REPORT OF THE

TWENTY-THIRD SESSION OF THE EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Held in Rome
27-30 March 1979

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Food and Agriculture Organization of the United Nations
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SUMMARY

The 23rd Session of the European Commission for the Control of Foot-and-Mouth Disease met in Rome in March 1979. Delegates from member countries (including Spain which is the twenty-third country to join the Commission) and a number of observers from international organizations and non-member countries reviewed the information available on the incidence of FMD in Europe and elsewhere during the previous biennium and the progress of the prophylactic campaigns undertaken by the Commission in association with FAO and EEC.

Financial arrangements and future activities were discussed and agreed.

The main recommendations of the session are listed below.

RECOMMENDATIONS

R1 Technical problems of vaccine production by cell suspension

The Session recommended that authorities with such problems should consider forming links with national or commercial vaccine producers in western Europe (2.2.1)

R2 Co-operation between Europe and South America

The Session expressed its appreciation of the growing cooperation between Europe and the countries of South America in the exchange of information concerning the control of foot-and-mouth disease. (2.3)

R3 Inactivated antigens

The Session agreed that inactivated antigens could be distributed with safety to a single national laboratory in each country if officially requested. (3.1)

R4 Strategic Vaccine reserve

The Session agreed to request the Commission to determine the availability at short notice of vaccines against AOC in Europe and the protocols for such vaccines by means of a questionnaire to vaccine producing countries in Europe and to request FAO to initiate a feasibility study of the proposal to establish a strategic vaccine reserve (with particular reference to exotic vaccines) and to determine the degree of interest in such a proposal in member countries of the Commission. (3.3)

R5 Pan American FMD Center

The Session expressed its support for and appreciation of the Pan American Foot-and-Mouth Disease Center in Rio and, having regard for its very high standards, recorded the hope that its work would continue, unimpeded, to receive every encouragement and be supported by North and South American Governments and by FAO. (6.2)

R6 International transit of meat

The Session agreed that intermediate countries should be encouraged to accept responsibility for checking so far as possible the certification and origin of meat which passed through their territories.

R7 Importation of game meat

The Session agreed that data be prepared for the 24th Session on the question of importation of game meat especially from Africa into western Europe. (7)

R8 Possible amendment of the Constitution

The Session agreed to refer the question concerning possible amendment of that part of the Constitution which governs the method of appointment of the Secretary to the Commission to their respective governments for consideration at the next session. (10.)

R9 Past decisions

The Session agreed that there should be a review of the various decisions by past Sessions so that they could be updated and consolidated. (12.)

R10 Veterinary task forces

Individual countries which are members of the European Commission expressed their willingness to field veterinary task forces under the auspices of FAO in any country which in an emergency is involved in an epidemic of any exotic disease of livestock which is of economic importance or has severe zoonotic implications. The request for aid would be routed through FAO to the Commission by a national government. (12.)

INTRODUCTION

The Twenty-Third Session of the European Commission for the Control of Foot-and-Mouth Disease was held in Rome from 27 to 30 March 1979.

The Chairman, Dr. A.C.L. Brown (United Kingdom) welcomed those present and invited Dr. D.F.R. Bommer, Assistant Director-General, Agriculture Department, to open the meeting. In his opening address Dr. Bommer said: "It is with great pleasure that I welcome all delegates, experts and observers attending the Twenty-Third Session of the European Commission for the Control of Foot-and-Mouth Disease.

A special welcome is extended to those who are participating here for the first time and to the representatives of the European Economic Community and of the World Veterinary Association. It is with particular pleasure that I welcome the delegation of Spain which in 1978 became a member of the Commission. As you are aware, Spain has already made a very substantial contribution to the work of the Commission over the years during which the country's membership was being negotiated.

The fact that so many distinguished personalities in the veterinary world and representatives of international organizations and institutes are assembled here in response to our invitation illustrates once again the importance of foot-and-mouth disease. The current membership of the Commission which now numbers twenty-three countries underlines the important role played by the European Commission both as a reference and coordinating body for action for the control of the disease in the European continent.

We hope that from your frank analysis and discussion of events which have taken place since the last session in March 1977, you will be able to formulate clear recommendations on what is considered necessary to ensure further progress towards full control of FMD in Europe, an objective which we consider to be capable of achievement.

While leaving it to your competence to go deeper into the examination of these matters, I would like today to make a few comments on the history of this Commission which met here for the first time 25 years ago, in April 1954. The first session was called as soon as six countries had been found ready to adopt the constitution of the Commission. Some of you may remember that it took several years to convince government authorities that in establishing the European Commission, FAO had no other objective or ambition than to implement the principle, fundamental to its structure and policy, of a regional approach to problems of worldwide importance. Such an approach was urgently required in Europe in the early fifties, when FMD was raging almost unhindered from one end of the continent to the other.

In adopting the Constitution, governments selected from a range of alternatives a method of consultation, conduct and coordination that has proved to be appropriate to the needs of Europe. I believe that by providing this forum for government authorities to assess regularly the disease position and to recommend national and international action, the Commission has substantially contributed to the stimulating of initiatives in FMD control.

