldson which aim to achieve particular control and eradication objectives under different circumstances in which sheep are a major component of the livestock population. These recommendations are summarised in a table (see the Appendix).
3. 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 2001 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.
4. It was highly recommended that all serosurveys in the Balkan area would be conducted on the basis of a NSP ELISA.
5. Different options of *disposal of carcasses* were presented. Rendering plants although available now might not be in the future.
6. Studies should be initiated to determine the feasibility of measures to reduce the risk associated with trade in intestines for sausage casings.

Item 4 Workshop on NSP ELISA

The EUFMD Commission organised a Workshop (WS) on the detection by ELISA of antibodies against FMDV nonstructural protein 3ABC at the Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia (IZSLE) in Brescia from 18 to 21 January 2000. The instructors were experts from the World Reference Laboratory (IAH, Pirbright) and from the IZSLE. The WS in Brescia will initiate the first phase in the transfer of 3ABC ELISA technology to the National FMD laboratories in the Balkan countries Greece, Bulgaria and Turkey. Sera from non-infected, infected, vaccinated and also post-vaccinated and challenged animals were tested.

The Workshop concluded:

- Regular serosurveillance in the Balkans is encouraged. A sampling rate should be decided on a statistical basis.
- In an interim period both ELISAs for SP and NSP tests should be used for serosurveys.
- When testing animals for export and import, only a SP ELISA can be used and any animals which are positive cannot be exported.
- The preliminary results obtained from the use of the NSP test in the Balkan region should be presented to the next Workshop for the Balkans planned for the end of 2000 or in early 2001.
- A draft proposal for guidelines for the utilisation of FMD ELISAs (LPBE versus NSP ELISA) was proposed and published in Appendix 9 of the Report of the Sixty-fourth Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth disease, 30-31 March 2000, Bouillon, Belgium, p. 79-81.

Item 5 The FAO Phase XVI Collaborative Laboratory Study

1. The FAO phase XVI Collaborative Laboratory Study was concluded with the acceptance of reference sera for O₁ Manisa, A₂₂ Iraq and C₁ Oberbayern. Phase XVII should supply candidate reference sera for the O PanAsia, A Iran '96 and Asia₁. 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 have been 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 New developments in FMD diagnostics

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.
5. 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.

Item 7 Vaccines

1. The strategy for emergency vaccination as adopted by the EU Scientific Veterinary Committee for Animal Health was presented. It was recommended that an approved ELISA testing kit for detection of Ab to NSP should be available for national and regional diagnostic laboratories because the testing of all vaccinated animals is required. Suppressive (dampening down) vaccination as a disease control measure should not be applied unless logistical and/or political reasons dictate it. This might be the case in high densely populated area. More experiments using highly potent vaccines under severer challenge conditions would further assist our understanding on suppressive vaccination; mucosal vaccines may be advantageous to such a control measure.

Three different ways of getting a higher immune response after vaccination were presented:

- High potent emergency FMD oil vaccine in pigs and sheep.
- The incorporation of saponin in water-in-oil vaccines.
- 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 PD₅₀ test in pigs should be further considered. However, it should be restricted to particular cases.

Item 8 European Pharmacopoeia (Ph.Eur.)

EUFMD established a Working Group on the FMD Monograph of the European Pharmacopoeia. The working Group consisted of representatives of the EUFMD Research Group, the EU Scientific Veterinary Committee, the International Vaccine Bank (IVB), private companies and the secretariat of EUFMD. The present monograph was critically analysed and adapted to a more logical format relating to modern manufacturing practices. Emphasis was put on validated *in vitro* rather than *in vivo* tests being more sensitive and statistically more reliable. For the potency test the possibility was envisaged to demonstrate consistency of results in the framework of a Quality Assurance System and thus reduce the need for animal usage. The lack of clear results for using serology in potency testing of FMD vaccines in pigs was also discussed.

The Ph.Eur. Working Group report (see Appendix 10 of the Report of the Sixty-fourth Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth disease, 30-31 March 2000, Bouillon, Belgium, p. 82-87) was presented at on a meeting of Group 15V of the Ph. Eur. in Strasbourg. All members of Group 15V present voted 'In favour of proposing to the Ph. Eur. 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 Ph.Eur. Working Group report was also presented at the 19th meeting of the Immunologicals Working Party (IWP) of the Committee for Veterinary Medicinal Products (CVMP) of the European Agency for the Evaluation of Medicinal Products (EMEA) on December 4, 2000. The IWP requested that an ad hoc group consisting of FAO (K. De Clercq), European Pharmacopoeia (P. Castle), DG SANCO (J. Westergaard), OIE, IWP (D. MacKay, H.H. Lensing, P-P. Pastoret), DG Enterprise (J. Weisenberger) should meet to review the issue of requirements for emergency vaccines.

Item 9 Swine vesicular disease

Arguments for and against removing SVD from the OIE List A were discussed and presented at the OIE Regional Commission for Europe held in Israel 2000.

Item 10 Venues for the next Sessions of the RG

2001 Denmark

2002 Turkey

2003 Switzerland

Proposals from Brescia and Madrid for the next sessions.

Table 1: Proposed actions to control and eradicate FMD under different situations in animal populations with a high density of sheep.

| SITUATION | OBJECTIVES | ACTIONS |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Buffer zone | Create an immune belt to protect an FMD-free, non-vaccinated country/zone from the risk of spread from an infected area. | Apply routine mass vaccination to all cloven-hoofed livestock* in the defined zone. Identify the vaccinated animals within the zone and restrict their movement by physical barriers and check-points. Prevent the movement of animals and potentially infected animal products to the free country/zone. |
| Surveillance zone | Create an early warning zone between an FMD-free, non-vaccinated country/zone and a potentially infected area. | Identify all cloven-hoofed livestock* in the zone and control their movement by physical barriers and check-points. Carry out regular clinical and serological surveys to determine the infectivity status of all livestock* in the zone. Take measures to eradicate virus if infected animals are identified. |
| Country or zone in which FMD is endemic | <p>Reduce the prevalence and economic losses due to FMD so that ultimately the strategy can be changed from disease control to virus eradication.</p> <p>Control an outbreak caused by an endemic strain of virus.</p> | <p>Apply strategic routine mass vaccination to the large ruminant livestock species#, vaccinating the high producing animals as the first priority but extending the programme to other large ruminants according to available resources. If virus continues to circulate in the food chain i.e. in pigs, then include that species in the vaccination programme.</p> <p>If the incidence of disease is high and there is no fund for paying compensation, apply movement restrictions to the infected premises and vaccinate all livestock* in the surrounding at risk area.</p> <p>If the incidence of disease is low and a compensatory fund is available apply stamping out and zoo-sanitary measures to the infected premises and movement restrictions in the surrounding area. Verify that virus is not circulating before removing the disease control restrictions.</p> |
| Control an outbreak caused by an exotic serotype or strain of virus. | Control an outbreak caused by an exotic serotype or strain of virus. | Seek regional and/or international assistance and apply stamping out and movement restrictions. Obtain an appropriate vaccine and vaccinate all the livestock* in the surrounding at risk area. |

| | | |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Country or zone which is free from FMD and does not vaccinate</p> | <p>Eradicate the virus following an outbreak.</p> <p>Contain the area of infection and reduce the probability of spread beyond the at risk zone. Appease public opinion against the slaughter of animals.</p> | <p>Apply total stamping out and zoo-sanitary measures to the infected premises. Establish protection and surveillance zones and restrict movement. Undertake a serological survey in the surveillance zone* to determine whether virus is circulating. Maintain movement restrictions until the absence of circulating virus has been verified.</p> <p>Apply emergency vaccination to all livestock* in a zone beyond the at risk area. Identify and record all vaccinated animals. Maintain restrictions on the movement of all livestock* and animal products from the vaccinated zone until serological and clinical surveys have confirmed that virus is not circulating.</p> |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

* sheep included

sheep not included

**REPORT OF THE
FAO/OIE WORLD REFERENCE LABORATORY
FOR FOOT-AND-MOUTH DISEASE IN 1999-2000**

Present World Situation

Europe

Foot-and-mouth disease type Asia 1 entered Greece in July, probably by infected animals moving across the Evros River from neighbouring Turkey. A total of 14 outbreaks were reported in the Prefectures of Evros and Xanthi, three of them primary. The nucleotide sequence of the strain was very similar to that of isolates from Iran and Turkey received in 1999 and 2000. However, there were no reports of FMD in European Turkey (Turkish Thrace).

Africa

There have been no outbreaks of FMD reported from Tunisia, Morocco or Algeria during 2000, following the successful eradication of the disease in 1999. FMD type O is still present in Egypt. There have been outbreaks of type SAT 1 in Namibia, Swaziland, Zambia, Malawi and South Africa. The first outbreak of type O was reported from South Africa in September affecting a pig herd. The origin was traced to infected swill collected from the port of Durban. The virus spread to a neighbouring farm and also into cattle on communal grazing land. Monovalent type O vaccination has been started around the outbreaks to contain any further spread. Type O isolates were also received from Uganda.

Asia

Outbreaks of type A, Asia 1 and O have been reported from Turkey and Iran, although their distribution, particularly of the Iran/96 and Iran/99 topotypes of type A is not well defined. These serotypes have also spread into the Caucasian countries. A strain of A Iran/96 was also isolated from samples from Iraq. Outbreaks due to type O have been widespread throughout West Asia, but this year, for the first time, there have been outbreaks due to SAT 2 in Saudi Arabia and on the border with Kuwait. SAT 2 vaccine was used in the large dairy herds to help control the outbreaks, and will be included in the routine vaccination programme. The SAT 2 was probably imported with live animals from North East Africa, where strains with a similar nucleotide sequence had been circulating during 1999.

FMD remains endemic in Pakistan, Afghanistan, India, Nepal, Bhutan, Myanmar and Bangladesh, outbreaks being predominantly due to Type O. Type O has also caused large outbreaks in Turkmenistan, Kazakhstan and Kyrgystan.

Outbreaks, also predominantly due to type O, have been reported from Thailand, Laos, Vietnam and Cambodia with occasional reports of type Asia 1 and A. The Philippines has outbreaks of type O restricted to Luzon island, affecting pigs only. Taiwan POC also has type O, but two strains are present, the 1997 pig adapted strain also present in the Philippines and Hong Kong, and a newer (1999) introduction that caused outbreaks in cattle and goats.

In March this year, there were outbreaks of FMD type O in Japan and Republic of South Korea, the first since 1908 and 1934, respectively. Japan reported 4 outbreaks, and was able to contain the disease by slaughter and sero-surveillance, while the Republic of South Korea quickly introduced vaccination. Soon after, in April, there was an outbreak of type O reported in a pig farm close to Vladivostok in Russia, and in South East Mongolia in cattle, sheep, goats and camels. All these outbreaks were due to the same strain. This strain also appeared in Taiwan POC in 1999, is responsible for the South African outbreak, and has been found throughout West and East Asia. Because of its wide distribution it has been given the name PanAsian strain.

South America

There have been new introductions of FMD virus into Argentina, Southern Brazil (Rio Grande do Sul) and Uruguay, after many years of absence. The virus recovered in Argentina was the A₂₄ strain, closely related to the vaccine strain, while the outbreaks in Rio Grande do Sol and Uruguay were due to type O. Argentina and Uruguay have eliminated the infections, although the situation in Brazil is unclear. Paraguay has reintroduced vaccination.

Outbreaks to type O and A have also occurred in the north of South America.

This is the fourth year in which the WRL has not received samples containing type C FMD virus.

Diagnostic Samples

Table 1 shows the samples received for diagnosis in 1999 and 2000, their country of origin and test results.

OIE/FAO World Reference Laboratory for Foot and Mouth Disease*
CUMULATIVE REPORT FOR JANUARY - DECEMBER, 1999

| COUNTRY | No. of samples | FMD virus serotypes | | | | | | | SVDV (a) | NVD (b) |
|--------------------------|----------------|---------------------|---|---|------|------|------|--------|----------|---------|
| | | O | A | C | SAT1 | SAT2 | SAT3 | ASIA 1 | | |
| AFGHANISTAN | 24 | - | - | - | - | - | - | - | - | 24 |
| ALGERIA | 4 | 4 | - | - | - | - | - | - | - | - |
| BAHRAIN | 7 | 5 | - | - | - | - | - | - | - | 2 |
| BANGLADESH | 5 | 4 | 2 | - | - | - | - | - | - | - |
| BOTSWANA | 8 | - | - | - | - | - | - | - | - | 8 |
| BURKINA FASO | 5 | - | - | - | - | - | - | - | - | 5 |
| BURUNDI | 7 | 1 | - | - | 3 | 3 | - | - | - | - |
| CAMBODIA | 7 | 7 | - | - | - | - | - | - | - | - |
| COTE D'IVOIRE | 28 | 5 | - | - | - | - | - | - | - | 23 |
| GAMBIA | 14 | 2 | - | - | - | - | - | - | - | 12 |
| GUINEA | 13 | 5 | - | - | - | - | - | - | - | 8 |
| HONG KONG | 25 | 23 | - | - | - | - | - | - | - | 2 |
| INDIA | 15 | 14 | - | - | - | - | - | - | - | 1 |
| IRAN | 63 | 45 | 3 | - | - | - | - | 3 | - | 12 |
| IRAQ | 29 | 19 | - | - | - | - | - | - | - | 10 |
| ISRAEL | 5 | 5 | - | - | - | - | - | - | - | - |
| ITALY | 9 | - | - | - | - | - | - | - | 9 | - |
| JORDAN | 5 | 3 | - | - | - | - | - | - | - | 2 |
| KENYA | 9 | 3 | - | - | - | 5 | - | - | - | 1 |
| KUWAIT | 2 | - | - | - | - | - | - | - | - | 2 |
| MALAYSIA | 9 | 8 | - | - | - | - | - | 1 | - | - |
| MAURITANIA | 23 | - | - | - | - | - | - | - | - | 23 |
| MOROCCO | 12 | 8 | - | - | - | - | - | - | - | 4 |
| NEPAL | 9 | 6 | - | - | - | - | - | - | - | 3 |
| NEW CALEDONIA | 5 | - | - | - | - | - | - | - | - | 5 |
| PHILIPPINES | 10 | 6 | - | - | - | - | - | - | - | 4 |
| QATAR | 3 | 1 | - | - | - | - | - | - | - | 2 |
| SAUDI ARABIA | 7 | 5 | - | - | - | - | - | - | - | 2 |
| SPAIN | 5 | - | - | - | - | - | - | - | 1 | 4 |
| SUDAN | 5 | 4 | - | - | - | - | - | - | - | 1 |
| SYRIA | 1 | 1 | - | - | - | - | - | - | - | - |
| TAIWAN PROVINCE OF CHINA | 3 | 3 | - | - | - | - | - | - | - | - |

| COUNTRY | No. of samples | FMD virus serotypes | | | | | | | SVDV (a) | NVD (b) |
|----------------------|----------------|---------------------|----------|----------|-----------|-----------|----------|----------|-----------|------------|
| | | O | A | C | SAT1 | SAT2 | SAT3 | ASIA 1 | | |
| TANZANIA | 64 | - | - | - | 37 | 1 | - | - | - | 26 |
| TUNISIA | 5 | 5 | - | - | - | - | - | - | - | - |
| TURKEY | 10 | 4 | 3 | - | 2 | - | - | 3 | - | - |
| UGANDA | 10 | - | - | - | 2 | - | - | - | - | 8 |
| UNITED ARAB EMIRATES | 9 | 5 | - | - | - | - | - | - | - | 4 |
| VIETNAM | 30 | 29 | - | - | - | - | - | - | - | 1 |
| YEMEN | 6 | 5 | - | - | - | - | - | - | - | 1 |
| ZAMBIA | 2 | - | - | - | - | 2 | - | - | - | - |
| TOTAL | 512 | 235 | 8 | - | 42 | 11 | - | 7 | 10 | 200 |

- Institute for Animal Health, Pirbright Laboratory, Woking, Surrey GU24 0NF, U.K.
- (a) swine vesicular disease virus
- (b) no foot-and-mouth disease, swine vesicular disease or vesicular stomatitis virus detected
- one sample from Bangladesh contained a mixture of foot-and-mouth disease virus types O and A

211 out of 270 positive samples tested as original suspension were typed by enzyme linked immunosorbent assay (78%) and the remainder (22%) were typed as tissue culture

OIE/FAO World Reference Laboratory for Foot and Mouth Disease*
CUMULATIVE REPORT FOR JANUARY - DECEMBER, 2000