We are all aware that foot-and-mouth disease extends far beyond the confines of Europe. Present indications are that an increasing number of countries which hitherto have not paid much attention to FMD are now taking steps to control the disease more effectively. This is particularly true for countries in other regions which have embarked upon cattle improvement programmes, especially dairy cattle improvement. It is also clear that FAO and other technical assistance agencies will be called upon increasingly to provide advice and support for programmes in many developing countries. Sooner or later, these programmes will require a regional or subregional approach. I believe that both for national and international programmes, the experience of the European Commission can serve as an excellent model, and I would expect that calls will be made increasingly upon the Commission, through FAO, to provide advice and expertise. I am sure that we can count upon the Commission to respond.

I now declare the Session open and wish you a very successful meeting".

The Chairman thanked Dr. Bommer and invited Dr. Harry C. Mussman, Director, Animal Production and Health Division to speak.

Dr. Mussman noted that during the past 25 years, and especially during the last 5-10 years, much had been accomplished by the Commission. He suggested that the Commission had reached a point where it and the European experience could be cited as an example to those in other parts of the world where countries are just beginning to tackle the complexities of foot-and-mouth disease. He added, however, that although a superficial review of statistics on outbreaks of the last few years would suggest that eradication on the Continent could be achieved relatively easily, a closer study of individual outbreaks would indicate areas that need strengthening. He cited occasional gaps in surveillance and reporting systems, suggestions of failure or inadequacy of vaccination programmes to meet changing epizootiologic situations and, perhaps inadequacies in quarantine programmes as examples to show that Europe is still vulnerable to this disease.

Dr. Mussman then reviewed a list of elements which he considered necessary for conducting a successful eradication campaign and noted that in essentially all member countries of the Commission, each of the elements was being dealt with effectively. From this he drew the conclusion that improving surveillance and reporting, tightening up quarantine measures and continuing the review of vaccination programmes, appeared to be the areas to which major attention should be given.

Finally, Dr. Mussman cited growing interest in FMD control in Africa, Asia and Latin America and suggested that possibly a body similar to the Commission could assist countries in these regions in developing their own effective control programmes. He concluded by requesting the Commission to whole-heartedly support FAO efforts in working with these various countries so that they might benefit from the experience gained on the European Continent.

Dr. Brown thanked Dr. Mussman for his kind remarks and, before proceeding to deal with the agenda, welcomed Dr. Stouraitis, the recently appointed Secretary to the Commission who was attending his first session in that capacity. He also welcomed Dr. Boldrini, former Secretary of the Commission, who would be reporting on the Commission's activities during the period since the last session until his retirement in 1978. As Chairman, Dr. Brown was particularly pleased to welcome all those attending for the first time and especially the delegates from Spain who were now attending as full members.

1. -- Adoption of Agenda

The following agenda was adopted:

1. Adoption of Agenda
2. FMD position and campaigns in Europe during the last biennium
3. Position and campaigns in southeastern Europe and Anatolia
4. FMD situation in North Africa, Near East and other regions of particular interest to Europe
5. Position and control of swine vesicular disease in Europe
6. Review of problems related to:
   a) identification of new strains of FMD virus and relevant diagnostic facilities
   b) production of vaccines against FMD types and sub-types not present in Europe
   c) concepts for a strategic reserve bank of foot-and-mouth disease vaccines

7. Report of the Executive Committee on the Commission's activities during the biennium

8. Future activities and proposals concerning competence and role of the Commission

9. Financial report - approval of budgets

10. Election of the Chairman, Vice-Chairmen and Members of the Executive Committee

11. Amendments to the Constitution

12. Adoption of the Report of the Session

13. Any other matters

I FOOT-AND-MOUTH DISEASE

2. Summary of events during the last biennium

The Secretary introduced working paper AGA:EUFMD/79/2-5* and a number of delegates and observers gave the latest information on the FMD situation and vaccination programmes in their countries.(see Appendix B I - Executive Committee Report 1979)

2.1 Europe, including campaigns

The Netherlands continues to vaccinate annually with trivalent vaccine and has had no outbreaks since January 1977 (further details in Report of XXII Session). The Federal Republic of Germany reported confirmation of one outbreak of A virus type and five of C virus type during the biennium. Annual vaccination continues. France reported that after a ten-months gap following the single outbread (C virus) in sheep near Marseilles, three cases of FMD type O had been detected in Calvados Department in pigs and cattle since 19 March 1979. The usual zoosanitary measures were taken. Compulsory trivalent vaccination of 320,000 sheep involved in transhumance in the south of France has been carried out since the 1978 case and sheep on the border with Spain are also vaccinated.