| COUNTRY | No. of samples | FMD virus serotypes | | | | | | | SVDV (a) | NVD (b) |
|-----------------------|------------------|---------------------|-----------|----------|----------|-----------|----------|-----------|----------|------------|
| | | O | A | C | SAT 1 | SAT 2 | SAT 3 | Asia 1 | | |
| ARGENTINA | 1 | - | 1 | - | - | - | - | - | - | - |
| CAMBODIA | 5 | 4 | - | - | - | - | - | - | - | 1 |
| CAMEROON | 3 | - | - | - | - | - | - | - | - | 3 |
| GREECE | 13 | - | - | - | - | - | - | 10 | - | 3 |
| HONG KONG (PRC) | 6 | 6 | - | - | - | - | - | - | - | - |
| IRAN | 30 | 6 | 15 | - | - | - | - | - | - | 9 |
| IRAQ | 101 ^H | 8 | 2 | - | - | - | - | - | - | 86 |
| IRELAND | 1 | - | - | - | - | - | - | - | - | 1 |
| ITALY | 3 | - | - | - | - | - | - | - | 3 | - |
| JAPAN | 1 | 1 | - | - | - | - | - | - | - | - |
| LAO PDR | 7 | 5 | - | - | - | - | - | - | - | 2 |
| MALAWI | 1 | - | - | - | 1 | - | - | - | - | - |
| MALAYSIA | 4 | 3 | - | - | - | - | - | - | - | 1 |
| MAURITANIA | 22 | 1 | - | - | - | - | - | - | - | 21 |
| MYANMAR | 5 | 1 | - | - | - | - | - | 4 | - | - |
| NEPAL | 15 | 4 | - | - | - | - | - | - | - | 11 |
| PHILIPPINES | 28 | 16 | - | - | - | - | - | - | - | 12 |
| REPUBLIC OF KOREA | 3 | 3 | - | - | - | - | - | - | - | - |
| SAO TOME AND PRINCIPE | 1 | - | - | - | - | - | - | - | - | 1 |
| SAUDI ARABIA | 22 | - | - | - | - | 16 | - | - | - | 6 |
| SOUTH AFRICA | 3 | 1 | - | - | 1 | - | - | - | - | 1 |
| SRI LANKA | 2 | 2 | - | - | - | - | - | - | - | - |
| THAILAND | 7 | 6 | 1 | - | - | - | - | - | - | - |
| TURKEY | 10 | 4 | 2 | - | - | - | - | 3 | - | 1 |
| UGANDA | 41 | 1 | - | - | - | - | - | - | - | 40 |
| UNITED ARAB EMIRATES | 3 | 3 | - | - | - | - | - | - | - | - |
| TOTAL | 338 | 75 | 21 | - | 2 | 16 | - | 17 | 3 | 199 |

X Institute for Animal Health, Pirbright Laboratory, Woking, Surrey GU24 0NF, U.K.

(a) swine vesicular disease virus

(b) no foot-and-mouth disease, swine vesicular disease or vesicular stomatitis virus detected

^H 5 samples from Iraq were positive for FMD virus by RT-PCR but negative by ELISA and virus isolation in cell culture

69 out of 103 positive samples tested as original suspension were typed by enzyme linked immunosorbent assay (67%) and the remainder (33%) were typed as tissue culture

The following samples were additionally received by the OIE/FAO World Reference Laboratory for Foot and Mouth Disease in 2000 :

| COUNTRY | Sample year | No. of samples | FMD virus serotypes | | | | | | | SVDV (a) | NVD (b) |
|--------------------------|-------------|----------------|---------------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| | | | O | A | C | SAT 1 | SAT 2 | SAT 3 | Asia 1 | | |
| CAMBODIA | 1999 | 8 | 3 | - | - | - | - | - | - | - | 5 |
| HONG KONG (PRC) | 1999 | 1 | 1 | - | - | - | - | - | - | - | - |
| ITALY | 1999 | 7 | - | - | - | - | - | - | - | 7 | - |
| LAO PDR | 1996 | 2 | - | - | - | - | - | - | 1 | - | 1 |
| | 1998 | 9 | 3 | - | - | - | - | - | 1 | - | 5 |
| | 1999 | 16 | 12 | - | - | - | - | - | - | - | 4 |
| LEBANON | 1999 | 7 | 4 | - | - | - | - | - | - | - | 3 |
| MYANMAR | 1997 | 1 | - | - | - | - | - | - | 1 | - | - |
| | 1998 | 3 | 3 | - | - | - | - | - | - | - | - |
| | 1999 | 9 | 7 | - | - | - | - | - | - | - | 2 |
| NEPAL | 1999 | 5 | - | - | - | - | - | - | - | - | 5 |
| SRI LANKA | 1999 | 9 | 8 | - | - | - | - | - | - | - | 1 |
| TAIWAN PROVINCE OF CHINA | 1999 | 1 | 1 | - | - | - | - | - | - | - | - |
| THAILAND | 1998 | 2 | - | 1 | - | - | - | - | 1 | - | - |
| | 1999 | 10 | 5 | 5 | - | - | - | - | - | - | - |
| ZIMBABWE | 1999 | 6 | - | - | - | 3 | - | 3 | - | - | - |
| TOTAL | | 96 | 47 | 6 | - | 3 | - | 3 | 4 | 7 | 26 |

(a) swine vesicular disease virus

(b) no foot-and-mouth disease, swine vesicular disease or vesicular stomatitis virus detected

33 out of 44 samples tested as original suspension were typed by ELISA (75%) and the remainder (25%) were typed as tissue culture

NPF, 5th January 2001

Supply of Reagents

Reagents were supplied to national FMD laboratories for diagnosis, research or vaccine production in Hong Kong, The Netherlands, Czech Republic, Slovenia, Morocco, United Arab Emirates, Slovak Republic, Taiwan POC, Lithuania, Algeria, Turkey, Belgium, Korea, Japan, China, France, Sweden, Jordan, Greece, Ethiopia, Estonia, Syria, Saudi Arabia, Mongolia, Indonesia, Philippines, Denmark, Iran, Spain, Malaysia, Germany, Tunisia, Oman, Sri Lanka, Kuwait.

WRL Staff Visits

WRL staff made visits to the following countries, either to run or assist in training courses, or to provide advice on the epidemiology diagnosis, and control of FMD: Sweden, Ireland, Cameroon, Taiwan POC, Japan, Republic of South Korea, Greece, Botswana, Saudi Arabia, Russia, Bulgaria and Canada.

THE AVAILABILITY OF FOOT AND MOUTH DISEASE VACCINE FOR EMERGENCY VACCINATION IN EUROPE.

Preliminary Results

John Ryan

1. Introduction

A review of the availability of vaccine and inactivated antigen for emergency vaccination use was called for during the 33rd Session of the European Commission for the Control of Foot and Mouth Disease at their meeting in Rome, Italy in April 1999. This report is intended to be used as an update to the reports prepared by Dr. Garland for the 32nd Session of the European Commission for the Control of Foot-and-Mouth Disease and by the author for the 33rd Session of the European Commission for the Control of Foot-and-Mouth Disease.[1] [9]

Foot and mouth disease (FMD) vaccines banks are of two types: those holding reserves of fully formulated and tested vaccine ready for immediate use but with limited shelf life, and those holding reserves of tested antigen of long shelf life which can be formulated into vaccine and filled as required. This paper is only concerned with antigen banks in Europe.

Stockpiles of FMD antigen have been in existence for over 20 years. The first was created in Denmark in 1976 while international banks were formally inaugurated in North America in 1982 and in Europe in 1985. National banks have also been created. Commercial manufacturers provide much of the antigen for these banks and also hold stocks in their own right.

To date stocks of antigen in international banks have been called upon to supply emergency vaccine rather rarely i.e. from the European Commission Vaccine Bank to the Balkans in 1996, to Turkey in 2000 and to the Republic of Korea in 2000.

The threat of FMD persists and the risk of spread is exacerbated by political and economic developments, expanding free trade areas and ever more rapid movement of animals, animal products and people around the globe. In the European context the continuing risk from FMD is emphasised by the presence of endemic disease in Anatolian Turkey and recent outbreaks in Greece, the United Kingdom & France.

2. Existing FMD Vaccine Banks

There are essentially three existing types of FMD vaccine bank.

- **International, Government administered and financed banks.**
- **National, Government administered and financed vaccine banks.**
- **Commercially maintained vaccine banks.**

2.1. International Governmental Vaccine Banks

2.1.1. The International Vaccine Bank (IVB)

The IVB came into being in 1985. The founder members were comprised of seven countries, Australia, Finland, The Republic of Ireland, New Zealand, Norway, Sweden, and the United Kingdom, all of which were free of FMD at the time and all have since maintained that freedom except the UK. Malta joined the bank as an associate, non-voting member in 1995.

The bank is located at the UK Institute of Animal Health (IAH) Laboratory at Pirbright, England, which is also the World Reference Laboratory (WRL). Antigens are purchased according to open tender from commercial sources. The IVB is unique among the FMD vaccine banks in having its own facilities for the formulation and filling of vaccines in dedicated premises under licensed conditions and in compliance with Good Manufacturing Practice.

The choice of antigens is determined according to the prevalent epidemiological conditions world wide and to reflect the likely needs of member countries in Europe and Australasia. The selection process takes cognisance of the latest information available from the WRL, the Office International des Epizooties (OIE) and the Food and Agriculture Organisation (FAO) of the United Nations. It has not been deemed necessary to change the selection of antigens since the previous report in 1999. Currently the stocks include antigens equivalent to half a million bovine doses of finished vaccine of each of the types and subtypes of virus and of the potencies shown in table 1.