In response to a question from the Chairman, the observer from France said that the origin of the case in sheep in 1978 was unknown but the owner was a breeder and dealer in sheep and also an importer. The delegate from Switzerland said that the single outbreak (type C virus) in March 1978 in his country was discovered in 12 unvaccinated fattening cattle in a herd in which all other cattle had been vaccinated 15 days previously using a French vaccine left over from 1977. Later it had been established that 2 of the other cattle became sick 5 days after vaccination. The delegate from Italy drew attention to the 18 outbreaks which occurred in 1977 and to the 25 outbreaks in 1978. In both years virus types A, O and C were recorded. In January 1979 there were two outbreaks in Sicily and in February 1979 type A virus occurred in two small farms on the mainland of Italy at Novara. The delegate from Malta reported 14 outbreaks of disease (type A_5) between 24 November 1978 and 18 December 1978. Animals in the island had not been vaccinated and the first cases were seen in cattle in

* Footnote: available from secretariat on request

contact with imported Hungarian cattle which had passed through Yugoslavia 15 days before the outbreak. The origin of the outbreak could have been cattle boats (and/or cattle dealers) plying between Yugoslavia, the north African coast and Malta. Vaccination of all ruminants had now been completed for the second time. Italy had provided vaccine at a cost equivalent to that of vaccine used in prophylactic campaigns in Italy.

The Secretary and Dr. Boldrini had both visited Malta to advise on measures to combat the disease. Dr. Boldrini complimented the authorities in Malta on their efforts especially in view of the small veterinary service. They had been able to control the outbreak on this occasion without the use of veterinary personnel from abroad. The delegate from Spain said that the following disappearance of the disease in July 1977, there had been two outbreaks of type C virus in pigs in March 1979 in the Gerona area. The origin was obscure. Compulsory vaccination had been carried out of pigs and cattle in Gerona using trivalent vaccine. Vaccination was also currently practised on the frontier with France. All the usual disease control precautions had been taken. (see Appendix B I (a))

There was considerable discussion on the relationships to each other of the various A strains obtained from European outbreaks in the last two years, and their relation to South American strains. The World Reference Laboratory and the Pan-American FMD Centre jointly published a preliminary study of strains isolated in 1976/77. This study suggested a general family relationship among the strains examined and emphasized a difference from the earlier A_5. There were some closer links between specific pairs of strains such as, for example, A Sicily/77 and A Venceslau Brazil/76.

2.2 South-eastern Europe and Anatolia, including campaigns

The delegate from Greece gave details of the two outbreaks in Greece in 1977 caused by A type virus and affecting cattle and pigs. There had been no further outbreaks since October 1977. Yugoslavia drew attention to the report of the outbreak in November 1978; details of this outbreak are given in the report of the Forty-First Session of the Executive Committee , 1979. The delegate from Hungary said that his country had not recorded the disease since 1972. Bulgaria has been free of the disease since 1973. The delegate from Turkey gave details of the disease incidence and campaigns in Thrace and Anatolia. In Thrace after 4 years freedom there were four outbreaks of O_1 virus infection between April and October 1977 generally in young unvaccinated cattle. There were 32 outbreaks in this area in 1978 but since 2 November 1978 there had been no further cases. In Anatolia in 1977 there were 729 outbreaks mostly type O_1 but A_{22} showed a remarkable increase that summer. In 1978 there were 792 outbreaks in Anatolia again O_1 and A_{22} viruses having been typed with prevalence of O_1. Throughout the biennium in both Thrace and Anatolia cases were generally mild in character and collection of samples for typing was therefore difficult. In 1977 the Ankara FMD Institute received 1246 specimens of which 541 were typed as O_1 and 324 as A_{22}. No virus was recovered from 381 samples. In 1978, 1,323 samples were received; 756 were found to be O_1, 181 were A_{22} and no virus was recovered from 376 samples. In 1979 (January to March) there have been 61 outbreaks in Anatolia while Thrace remained free. No cases of A_{22} have been reported in Thrace during the biennium.

Details were given of the vaccination campaigns conducted in Thrace and Anatolia during the biennium. (see Executive Committee Report 1979) and of vaccine trials carried out at the Ankara Institute. The Chairman pointed out that EEC Trust Funds were available only for use in mainland Europe and could not be used to purchase "traditional" European A, O and C vaccines. However since there may have been antigenic drifts in the O type in Turkey this strain could possibly be considered as unusual to Europe and so EEC had allowed the use of the Trust Funds for the continuation of the vaccination campaigns in south-eastern Europe.

The Turkish delegates and Dr. Girard provided the Session with an assessment of progress to date in provision of vaccine production facilities and in the discussion that followed it was pointed out that there would be a shortfall in 1979 of about 2 million doses of vaccine to complete the campaigns in Thrace and Anatolia. (see below)

The Chairman asked Dr. Fontaine (IFFA) to introduce a paper "Serological and Immunological Studies of strains of FMD virus from the Near East O_1 Manisa 1969/01 Oltu 1977" (see Appendix B 8) which had been distributed to participants. The conclusion of this paper is that O_1 Manisa strain is significantly different from the O_1 conventional European strain. Dr. Fontaine said that, following an interruption, production had now resumed at the IFFA Institute in Iran and it was hoped that it would be possible to supply vaccine in the quantities required to meet the needs of the 1979 Spring campaigns in the Thrace buffer zones.

Asked if it was necessary to consider the inclusion of this strain in the vaccines to be used in the campaigns in southeastern Europe, Dr. Brooksby advised the use of a double vaccination system with the conventional strain (which has been effective) pending results of further experimental work.

Turkey reported that experimental work was in progress to determine whether or not O_1 Manisa vaccine could protect against O Çanakkale strain using cattle vaccinated against O Manisa and challenged with O Çanakkale. The Chairman drew attention to the proposals of the Executive Committee contained in the Report of its 41st Session (Appendix B I) for the implementation of the vaccination campaigns for 1979, and asked if the Turkish delegation could confirm their ability to implement the plan as agreed. The Turkish delegation stated that the amount of vaccine provided by FAO for the Spring campaign in Thrace was not enough to cover the whole area so that an additional amount of vaccine should be provided in order to complete the vaccination campaign in Thrace and Anatolia. The total requirement is in excess of two million doses against an earlier agreement to provide about 400,000 doses. After further discussion the Chairman stated that he could not see how funds could be provided for such a large amount of vaccine. The problem was due to vaccine production difficulties at Ankara and the session considered this topic at greater length. (see below)

2.2.1 Infrastructure of and assistance to FMD laboratories in southeastern Europe

- Turkey

The Chairman asked the Secretary to state the situation of the FMD laboratory in Turkey during his last visit there and the conclusions reached by the consultants provided by the Commission to assist the Ankara FMD laboratory to overcome the problems related to cell production in suspension. Dr. Boz and Dr. Girard reported on the problems of the FMD laboratory in Turkey stating that the main difficulty concerned the quality of the water which was used for tissue cultures; consultants on water technology provided through the UNDP project confirmed the water was unsuitable because of its chemical composition and that the existing equipment at the Institute was incapable of purifying the water.

Fortunately another source - a deep well - was available and Drs. Boz and Girard stated that this water would seem to be more suitable and it was hoped to start production very soon. Mr. Stone from AVRI had made extensive tests and had established that the water from this deep well was satisfactory. Further investigation would be aimed at the selection of the most suitable cell stocks. They also reported on the progress of the construction of the new FMD laboratory for large-scale vaccine production; if EEC support was forthcoming the Turkish delegates believed that the laboratory could be operational by the end of 1981.

Dr. Contardo (EEC) said that EEC had received a request for three million dollars additional to the one million already supplied and that no decision had yet been made on this request.

The Chairman said he had no doubt that the Turkish authorities would solve their problem in the long run but suggested that they should consider forming links with national or commercial vaccine producers in western Europe in order to shorten the period. He gave as examples the successful partnerships between IFFA and Iran, IFFA and Botswana, Padua and Cairo, and Brescia/Bulgaria. He was not optimistic that funds would be made available to accelerate a solution to this problem. Dr. Rojahn supported this idea.

- Greece

The Chairman complimented Greece on her success in FMD control and asked the Greek delegation if production of vaccine in Greece was sufficient for their needs. Dr. Brovas confirmed that Greece was self-sufficient with regard to vaccines and informed the session that improvements were being made in laboratory security measures.

- Bulgaria

Dr. Ourouchev outlined the provisions of UNDP project BUL/77/011 which aims to help establish self-sufficiency in vaccine production. Pilot laboratory procedures had successfully produced 600,000 monovalent vaccine doses using monolayer and a 30-litre fermentor. Recently a 250 litre fermentor had been successfully operated. It is planned to construct a new institute in 1980 for large scale vaccine production. By the end of 1980 it was expected to have a capacity to produce two and a half million doses of monovalent vaccine with the existing pilot laboratory.

2.3 North Africa, Near East and other regions

- Morocco The Secretary said the main problem in North Africa in the last biennium was disease in Morocco associated with an unconventional A type virus. Drawing attention to the relevant working document (AGA:EUFMD 79/2-5), he added that in March 1979 Professor Panina had made a second visit on behalf of FAO (TCP programme) to prepare the final report. Turning to Algeria the Secretary regretted the dearth of information from that country and the fact that an offer by FAO to provide a consultant had not been taken up. In Egypt local staff have now assumed full responsibility for the work begun under the UNDP project; this project has been completed in cooperation with the Italian Government and its FMD institutes.

The Secretary observed that problems with cell suspension vaccine production require sophisticated solutions and that developing countries are unlikely to be fully successful using this method in the absence of close collaboration with experts from those countries which have mastered such techniques. The IFFA - Botswana collaboration is a good example of what can be done in an emergency situation to resolve a local problem.