The bank is maintained in a constant state of readiness and has the capability of formulating, filling and despatching up to 500,000 doses of vaccine within three days of receiving a request from a member state. Both aqueous-saponised and oil adjuvanted vaccines can be formulated.

| Table 1 : IVB Vaccine Stocks and Potency Values | | |
|--------------------------------------------------------|------------------------------------------------------------|---------------------|
| Vaccine Type and Strain | PD50 value as most recently assayed in 1996 ^[2] | |
| Type A15 | Thailand | > 112 PD50 per dose |
| Type A22 | Iraq | 75 PD50 per dose |
| Type A24 | Cruzeiro | 18 PD50 per dose |
| Type O1 | Lausanne | 41 PD50 per dose |
| Type O1 | Manisa | > 112 PD50 per dose |
| Type C1 | Oberbayern | > 112 PD50 per dose |
| Type Asia1 | India 8/79 | 61 PD50 per dose |

2.1.2. The European Union Vaccine Bank (EUVB)

The establishment of the European Union Vaccine Bank (also earlier referred to as the European Commission Vaccine Bank) was formally authorised in 1991 by EC Decision 91/666/EEC [5]. The EC in Brussels manages the bank with technical advice from the FMD Sub-group of the Scientific Veterinary Committee of the Commission of the European Communities and the Standing Veterinary Committee.

Antigens are purchased from European manufacturers with a minimum acceptance level of 6.0 PD₅₀ per dose. For ease of geographical access and for reasons of security the inactivated concentrates are divided between three designated storage locations situated at: the Premises of Merial S.A.S. Pirbright/Lyon; the Laboratoire de Pathologie Bovine du Centre National d'Etudes Veterinaire et Alimentaire at Lyon in France; and the Instituto Zooprofilattico Sperimentale di Brescia in Italy.

The current quantities and locations of antigen in the EUVB are shown in Table 2.

| Antigen type and subtype | Designated Antigen Banks | | | Total |
|--------------------------|--------------------------|------------------|------------------------------|-------------------|
| | IZP Brescia | LNBP Lyon | Merial SAS Pirbright/Lyon | |
| O1 Manisa | 2 500 000 | 2 500 000 | | 5 000 000 |
| O1 BFS | | 2 500 000 | 1 000 000 | 3 500 000 |
| A24 Cruzeiro | | 2 500 000 | 2 500 000 | 5 000 000 |
| A22 Iraq | 2 500 000 | 2 200 000 | | 4 700 000 |
| A/Iran/96 | | | 1 000 000 | 1 000 000 |
| A/Iran/99 | | | 1 000 000 | 1 000 000 |
| A/Malaysia/97 | | | 500 000 | 500 000 |
| C1 Noville | 2 500 000 | | 2 500 000 | 5 000 000 |
| Asia1 Shamir | 2 500 000 | | 1 000 000 | 3 500 000 |
| SAT 1 | | | 500 000 | 500 000 |
| SAT 2 (E Africa) | | | 500 000 | 500 000 |
| SAT 2 (S Africa) | | | 500 000 | 500 000 |
| SAT 3 | | | 500 000 | 500 000 |
| Total | 10 000 000 | 9 700 000 | 11 500 000 | 31 200 000 |

2.1.3. The All Russian Research Institute for Animal Health (ARRIAH) Vaccine Bank

The ARRIAH Institute at Vladimir near Moscow has for many years supplied vaccine for a number of regions within Russia and for countries formerly included in the USSR prior to the break up of the soviet block. The Institute is recognised by OIE as a Regional Reference Laboratory for FMD for the countries of Eastern Europe, Central Asia and Transcaucasia, including the function of acting as the vaccine bank for these regions. ARRIAH has negotiated contracts for the supply of vaccine to Bulgaria, Ukraine, Kazakhstan, Belarus, Moldavia and Turkmenistan [5, 6]. Its role in the co-ordination of FMD Control in the Caucasian countries (Russia, Armenia, Georgia, and Azerbaijan) has recently been defined by the EUFMD/OIE/EC mission to the Caucasian countries and ARRIAH Vladimir. (see item 5).

2.2. National Government Vaccine Banks (NGVB)

The status of NGVBs was reviewed in an international context by Callis in 1994 [6] and in an European context by the EUFMD Commission in 1993 [7], 1995 [8], 1997[1] and again in 1999[9]. The latter three reviews utilised a questionnaire sent to all member countries - including both members and non members of the European Union. This exercise was repeated in February 2001 and the detailed results are given in Annex 2.

Summary of the Preliminary Results of the Questionnaire of NGVB in Europe in 2001

Questionnaires were despatched to the 33 member countries and replies were received from 23 countries to date, giving a 70% response rate.

- Seven countries (21%) have made no arrangements for the supply of emergency vaccine.
- Seventeen countries (52%) have made one arrangement - either through a national vaccine bank, through a contract with a commercial supplier or as a member of an intergovernmental vaccine bank - for the supply of emergency vaccine.
- Nine countries (27%) have made more than one arrangement for the supply of emergency vaccine.

In total there are 12 national banks among the member countries, and they vary in their arrangements. Eight of the 12 banks (67%) are maintained by private manufacturers under contract; the remainder are with national institutes. Eight of the twelve banks (67%) consist of inactivated antigens only, 3 banks consists of formulated vaccine only and 1 bank includes both.

Two countries (6%) maintain contracts for the supply of formulated vaccine in an emergency from a commercial suppliers.

Six countries (18%) are members of the International Vaccine Bank. The 15 (45%) EU members are all entitled to access the EU vaccine bank. However, nine of the EU-15 (60%) have an additional arrangement, 4 of the EU-15 are also members of the IVB and 5/15 maintain national vaccine banks. All nine countries who maintain more than one arrangement are EU countries.

Five countries, of the 22 who have replied, have changed their position since the previous report. All five changes were in the arrangements for the national vaccine bank. There was 1 new contract with a commercial manufacturer to hold inactivated antigen. There was 1 country who no longer maintained a formulated vaccine bank. The other 3 changes were in the amounts and strain composition of the National Banks. In general the changes reflected a trend towards including more A strains, particularly the "new" Middle-Eastern A strains A/Iran/96 and A/Iran/99.

2.3 Commercial Vaccine Suppliers :

Three commercial companies are currently engaged in FMD vaccine manufacture within the EU namely: Bayer AG in Germany ; Intervet in the Netherlands; and Merial in England and in France.[1]

Vaccine manufacturers outside the EU include: the government ARRIAH facility in Russia and regional vaccine plants in Shelkovo and Povrov [8]; the government SAP Institute in Ankara and the new, private Vetal company at Adiyaman in Turkey.[1]

3. Summary

The IVB holds antigen equivalent to 3.5 M doses of formulated vaccine of seven serotypes and is accessible to 6 commission members. The EUVB antigen stocks are equivalent to 31.2 M doses of seven serotypes and are accessible to the 15 EU member countries (and possibly other countries on a case by case basis). National vaccine banks in member countries currently hold antigens and formulated vaccine equivalent to 32.375 M doses of formulated vaccine and cover 6 serotypes. The full break down by serotypes can be found in Table 3. Thus there are antigen stocks and formulated vaccine equivalent to 67.075 M doses in member countries, excluding some stocks maintained by commercial firms and the antigens held in the ARRIAH bank.

| Serotype | IVB | EUVB | NGVB | Totals |
|--------------|------------------|-------------------|-------------------|-------------------|
| O | 1 000 000 | 8 500 000 | 10 890 000 | 20 390 000 |
| A | 1 500 000 | 12 200 000 | 11 235 000 | 24 935 000 |
| C | 500 000 | 5 000 000 | 4 260 000 | 9 760 000 |
| Asia 1 | 500 000 | 3 500 000 | 3 940 000 | 7 940 000 |
| SAT1 | | 500 000 | 1 000 000 | 1 500 000 |
| SAT2 | | 1 000 000 | 1 050 000 | 2 050 000 |
| SAT3 | | 500 000 | | 500 000 |
| Total | 3 500 000 | 31 200 000 | 32 375 000 | 67 075 000 |

4. References:

1. **Garland A.J.M. (1997) *The Availability of Vaccines for Emergency Vaccination in Europe. Report of the 32nd Session of the European Commission for the Control of Foot and Mouth Disease, Rome, Italy 2-4th April 1997. Appendix 8, pages 89-111.***
2. **Pastoret P-P. (1996) *Report on the Control of Foot and Mouth Disease in the European Union. Directorate General VI, European Commission, Brussels.***
3. **Anon.(1991) *Council Decision of 11th December 1991. establishing Community Reserves of Foot and Mouth Disease vaccines (91/666/EEC).***
4. **Anon. (1994) *Virus Strains for Vaccine Banks. European Commission for the Control of Foot and Mouth Disease. Session of the Research Group of the Standing Technical Committee, Vienna, Austria, 15-22nd September 1994. Item 8, pages 8-9.***
5. **Zakharov V.M., Baibikov T.Z., Rakhmanov and Dudnikov A.I. (1995) *Foot and Mouth Disease Control Strategies in the Russian Federation and in Ex-USSR Countries. European Commission for the Control of Foot and Mouth Disease. Meeting of the Research Group of the Standing Technical Committee, Vladimir, Russian Federation, 20-22 September 1995. Appendix 13, pages 81-83.***
6. **Callis, J. (1994) *Vaccine Banks: Present Status and Future Development. In the Proceedings of the 62nd General Session of the Office International des Epizooties. Paris, 16-20 May 1994. Report 62/SG 10, pages 1-6.***
7. **Anon.(1993) (a) *Foot and Mouth Disease Prophylaxis in Europe 1991-92.*
(b) *Vaccination programme 1991-1992. Report of the 30th Session of the European Commission for the Control of Foot and Mouth Disease, Rome, Italy, 27-30 April 1993. Appendix 3, pages 28-35.***
8. **Leforban Y. (1995) *Availability of Vaccines for Emergency Vaccination in Europe. Report of the 31st Session of the European Commission for the Control of Foot and Mouth Disease, Rome, Italy 5-7th April 1995. Appendix 9, pages 60-65.***
9. **Ryan J. (1999) *Availability of Vaccines for Emergency Vaccination in Europe. Report of the 33rd Session of the European Commission for the Control of Foot and Mouth Disease, Rome, Italy 7-9th April 1999. Appendix 18, pages 154-165.***