The Chairman invited Dr. Fontaine to give details of the IFFA-Botswana collaboration. Dr. Fontaine said that in view of the emergency situation a pilot laboratory had been prefabricated in Lyons and airlifted to Botswana and had been in full operation since September 1978. 10,000 doses of SAT 2 vaccine had been prepared by the Frenkel method using a strain of virus isolated from the field in Botswana in 1978. This vaccine was tested in the period Nov. 78

to April 79. The pilot unit is capable of producing 50,000 - 100,000 doses per week. In may 1979, assuming initial progress is confirmed industrial production will be commissioned with the aim of producing 5 million doses of trivalent vaccine annually. Even at this early stage Botswana has been able to export vaccine in limited quantities to Senegal.

- South America The Chairman said that he regretted that it appeared that exception had been taken by some south American countries to some remarks during the 40th session of the Executive Committee in February 1978 on paucity of information emanating from that continent. However he was pleased to say that the situation had now greatly improved.(Tables 1 and 2) On the initiative of the Chairman, the Session agreed to express appreciation of growing cooperation between Europe and the countries of South America in the exchange of information on progress towards the control of FMD.

The Secretary reported on his mission to South America (Appendix B3) and expressed regret that the Director of the Pan American Center for FMD had been unable to attend the Twenty-Third Session of the Commission.

The Chairman invited Dr. Moulton to make a statement on the Darien gap. Dr. Moulton said that the Cooperative Agreement with Colombia remained intact but was being reviewed by both governments to make it more effective; also that there had been no outbreaks of FMD in the eradication zone of Colombia since May 1974. (see Appendix B9)

3. Problems concerning identification of new strains and production of vaccines against types and subtypes not present in Europe

3.1 Identification of new strains of virus and relevant diagnostic facilities

At the request of the Chairman this item (Executive Committee Report '79) was introduced by Dr.Boldrini who gave a brief review of the action taken by the Commission over a number of years in assisting countries to develop their own facilities for identification of FMD viruses. Inevitably problems arise in this field and some of these were discussed recently by the Executive Committee. One of these relates to the identification of strains not normally found in Europe and this is particularly a problem for state laboratories because these establishments do not handle all of the antigens for the essential diagnostic tests at sub-typing level. In the case of commercial laboratories, thanks to their network in other continents, they are less likely to be handicapped in this way. In the discussion Dr. Brooksby said that the Research Group had considered the question of distribution to countries in Europe of a set of inactivated antigens representative of the world FMD situation and had come to the conclusion that this was a matter to be discussed by the Commission. However, the Research Group had agreed that the first priority was the provision of standardized sera for identification of field strains. Dr. Boldrini explained that while serological identification was useful there was also a need for investigation of the immunological relationships between strains; hitherto this had been somewhat neglected because of danger of handling exotic viruses and the expense of cross-immunity trials. The Chairman invited comments on the proposisiton that the inactivated antigens under discussion should be made available to member countries for diagnostic purposes. Discussion then took place in which France, Italy, the Federal Republic of Germany, Dr. Brooksby and others participated and in which the purpose of improvement of diagnosis was outlined.

The Session agreed that inactivated antigens could be distributed with

safety to a single national laboratory in each country if officially requested.

Further discussion took place on extension of this proposal to include live viruses but this did not meet with general approval although some members were in favour in certain circumstances. It was therefore considered more appropriate for this topic to remain with the Research Group for the time being. The Group should be asked to identify the need for such antigens and their proposals relative to the security risks involved.

3.2 Production of vaccine against virus types and subtypes not present in Europe

Dr. Boldrini introduced the discussion on the activities of the Commission and FAO concerning the provision of exotic vaccines for Europe.

Reference was made to the good results obtained by the Commission during the last 17 years in the use of exotic vaccines in campaigns in southeastern Europe and Anatolia. Experience in these campaigns has shown that the use of inactivated exotic vaccines obtained by FAO for Institutes which offer sufficient guarantees as to innocuity and safety of their production had caused no problems with regard to residual infection.

Despite the success of these campaigns, Europe remains at risk from the introduction of exotic disease from many parts of the world. In view of this there is an urgent need for the development of safe and reliable sources of exotic vaccine for any emergency which might arise within Europe. Attention was drawn to the deliberations of the Special Consultation on the Regionalization of FMD vaccine production which took place at FAO headquarters in 1974 and to the regionalization policy as approved by the XXIst session of the Commission.

The meeting reviewed the activities of the Commission in ensuring the provision of stocks of exotic vaccines at AVRI during the years when the Institute was engaged in the production of vaccines. It was acknowledged that the main stocks of exotic vaccines were those traditionally held by the Wellcome Company at Pirbright (Table 3). These remained a significant insurance cover until further progress was made in the regionalization of the production of the so-called exotic vaccines. In view of the change in the Institute's policy the Commission arranged for the provision of seed virus stocks at the same Institute. (see Appendix II of the Executive Committee Report 1979) The time had now come to reconsider the adequacy of these provisions and to fit them into a world strategy.

3.3 Concepts for a strategic Reserve Bank of FMD vaccine

The Chairman asked Dr. Boldrini to introduce this topic (Appendix B2).

Dr. Boldrini said that a vaccine reserve is of primary interest to those countries which are disease free, have no experience in vaccine manufacture and, because of their geographic location are situated outside an epizootiological/ prophylactic system (e.g. Australia, Japan). In Europe, the combination of very important factors, such as experience in discovering and dealing with new outbreaks, considerable vaccine production potentials, and the multiplicity and versatility of virus production techniques, would give little chance to a new virus to become pandemic, as happened in 1951-52, before large quantities of the corresponding vaccine had been made available on the market. There could be however a critical gap before a suitable vaccine could be prepared.

The establishment of a vaccine reserve seems, therefore, to be justified

only if it is conceived as a strategic multinational operation aimed at furthering FMD control globally as a world problem. This would link prophylactic operations in the developing world with the interests of all countries, whatever their geographic location, which have succeeded in becoming disease-free.

Dr. Boldrini drew special attention to the question of disease security of the vaccine production plants supplying the bank, the minimal quality requirements of the vaccines, the numbers of monovalent types to be produced and/or stored and the criteria for the quality control of the vaccines and the programme for their replacement.

The discussion which followed was in two parts regarding (i) the conventional OAC vaccine and (ii) the production of vaccines against strains which are exotic to Europe. Members agreed that there was no problem about the production of adequate quantities of conventional OAC vaccine produced in Europe so that it was not necessary for the bank to be concerned with production or purchase of these vaccines but merely to ensure the availability of vaccine of acceptable quality at short notice; some members however drew attention to a possible difficulty regarding availability of oil-adjuvant vaccine for use in pigs.

Provision of vaccines against exotic viruses was then discussed and various delegates supported the proposal in principle. The Italian delegate pointed out that the proposal should not conflict with the regionalization policies of FAO and that the vaccine stocks should be prepared only in countries where the corresponding strains are present; if the latter condition proved impracticable any proposal to produce exotic vaccine in a European Institute, no matter how satisfactory its security, should be authorized only by a competent international group recognized by the Commission. He added that in exceptional cases when vaccine production is not possible within the area where the disease is present, the Committee responsible for the Bank could authorise production at another Institute in agreement with the Government concerned. In this case it should be understood that any losses caused by accidental escape of the virus from the Institute in question would be compensated from an international fund based on contributions from the countries adhering to the Bank.

The Session agreed to request the Commission to determine the availability at short notice of vaccines against OAC in Europe and the protocols for such vaccines by means of a questionnaire to vaccine producing countries in Europe and to request FAO to initiate a feasibility study of the proposal to establish a strategic vaccine reserve (with particular reference to exotic vaccines) and to determine the degree of interest in such a proposal in member countries of the Commission.

II SWINE VESICULAR DISEASE

4. Position and control of SVD in Europe

The Chairman drew attention to the information contained in the working paper relevant to item 5 of the Agenda on the occurrence of SVD in Europe during the biennium (Executive Committee Report, 1979). Further to that report there had been outbreaks of SVD in 1979 in Belgium and Great Britain, and the Chairman asked the Belgian delegate to give details of the outbreak in that country. The first case of SVD was discovered on 12 January 1979, the second on 19 January

1979 and there were two further cases that month. At first it was thought that the disease was FMD and all the usual FMD control procedures were invoked (including slaughter and compensation). None of the four farms used waste food; one of the farms was recognized as a prime breeding establishment and attracted many visitors. One method of spread of the disease had been the use of travelling boars but surprisingly despite a very large number of breeding movements only two farms were infected in this way. The Belgian authorities had carried out a number of serological control tests and these had all been negative. In view of the fact that no further cases were found in Belgium, restrictive measures were lifted as from 19 February 1979.

The delegate from Denmark presented the results of serological surveys carried out in his country in 1973, 77 and 78. In 1973 and 1977, 600 serum samples were collected from boars at various slaughter houses. In 1978, 2,962 sera from 246 breeding centers throughout Denmark were also collected. All serological tests were carried out at the State Veterinary Virus Research Institute, Lindholm. The results were evaluated after the method used at Pirbright. The survey demonstrated that Denmark is still free from SVD.

The Chairman presented a report on the history of SVD in the United Kingdom (Appendix B7). The disease reappeared in the UK in January 1979 after 20 months freedom. The viruses in the recent outbreaks in Belgium and the UK in 1979 were unknown. During the discussion the delegate from Spain asked for further information on the "inapparent carriers" of SVD. Dr. Brooksby said that he had never seen transmission from a sub-clinically affected animal though in one experimental pig clinical signs had appeared following stress some weeks after the initial exposure to the disease. It was possible that, rarely, such an event might take place in the field and that further spread would be initiated from such a pig which had by then developed lesions. There was, however, no evidence of a true carrier state. If a pig has an inapparent infection it is probable that there is an initial circulation of small amounts of virus and that this is followed rapidly by the appearance of neutralizing antibody, after which the pig is no longer a source of infection.