Annex 1

Provisional Recommendations from the World Reference Laboratory on FMD Virus strains to be included in FMDV Antigen Banks

(pending approval by the EUFMD Research Group at their meeting to be held in Denmark, Sept 2001)

| | | |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| High Priority | <ul style="list-style-type: none"> O Manisa (<i>covers panasian topotype</i>) O BFS or Lausanne A22 Iraq A24 Cruzeiro Asia 1 Shamir A Iran '96 SAT 2 Saudi Arabia (<i>or equivalent</i>) | (not in order of importance) |
| Medium Priority | <ul style="list-style-type: none"> SAT 2 Zimbabwe A15 Bangkok related strain A87 Argentina related strain A Saudi Arabia 23/86 (<i>or equivalent</i>) SAT 1 South Africa A Malaysia 97 (<i>or Thai equivalent such as A/NPT/TAI/86</i>) A Eritrea 98 C Noville O Taiwan 97 (<i>pig-adapted strain or Philippine equivalent</i>) A Iran '99 | (not in order of importance) |
| Low Priority | <ul style="list-style-type: none"> SAT 2 Kenya SAT 1 Kenya SAT 3 Zimbabwe A Kenya | (not in order of importance) |

Annex 2

Strategic Reserves of FMD Vaccine and Antigen held by Member countries as of March 2001.

| Country | Changed | IVB ¹ | EUVB ² | Strategic Reserves Of Vaccine Or Antigen |
|---------------------------------------|---------|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Albania | | | | Does not maintain a vaccine antigen bank. |
| Austria | | | ✓ | |
| Belgium | ? | | ✓ | Response from 1999: Antigens are stored at Merial, Pirbright. Stored antigens are equivalent to 1,200,000 doses of each of the following serotypes: A Iran 1996; O1 Manisa; C3 Philippines; and Asia1 Shamir. |
| Bulgaria | | | | Has contracted with the ARRIAH, Vladimir, Russia for the provision in case of need of 30 000 doses anti-FMD vaccine A22 and 30 000 doses anti-FMD vaccine O1 |
| Croatia | ? | | | Response from 1999: Has a contract with private firm "Veterinaria" for the provision of 60,000 doses of Emergency vaccine. The Serotype is not specified. |
| Cyprus | | | | No antigen or vaccine bank is maintained. Proposes that the question of access to the EUVB for non EU countries be discussed again. Also that in the event of non EU members not being able to gain access to the EUVB there should be discussion of the possibility of creating a bank for European countries outside the EU. |
| Czech Republic | ✓ | | | Inactivated antigens representing 60 000 doses of both O1 Manisa and A/Iran/96 with a minimum potency of 6 PD ₅₀ are stored with Merial, Pirbright. Merial will formulate and deliver vaccine within 3 days. The formulated vaccine will fulfil the requirements of the OIE Manual and the European Pharmacopoeia. |
| Denmark | | | ✓ | Has maintained a National Antigen Bank of inactivated, concentrated virus since 1976, held at the State Veterinary Institute for Virus Research at Lindholm. The bank contains antigen equivalent to 840,000 doses of vaccine of serotype A10; 800,000 doses of serotype O1; and 720,000 doses of serotype C1. The potency has not been estimated in terms of PD50 values. The supply has never been activated. |
| Finland | | ✓ | ✓ | |
| Former Yugoslav Republic of Macedonia | | | | No antigen or vaccine bank is maintained. |
| France | | | ✓ | Maintains a National Bank of formulated vaccine which is stored with Merial SAS, Lyon, containing 300,000 monovalent doses each of O Iran 1994 and A Albania 1996, and 100,000 monovalent doses of Asia 1 Shamir. One of the designated repositories of antigen for the EUVB at LNBP, Lyon. Holds concentrated, inactivated antigen equivalent to 2 500 000 doses of O1 BFS; 2 500 000 doses of O1 Manisa; 2 500 000 doses of A24 Cruzeiro and 2 500 000 doses of A22 Iraq. |

| Country | Changed | IVB ¹ | EUVB ² | Strategic Reserves Of Vaccine Or Antigen |
|---------|---------|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Germany | | | ✓ | <p>Maintains a National Vaccine Bank under contract with the private German company, Bayer AG, in Cologne and under state authority.</p> <p>The bank holds 100,000 doses of formulated vaccine of each of the following serotypes: A Iran 96 (to be filled in March 99); A22 Iraq ; A24 Cruzeiro ; O1 Kaufbeuren (O1 BFS or Lausanne); O1 Manisa ; C Oberbayern (C Noville); and Asia 1 Shamir.</p> <p>Holds concentrated inactivated antigen equivalent to 1,000,000 doses of each of the following serotypes: O1 Manisa; O1 Kaufbeuren (O1 BFS or Lausanne); A22 Iraq; A Iran 96; A24 Cruzeiro; A Castellanos; C1 Oberbayern (C Noville); Asia1 Shamir; SAT1 Zimbabwe and SAT2 Zimbabwe. Also holds 500,000 doses of A Saudi Arabia.</p> |
| Greece | | | ✓ | |
| Hungary | ✓ | | | <p>Concentrated inactivated antigen equivalent to 350,000 doses of each of the following serotypes: O1 Manisa; A/Iran/99; A/Iran/96; C3 and Asia1 are held at Merial, Pirbright, UK. Merial will formulate and deliver vaccine within 4 days. The formulated vaccine will fulfil the requirements of the OIE Manual and the European Pharmacopoeia.</p> <p>No antigen or vaccine bank is maintained.</p> |
| Iceland | | | | |
| Ireland | ? | ✓ | ✓ | <p>Response from 1999:</p> <p>Routine annual vaccination is practised and ring vaccination takes place in the event of an outbreak. All vaccine and antigen stock is under the authority of the CVO.</p> <p>Formulated vaccine is stored in the refrigerated storage facilities of the National Veterinary Services. The current formulated vaccine stock consists of:</p> <ul style="list-style-type: none"> • 1 000 000 doses of trivalent Cattle vaccine containing the following vaccine strains: O1 Geshur, O1 Manisa, A/Iran/96, A22 Iran 87 and Asia 1 Shamir. • 1 000 000 doses of monovalent vaccine for small ruminants containing both O1 Geshur and O1 Manisa. • 50,000 doses of monovalent vaccine containing SAT 2. <p>All formulated vaccines have a potency >3 PD₅₀ and an expiry date of 11-2002.</p> |
| Israel | ✓ | | | |
| Italy | | | ✓ | <p>One of the designated repositories of antigen for the EUVB at the Istituto Zooprofilattico Sperimentale at Brescia which has facilities for the formulation and filling of emergency vaccine. Holds concentrated inactivated antigen equivalent to 2 500 000 doses of each of the following vaccine strains: A22 Iraq, O1 Manisa, C1 Noville and Asia1 Shamir.</p> |

| Country | Changed | IVB ¹ | EUVB ² | Strategic Reserves Of Vaccine Or Antigen |
|-------------|---------|------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lithuania | | | | No antigen or vaccine bank is maintained. |
| Luxembourg | | | ✓ | |
| Malta | ? | ✓ | | Response from 1999: Associate Member of the IVB since 1995. Vaccine stored at the Institute of Animal Health Laboratory, Pirbright, UK. Drawing rights of up to 100,000 doses of vaccine. See UK entry for details of the IVB. |
| Netherlands | ✓ | | ✓ | Maintains at the DLO-Foundation, ID-Lelystad, a National Inactivated Antigen Bank under the authority of the Dutch Government. The bank holds inactivated concentrated antigen of the following vaccine strains: <ul style="list-style-type: none"> • O1 Manisa - 2 300 000 doses; • O1 BFS - 800 000 doses; • A22 Iraq - 900 000 doses; • A24 Cruzeiro - 1 450 000 doses; • Asia1 Shamir - 800 000 doses; • A/Turkij/98 (A/Iran/96) - 275 000 doses; • A Sau 23/86 - 80 000 doses; • C1 Detmold (C Noville) - 380 000 doses; • O/Taiwan/97 - 350 000 doses. All of the strains above have a potency of >3PD ₅₀ . ID-Lelystad will formulate and deliver vaccine within 4 days. The formulated vaccine will fulfil the requirements of the OIE Manual and the European Pharmacopoeia. |
| Norway | ? | ✓ | | Response from 1999: |
| Poland | ? | | | A National Antigen Bank has been maintained since January 1996. The bank is situated at the National Veterinary Research Institute, Zdzunska Wola, Poland. The antigens are equivalent to 80,000 doses of A22 Iraq; 100,000 doses of O1 Manisa; 80,000 doses of C1 Noville and 70,000 doses of Asia 1. |
| Portugal | ? | | ✓ | Response from 1999: |
| Romania | ✓ | | | From 2000, Romania no longer maintains a National Vaccine Bank of formulated vaccine. |
| Slovenia | | | | Has had a contract with the private company Bayer AG in Cologne since 1993 for the maintenance of inactivated, concentrated antigen and its supply as formulated vaccine on demand. Current antigen stocks are equivalent to 100,000 doses of each of the following serotypes: A22 Iraq; A Saudi Arabia; O1 Manisa; C1 Bavaria; and Asia 1 Shamir. |
| Spain | ? | | ✓ | Response from 1999: |
| Sweden | | ✓ | ✓ | Drawing rights on the IVB are for up to 100,000 doses of each of the constituent types and strains. |
| Switzerland | | | | Has had a contract with the French private company Merial for the maintenance of inactivated, concentrated antigens and their formulation and supply as vaccine on demand since September 1996. Stocks of antigen are held equivalent to 330,000 doses of each of the serotypes: A 22 Albania; O1 Iran 94 and C1 Europe; and 220,000 doses of Asia 1. |

| Country | Changed | IVB ¹ | EUVB ² | Strategic Reserves Of Vaccine Or Antigen |
|----------------|---------|------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Turkey | | | | All vaccine production of the State Sap FMD Institute is used in the year of production. |
| United Kingdom | ? | ✓ | ✓ | <p>Response from 1999: No stocks of formulated vaccine are maintained. Member of IVB since 1985. Central storage repository for IVB at The Institute for Animal Health Laboratory at Pirbright which is responsible for the day to day management of the IVB. The bank has the capability to formulate and fill both aluminium hydroxide -saponin and oil adjuvant vaccines.</p> <p>Holds concentrated, inactivated antigen equivalent to 500,000 doses of vaccine of each of the following types and subtypes: A15 Thailand; A22 Iraq; A24 Cruzeiro; O1 Lausanne; O1 Manisa; C1 Oberbayern; Asia1 India 8/79.</p> <p>Previously was one of the designated storage repositories for EUVB. Merial SAS who have a private FMD vaccine facility located at Pirbright, UK currently has the contract with the EU for the formulation, bottling and labelling of vaccine reconstituted from the EUVB in emergency situations. Merial currently stores 2 500 000 doses of A24 Cruzeiro and C1 Noville; 1 000 000 doses of O1 BFS, A/Iran/96, A/Iran/99 and Asia 1 Shamir; and 500 000 doses of A/Malaysia/97, SAT1, SAT2 (E Africa), SAT2 (S Africa) and SAT3 on behalf of the EUVB.</p> <p>Response from 1999: No antigen or vaccine banks are routinely maintained. Given more favourable future economic circumstances Yugoslavia would like to establish a contract for the emergency supply of vaccine with a commercial supplier.</p> |
| Yugoslavia | ? | | | |

[1] IVB: International Vaccine Bank.

[2] EUVB: European Union Vaccine Bank.





Financial Statements and ReportFOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONSEUROPEAN COMMISSION
FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

The European Commission for the Control of Foot-and-Mouth Disease is a body established under Article XIV of the Organization's Constitution for the purpose of promoting and coordinating national and international action for the control of foot-and-mouth disease in Europe and its final eradication. Its funds are handled as a Trust Fund under financial Regulation 6.7, with the symbol MTF/INT/011/MUL.

FUNDS

The Organization does not maintain separate bank accounts for each Trust Fund, but instead manages and invests Trust Fund monies combined in pooled bank accounts. The balance of funds held by the Organization on behalf of the European Commission for the Control of Foot-and-Mouth Disease as at 31 December 2000 amounted to US\$ 195,665.

INCOME AND EXPENDITURE

Contributions to the Commission's Trust Fund amounting to US\$ 322,225 were received from Member countries of the Commission in 2000. Contributions for 2000 amounted to US\$ 303,060, contributions paid in advance for 2001 amounted to US\$ 7,800 and contributions received in arrears for earlier years amounted to US\$ 11,365. The Commission's Trust Fund was credited with interest earned during 2000 amounting to US\$ 9,855, Administrative costs for 2000 amounted to US\$ 310,707.

SERVICES PROVIDED BY THE ORGANIZATION

During 2000 the Organization made available without charge the use of accommodation and facilities, to a total estimated value of US\$ 55,000.

Plato M. Kastanias
Chief, AFFR
Finance Division

MTF/INT/011/MUL - TF number 904200

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

Financial Report as at 31 December 1999 (Final)

| | US\$ | US\$ |
|------------------------------------------------------------|----------------|-----------------------|
| <u>Balance as at 1 January 1999</u> | | 165,612 |
| Interest received | 7,018 | |
| Contribution from member countries (As per statement 2) | <u>297,077</u> | 304,095 |
| <u>Expenditure</u> | | |
| Commission Secretary | 124,428 | |
| Consultant | 9,860 | |
| Admin. Support Personnel | 76,993 | |
| Contracts | 46,262 | |
| Duty Travel | 35,875 | |
| General Operating Expenses | 1,980 | |
| Expendable Equipment | 17 | |
| Non-Expendable Equipment | = | |
| Total Expenditure | | <u>-295,415</u> |
| Balance as at 31 December 1999 (Final) | | <u>174,292</u> |

STATEMENT 2

**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 31 December 1999 (Final)
(expressed in US\$)

| Member Governments | Outstanding 31/12/1998 | Contribution due for 1999 | Received up to 31/12/99 | Outstanding 31/12/99 |
|--------------------------|---------------------------|------------------------------|----------------------------|-------------------------|
| ALBANIA | 46.00 | 2,600.00 | 2,621.00 | 25.00 |
| AUSTRIA | 0.00 | 7,800.00 | 7,800.00 | 0.00 |
| BELGIUM | 0.00 | 13,000.00 | 13,000.00 | 0.00 |
| BULGARIA | 11,364.99 | 7,800.00 | 7,800.00 | 11,364.99 |
| CYPRUS | 0.00 | 2,600.00 | 0.00 | 2,600.00 a/ |
| CROATIA | 0.00 | 2,600.00 | | 2,600.00 |
| CZECH REPUBLIC | 0.00 | 7,800.00 | 7,800.00 | 0.00 |
| DENMARK | -13,000.00 | 13,000.00 | | 0.00 |
| 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 | 7,800.00 | 0.00 |
| HUNGARY | 0.00 | 7,800.00 | 7,800.00 | 0.00 |
| ICELAND | 0.00 | 2,600.00 | 2,600.00 | 0.00 |
| IRELAND | 20.00 | 7,800.00 | 7,800.00 | 20.00 |
| ISRAEL | 0.00 | 2,600.00 | 2,600.00 | 0.00 |
| ITALY | 0.00 | 26,000.00 | 24,706.29 | 1,293.71 |
| LITHUANIA | 0.00 | 2,600.00 | 5,200.00 | -2,600.00 |
| LUXEMBOURG | 0.00 | 2,600.00 | 2,600.00 | 0.00 |
| MACEDONIA, Fed.Y.Rep. of | 15.00 | 2,600.00 | 2,600.00 | 15.00 |
| MALTA | 0.00 | 2,600.00 | 2,600.00 | 0.00 |
| NETHERLANDS | 0.00 | 13,000.00 | 13,000.00 | 0.00 |
| NORWAY | -7,800.00 | 7,800.00 | | 0.00 |
| POLAND | 0.00 | 13,000.00 | 13,000.00 | 0.00 |
| PORTUGAL | 3,900.09 | 7,800.00 | 11,700.09 | 0.00 |
| ROMANIA | 0.00 | 13,000.00 | 13,000.00 | 0.00 |
| SLOVENIA | 649.99 | 2,600.00 | 3,249.99 | 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 | 26,000.00 | 0.00 |
| YUGOSLAVIA, Fed. Rep. of | 60,061.30 | 7,800.00 | 0.00 | 67,861.30 |
| TOTALS | 55,257.37 | 325,000.00 | 297,077.37 | 83,180.00 |

a/ Payment reported in September 1999 was reversed at year-end since amount was not collected.