It is necessary to distinguish between a real antibody response and very low titres which may be associated with other porcine enteroviruses. Titres of 1:16 are frequently found in pig populations which have never been exposed to SVD and it is obvious that non-specific factors play a part in this. Both in Denmark and in Northern Ireland low levels of non-specific antibodies were detected in serum surveys but neither country has recorded SVD. The Chairman commented that UK had established a pig serum bank to enable retrospective surveys to be carried out.

Dr. Moulton (USDA) introduced a paper "Residual viruses in foodproducts" (Appendix B10), and stated that SVD virus can survive in dried salami and peperone sausage for at least 400 days.

In response to a question suggesting a parallel between the carrier state in African swine fever and in swine vesicular disease, Dr. Brooksby pointed out that there is a marked difference between the response of the animal to the two infections. In ASF there is no circulating neutralising antibody and a recovered pig will continue to excrete virus for an indeterminate period. In SVD neutralising antibody develops and the pig ceases to excrete virus, there being no evidence of a prolonged carrier state.

The delegate from the Netherlands said that his country intended to carry out a serological survey for SVD there having been no outbreaks since the single case in November 1975.

Italy said that there had been 22 outbreaks of SVD in 1978 all of them in the first six months. "Stamping out" is not practised but the premises are isolated until 30 days after the last case and measures taken to prevent movement of infected pigs for export or for slaughter.

Malta reported that within six months of the first outbreak of SVD in the autumn of 1975 most pig premises on the island were infected and within a year clinical signs and lesions were no longer found either on the farms or at slaughter. Although a small number of pigs died or aborted at the outset, within a short time the economic effects of the disease were negligible. Dr. Brooksby said that Pirbright still receives positive samples from Hong Kong where the disease had now existed for almost a decade. France in common with all other EEC countries has made SVD notifiable but does not stamp out because SVD is not an important disease of pigs; no outbreaks had been confirmed in recent years.

Austria said that SVD had been notifiable in that country since 1978 and that outbreaks of the disease took many different forms. The Austrian authorities had acquired the power to stamp out or to quarantine infected herds according to the circumstances of the case.

The delegate of the Republic of Ireland confirmed that SVD is a notifiable disease in that country but had never been recorded. The zoosanitary control measures were similar to those of U.K.

III OTHER DISEASES OF CONCERN TO EUROPE

5. African Swine Fever as a complication of FMD

The recent spread of African Swine Fever within Europe was noted. This disease had complicated the problems of control of FMD in Spain, Portugal and Malta during the biennium (see Appendix B III) and had also invaded Sardinia where, fortunately, FMD was not present. (See also paragraph 12 of this Report).

IV ACTIVITIES OF THE COMMISSION

6. Report of the Executive Committee on the Commission's activities during the biennium

The Chairman invited comments on this Report (Appendix B3).
The following comments were made:

6.1 General and current activities

Dr. Rojahn asked if seed virus stocks ought not be extended beyond the six listed in the Table 3 (para. 1.3 of Appendix B3 also refers). Dr. Brooksby replied that the Research Group did not necessarily consider the list to be complete but it was not always easy to produce vaccine on a commercial scale quickly enough from seed viruses. The Research Group was therefore inclined to prefer to move to the storage of inactivated antigens, the so-called "vaccine concentrates". The

Research Group is awaiting the results of certain experiments before coming to a final decision on this. Any significant developments in this technique could influence the decisions on the setting up of a vaccine bank.

6.2 Special and other activities of the Commission and its secretariat

The Secretary informed the Session that the regionalization plan for the Bulgarian Institute had been postponed but that the Institute would go ahead in order to supply the needs of Bulgaria. The Institute is now scheduled to be constructed in 1980.

The Secretary reported that, with reference to the information given in Appendix B3 (page 6), he attended together with the Director of the Animal Production and Health Division, FAO, the "Hemispheric Meeting on Foot-and-Mouth Disease and International Trade of Meat and Livestock" organized by the Organization of American States and PAHO, in Buenos Aires, Argentina in November 1978. The FAO and European Commission's position and suggestions concerning FMD control in S. America were illustrated by Dr. Mussman on the basis of an ad hoc document prepared in Rome in collaboration with the former Secretary (copies of this document are available to members of the Commission on request).

The Secretary expressed his appreciation of the collaboration and hospitality received during his visit and regretted that it was not possible for the Director of the Pan American FMD Center to attend the present session; it had been hoped that the Director would have been able to inform members of the latest developments in the FMD situation in South America, including some details of the use of oil-adjuvant vaccine in cattle. Among the resolutions of the Hemispheric meeting, that presented by the Mexican Delegation concerning the "Appointment of a Commission to Study the establishment of an Inter-American Institute for Animal Health", was of particular interest.

The Secretary also attended the meeting of the "Sextas Jornadas Internacionales de la Facultad de Ciencias Veterinarias" where the above-mentioned document was also presented. A visit has also been paid to the Pan American Foot-and-Mouth Disease Center in Rio de Janeiro, where discussions were held on the problems of the FMD virus strain and particularly those isolated in Europe and considered to be related to the South American strain.