MTF/INT/004/MUL - TF number 909700

FOOT AND MOUTH DISEASE - EMERGENCY AID PROGRAMME

Financial Report as at 31 December 1999 (Final)

| | US\$ | US\$ |
|-----------------------------------------------|-------|----------------------|
| <u>Balance as at 1 January 1999</u> | | 58,250 |
| Interest received | | 2,067 |
| <u>Expenditure</u> | | |
| Consultancy | 1,831 | |
| Duty travel | 4,371 | |
| Support Costs | 372 | |
| Total expenditure | | 6,574 |
| Balance as at 31 December 1999 (Final) | | <u>53,743</u> |

STATEMENT 4

MTF/INT/003/EEC - TF number 911100

FOOT AND MOUTH DISEASE

Financial Report as at 31 December 1999 (Final)

| | US\$ | US\$ |
|-----------------------------------------------------------|---------|-----------------------|
| <u>Balance as at 1 January 1999</u> | | 955,829 |
| Interest received | 28,206 | |
| Contribution received | - | |
| | | 28,206 |
| <u>Expenditure</u> | | |
| Consultancy | - | |
| Duty Travel | 30,273 | |
| Contracts | 340,000 | |
| General Operating Expenses | -1,582 | |
| Expendable Equipment | -123 | |
| Non-Expendable Equipment | - | |
| Support Costs 6% (on all items except expendable equipmen | 22,121 | |
| Less: Total Expenditure | | 390,689 |
| Balance as at 31 December 1999 (Final) | | <u>593,346</u> |

TEMP/INT/974/MSC TF number 081159**FOOT-AND-MOUTH DISEASE**

Financial Report as at 31 December 1999 (Final)

| | | US\$ |
|------------------------------------------------------|--------|--------------|
| <u>Balance as at 1 January 1999</u> | | - |
| Contributions received | 15,000 | |
| Interest received | 47 | |
| | | 15,047 |
| <u>Expenditure</u> | | |
| Duty travel | | 13,821 |
| <u>Balance as at 31 December 1999 (Final)</u> | | <u>1,226</u> |

MTF/INT/011/MUL - TF number 904200

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

Financial Report as at 31 December 2000

| | US\$ | US\$ |
|------------------------------------------------------------|----------------|-----------------------|
| <u>Balance as at 1 January 2000</u> | | 174,292 |
| Interest received | 9,855 | |
| Contribution from member countries (As per statement 2) | <u>322,225</u> | 332,080 |
| <u>Expenditure</u> | | |
| Commission Secretary | 126,701 | |
| Consultant | - | |
| Admin. Support Personnel | 66,317 | |
| Contracts | 81,391 | |
| Duty Travel | 34,965 | |
| General Operating Expenses | 1,326 | |
| Expendable Equipment | 7 | |
| Non-Expendable Equipment | = | |
| Total Expenditure | | <u>-310,707</u> |
| Balance as at 31 December 2000 | | <u>195,665</u> |

STATEMENT 2

**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 31 December 2000
(expressed in US\$)

| Member Governments | Outstanding 31/12/99 | Contribution due for 2000 | Received up to 31/12/00 | Outstanding 31/12/00 |
|-----------------------------------------------|----------------------|---------------------------|-------------------------|----------------------|
| ALBANIA | 25.00 | 2,600.00 | 2,600.00 | 25.00 |
| AUSTRIA | 0.00 | 7,800.00 | 7,800.00 | 0.00 |
| BELGIUM | 0.00 | 13,000.00 | 13,000.00 | 0.00 |
| BULGARIA | 11,364.99 | 7,800.00 | 19,164.99 | 0.00 |
| 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 | 13,000.00 | 0.00 |
| 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 | 7,800.00 | 0.00 |
| 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, The Former Yugoslav 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 | 13,000.00 | 0.00 |
| 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 | 7,800.00 | 0.00 |
| 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 | 26,000.00 | 0.00 |
| YUGOSLAVIA, Fed. Rep. of | 67,861.30 | 7,800.00 | 0.00 | 75,661.30 |
| TOTALS | 83,180.00 | 325,000.00 | 322,225.28 | 85,954.72 |

MTF/INT/004/MUL - TF number 909700

FOOT AND MOUTH DISEASE - EMERGENCY AID PROGRAMME

Financial Report as at 31 December 2000

| | US\$ | US\$ |
|---------------------------------------|--------|---------------|
| Balance as at 1 January 2000 | | 53,743 |
| Interest received | | 2,406 |
| Expenditure | | |
| Consultancy | - | |
| Duty travel | 868 | |
| Expendable Procurement | 12,061 | |
| Support Costs | 52 | |
| Total expenditure | | 12,981 |
| Balance as at 31 December 2000 | | 43,168 |

STATEMENT 4

MTF/INT/003/EEC - TF number 911100

FOOT AND MOUTH DISEASE

Financial Report as at 31 December 2000

| | US\$ | US\$ |
|-----------------------------------------------------------|---------|----------------|
| Balance as at 1 January 2000 | | 593,346 |
| Interest received | 23,555 | |
| Contribution received | - | 23,555 |
| Expenditure | | |
| Consultancy | - | |
| Duty Travel | 35,493 | |
| Contracts | 340,000 | |
| General Operating Expenses | - | |
| Expendable Equipment | - | |
| Non-Expendable Equipment | - | |
| Support Costs 6% (on all items except expendable equipmer | 22,530 | |
| Less: Total Expenditure | | 398,023 |
| Balance as at 31 December 2000 | | 218,878 |

TEMP/INT/974/MSC TF number 081159**FOOT-AND-MOUTH DISEASE**

Financial Report as at 31 December 2000

| | US\$ |
|----------------------------------------------|--------------|
| <u>Balance as at 1 January 2000</u> | 1,226 |
| Contributions received | - |
| Interest received | 35 |
| | 1,261 |
| <u>Expenditure</u> | |
| Duty travel | <u>1,338</u> |
| <u>Deficit as at 31 December 2000</u> | <u>(77)</u> |

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

Pledges by member countries for the year 2001

2001 US\$325,000

Budgets (expressed in US\$)

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

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

Pledges by member countries for the years 2002 and 2003

2002 US\$325,000
2003 US\$325,000

Budgets (expressed in US\$)

| <u>Budget Acct Code</u> and components | <u>2002 approved by 65 th Ex. Com</u> | <u>2003 to be approved by 34th</u> <u>Session</u> |
|-------------------------------------------|---------------------------------------|-----------------------------------------------------------------|
| 5300 Secretary | 129,394* | 132,629* |
| 5500 Administrative Assistant | 70,923* | 72,696* |
| 5660 Temp assistance and overtime | 7,800** | 7,800** |
| Support staff (interpreters) | - | 15,000*** |
| Subtotal | 208,117 | 228,125 |
| 5650 Contracts | | |
| -Annual contribution to WRL | 35,000 | 35,000 |
| -Collaborative Laboratory Study | 11,200 | 11,200 |
| -Workshop | - | 10,000 |
| 5900 Travel (Secretariat & NST's) | 32,448 | 36,027 |
| 6000 Expendable equipment | - | - |
| 6100 Non-Expendable equipment | - | - |
| 6110 Hospitality | - | 1,000 |
| 6300 General Operating Expenses | - | - |
| 6500 Chargebacks | 800 | 800 |
| Subtotal | 79,448 | 94,027 |
| 6300 G.O.E.Reserve/unallocated funds | 37,435 | 2,848 |
| Total | 325,000 | 325,000 |

* includes projected cost increase of 2.5% on salaries and 4% on travel

** the Commission at its 33rd Session recommended earmarking a certain amount of funds for temporary clerical assistance should the necessity arise.

*** interpreters for 35th General Session

**Summary of the Implementing Agreement between EUFMD and EC
MTF/INT/003/EEC911100 (TFEU970089129)**

**“EC Funded Permanent Activities carried out by the FAO European Commission
for the Control of Foot and Mouth Disease”**

In this document:

- *Commission* refers to the Commission of the European Communities
 - *EUFMD* refers to the European Commission for the Control of Foot and Mouth Disease which is a statutory body established under Article XIV of FAO;
 - *TF* refers to Trust Fund MTF/INT/003/EEC911100 (TFEU970089129)
 - *FMD* refers to foot-and-mouth disease
 - *Tripartite* refers to joint activities of the Commission, EUFMD and the Office International des Epizooties (OIE)
-
- The financial obligations of the Commission shall be set at a maximum of **1.8 million** EURO for a period of 4 years starting on 1 January 2001 and ending on 31 December 2004. On the date of signature of this Agreement, such amount is equivalent to approximately US dollars **1.5 million**. Method and terms of payment and practical modalities to ensure that adequate funds are available to implement the Project Components shall be in accordance with the terms of the Annexes of this Implementing Agreement.
 - This sum will include a specified amount for Project support costs. This support cost will be of 6 % with the exception of vaccine for which no support cost will be charged by FAO.
 - In the event that funds should, for any reason, prove to be insufficient for the achievement of the programme/project, FAO and the Commission will consult each other on the measures to be taken such as an agreed reduction of activities, or, if possible and agreed, a supplementary contribution or, as a last resort, the termination of the programme/projects.
 - Both parties agree that the project requires at the beginning an appropriate level of financial resources assessed at **1 million US \$** (one million US Dollar).
 - To reach this initial amount, the Commission shall make available to the project the residual amount of **226.404 US \$** corresponding to the balance of the TF MTF/INT/003/EEC911100 TFEU970089129 as on 30 September 2000 and a balance subvention of **773.596 US\$**. The balance subvention will be paid as soon as the present agreement will be signed by both parties.
 - Once a year subsequent payments shall be made by the Commission on the basis of the expenditures incurred by the project in accordance with the present agreement.

- Nevertheless in exceptional cases for expenditure related to emergency intervention as defined under Annex (such that the funds remaining available in the project are insufficient to meet another emergency), an intermediary payment may be made by the Commission.
- The total payments by the Commission for the four years period, including the balance subvention referred to paragraph 2 will not exceed **1.5 million US\$**.
- Each expenditure to be charged by FAO to the Project must have prior agreement from the Commission.
- Request for approval of expenditure referred to in paragraph 1 will be sent to:

Head of Unit
 Health and Consumer Protection Directorate-General
 Directorate E - Food safety: plant health, animal health and welfare, international questions, Unit E2 - Animal health and welfare, zootechnics
 Rue de la Loi 200, B-1049 BRUXELLES

Requests for approval will be answered by the Commission services within 30 days after receipt of the request.

Derogating from the provisions in paragraph 1, expenses related to the activities of EUFMD under Category 2 of Annex and agreed in principle prior to their approval under the annual budget of EUFMD shall not require a specific authorisation up to a ceiling of maximum 25.000 US\$ per year.

- Yearly progress reports and a final report will be prepared under FAO's responsibility and addressed to the Commission. The reports of the Sessions of EUFMD and its Executive Committee will be considered as official technical reports for the project. The financial reports for the TF will be included with the above mentioned reports or provided separately, as appropriate.
- The interest generated by the TF and kept in FAO under the project will be kept as credit on the account. The interest rate of FAO for Trust Funds will apply.
- The Project will be implemented in the framework of the Activities of EUFMD. The personnel of EUFMD Secretariat - Secretary, Administrative Assistant and Associated Professional Officer - will be made available for the project by FAO. FAO shall also make available without charge for the project the use of premises and facilities used by the EUFMD Secretariat. The Commission agrees that FAO rules and regulations and particularly those related to procurements are equivalent to those of the Commission and will apply to the project.
- FAO - in consultation with the EUFMD Secretariat - shall procure the equipment and supplies for the project on the basis of an invitation to tender, or by direct agreement when technical, economic or financial reasons so justify

- FAO shall keep the Commission informed regularly as to the technical and administrative execution of the Project, according to the reporting provisions of the Project documents. On completion of the Project, FAO shall submit to the Commission a final report on the execution of the Project containing an evaluation of its results.
- The reports to the Sessions of EUFMD and its Executive Committee shall be deemed as reports referred to in the paragraph above.
- FAO will consult with the Commission prior to any commitment with third parties such as contracts or Letters of Agreement concluded in the framework of the Project.
- The financial statements prepared by FAO for the Project shall be subject to the internal and external auditing procedures laid down in the Financial Rules, Regulations and Directives of FAO. Certified copies of the FAO audited financial accounts and statements shall be submitted by FAO to the Commission on request.

Annex**Project description****Beneficiaries:**

In general, beneficiaries will be the member countries of EUFMD and other countries where the situation of FMD creates a direct or indirect threat of introduction of the disease into one or more of the member countries of EUFMD in Europe.

Project Objectives:

The overall objectives of the project are:

- to prevent or at least minimise the risk of reintroduction of FMD in European member countries of EUFMD,
- to contribute to the strengthening of the measures for prevention of FMD in EUFMD member countries,
- to help the country concerned to eradicate FMD in the shortest delay possible and with minimal costs for the member countries of EUFMD and for the Commission, should the disease be introduced into an EUFMD member country.

Expected Results:

The activities for which the funds provided by the Commission under this Agreement shall be used are the following:

1. Reinforcement of epidemiological surveillance of FMD in the member countries of EUFMD and adjacent countries in Europe and co-ordination of the measures for the control of the disease at regional level;
2. Provision of FMD vaccines and organisation of emergency vaccination campaigns as appropriate in co-ordination with the Commission and the Chief Veterinary Officers (CVOs) of the countries concerned;
3. Reinforcement of the capabilities of EUFMD member countries for diagnosis, surveillance, prompt reporting and effective control of FMD;
4. Organisation of meetings, workshops, seminars as appropriate to fulfil the objectives of the Project.

Programme Activities:

All activities of the Project - as detailed below - and their financial implications should be approved by the Executive Committee and/or by the General Sessions of EUFMD.

Category 1: Emergency actions taken in relation to the occurrence of FMD which can threaten the susceptible animal population in the EUFMD member countries in Europe, including the following activities:

- 1.1 Provision of vaccines and vaccination equipment to EUFMD member countries or to third countries, where the FMD situation presents a direct risk to EUFMD member countries in Europe;

- 1.2 Assistance in organisation of vaccination campaigns on the base of letter of agreement;
- 1.3 Provision of expertise and consultation in relation to emergencies, preferably carried out jointly by the EC and EUFMD/FAO experts;
- 1.4 Supply of small equipment and laboratory reagents for sero-surveillance of FMD and organisation of serological surveys as required by the epidemiological situation;
- 1.5 Other activities related to the prevention, control and eradication of FMD.

Category 2: Routine activities carried out regularly on an annual or biennial base by EUFMD

- 2.1 Organisation of Tripartite meetings and ad hoc meetings;
- 2.2 Participation of Experts from EU Member States in the Research Group meetings;
- 2.3 Organisation of workshops on FMD control measures for experts from EUFMD member countries or personally invited experts from non-member countries who's FMD situation represents a particular interest to the EUFMD member countries or who's expertise is not available in EUFMD member countries;
- 2.4 Letters of agreement with institutes or laboratories for the organisation of sero-surveillance, research or training activities;
- 2.5 Other activities related to surveillance for and control of FMD

Category 3: Other activities, which are not listed above, may be carried out under the Project subject to prior agreement of the Executive Committee of EUFMD and the Commission. For the years 2001 –2004 the special measures to be taken are as follows:

- 3.1 A programme for the control of FMD in Turkish Thrace, including supply of vaccine, vaccination in certain provinces of Thrace, identification of animals and registration of holdings.
- 3.2 Continuous sero-surveillance in the Thrace regions of Bulgaria and Turkey in co-operation with Greece for FMD, including the differential diagnosis to rule out other major infectious disease.

MTF/INT/003/EEC - TF number 911100 FOOT AND MOUTH DISEASE

Financial Report as at 30 September 2000

| | US\$ | US\$ |
|-------------------------------------------------------------------|---------|----------------|
| <u>Balance as at 1 January 2000</u> | | 593.346 |
| Interest received | - | |
| Contribution received | - | 0 |
| <u>Expenditure</u> | | |
| Consultancy | - | |
| Duty Travel | 26.942 | |
| Contracts | 340.000 | |
| General Operating Expenses | - | |
| Expendable Equipment | - | |
| Non-Expendable Equipment | - | |
| Support Costs 6% (on all items except expendable equipment) | - | |
| Total Expenditure | 366.942 | |
| Balance as at 30 September 2000 | | 226.404 |

Table 1 Provisional budgets for the four year Project 2001 - 2004

| | Oracle codes | Budget component | 2001* | 2002* | 2003** | 2004** | Total |
|----------------|--------------|----------------------------------------------------------------|---------|---------|---------|---------|---------|
| Funds Received | 3051 | Contribution received | | | | | |
| | 3052 | Interest Earned | | | | | |
| Expenditure | 5013 | Consultant | 15,000 | 15,000 | 15,000 | 15,000 | 60,000 |
| | 5014 | Contracts | 10,000 | - | - | - | 10,000 |
| | 5021 | Duty travel | 50,000 | 50,000 | 50,000 | 50,000 | 200,000 |
| | 5023 | Training Workshop | 15,000 | - | 15,000 | - | 30,000 |
| | 5024 | Expendable Equip *** | 120,000 | 130,000 | 130,000 | 130,000 | 510,000 |
| | 5025 | Non exp. Equip | - | - | - | - | - |
| | 5028 | Gen Op Exp | 2,500 | 2,500 | 2,500 | 2,500 | 10,000 |
| | 5029 | Project Support Costs – PSC (6 % all items except vaccine) | 5,550 | 4,050 | 4,950 | 4,050 | 18,600 |
| Total | | 218,050 | 201,550 | 217,450 | 201,550 | 838,600 | |
| Balance | | 226,404*** | | | | 661,400 | |

* the yearly budgets for 2001 and 2002 have been approved by the 65 th Sessions of the Executive Committee of EUFMD held on 16-17 November 2000 in Leverkusen-Monheim, Germany

** the provisional budgets for 2003 and 2004 (*in italic*) must be approved by the 34 th Session of the EUFMD Commission to be held on 21-23 March 2001 at FAO HQ

*** the balance as on 30.09.00 is \$ 226,404

**** no PSC on vaccine

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