Dr. Griffiths added that since PAHO as part of WHO is required to concentrate its activities on human health affairs including zoonoses, it has been found necessary to place tight limitations on expansion into other areas of animal health, e.g. African Swine Fever. This was a major reason for the proposal to convene a "Commission to study the establishment of an Inter-American Institute for Animal Health" to which Dr. Mussman has been appointed as FAO representative.

The Chairman proposed that the meeting should express its support for and appreciation of the Rio Center and, having regard for its very high standards, record the hope that its work would continue unimpeded to receive every encouragement and be supported by North and South American Governments and by FAO.

The Session agreed to this proposal taking note of the comment of the Federal Republic of Germany that the Commission's primary interest lay in Europe.

6.3 Conclusions and recommendations of the Research Group

Since Dr. van Bekkum, Chairman of the Research Group, was unable to attend due to illness, Dr. Brooksby introduced the discussion on paragraphs 3.1 and 3.2 of the report of that Group (Appendix B3)

It was a fact that there were often significant differences between individual laboratories in virus titration and virus neutralization test results. It had

become necessary to distribute not only virus but tissueculture cells as well when conducting quality control exercises. The Group hoped to be able to issue standard reagents in the next year or so. There had been criticism of the old subtype nomenclature and it was perhaps better to speak of "standard reference strains" (i.e. vaccine strains). The Group felt that it was probably not opportune to change the composition of vaccine strains although there may be some case for this on the borders of Europe. The International Association of Biological Standardization was considering standard vaccine strains and the Group was watching this with considerable interest.

Dr. Broooksby concluded by emphasizing that the Research Group is a very useful forum for exchange of views and information and this is a very important aspect of its meetings.

The Chairman congratulated and thanked the Research Group for its excellent work which had achieved international recognition. Dr. van den Berg asked if there was any connection between the work of the Research Group and that of the European Pharmacopoeia in Strasbourg. Dr. Brooksby replied that the Group was not always in agreement with the E.P. and said that there were quite a few points of principle to be clarified before the Group could accept pronouncements by the E.P. on FMD matters. The Chairman said that both at EEC and at Tripartite level there had been some discussion on this topic. National governments must ensure that the E.P. came to the correct veterinary decisions perhaps by means of inclusion of veterinary experts in E.P. discussions. Members should be aware that the E.P. is established by member countries of the Council of Europe and signatory nations of the convention are bound by its enactments.

Dr. Rojahn drew attention to paragraph 3.3.3 on page 9 of the Appendix B3 and doubted if the word "exotic" was correct in this context. The Chairman explained that this point had been discussed at the Executive Committee ad hoc Consultation held in Paris in May 1977.

(Note by secretariat: for easy reference the relevant minute of that meeting is reproduced below)

> Problems connected with the manipulation of A Morocco and similar strains in Europe. Conflicting opinions have been expressed as to whether A Morocco should or should not be considered as an exotic strain for Europe. When dealing with the "carrier state" and with reference to a statement approved by the European Commission at the Twenty-Second Session (Rome, 29 March - 1 April 1977), the Commission's Research Group defined as "exotic" any virus strain that is new to the region and against which the available vaccines do not show the accepted standard of potency. If this definition is accepted, the term "exotic" should be applicable to A Morocco and also to other similar strains isolated in Europe, e.g. the Aachen-Limburg strain (1976). A potency test effected at Lelystad showed that 4 out of 10 cattle, revaccinated with A_5, came down with FMD when challenged against A-Aachen three weeks later (van Bekkum).
>
> In Morocco, the protection conferred by A_5 even after booster vaccination proved either very unsatisfactory or very short-lived against the local strain. In the light of the Moroccan experience, it would be very dangerous to base the defence of Europe on the use of A_5 vaccines.
>
> Nevertheless, there are experts who claim different

results and prefer to restrict the terms of "exotic" to different types or very different subtypes of FMD virus such as the A_{22} group.

One rather paradoxical result of such a wide difference of opinion is that A Morocco is being manipulated in the absence of any official communication or request for derogation as would be expected following the deliberations of the special meeting called by OIE at Vienna in October 1962 and at Paris in December 1965. The Executive Committee was much concerned about this and one member reserved freedom of action, especially regarding importation of potential virus carriers, should the production of A Morocco virus continue to be undertaken on the continent.

Dr. Robijns gave some details of the challenge experiments using A Netherlands 1977 on a group of 12 pigs immunized against A 10. Following challenge at one week 2/5 were protected against generalization and at two weeks zero were protected. In cattle 6/10 were protected against generalization.

Because of this incomplete protection given by the A10 vaccine (normally in use in the Netherlands), the director of the Veterinary Services decided that as a precaution against further spread, a A Netherlands 1977 homologous vaccine had to be prepared. Six thousand litres have been kept in stock, but never used.

Dr. Delclos referred to the 1977 ad hoc Consultation of the Executive Committee and said that once a new virus had appeared in Europe it could no longer be described as exotic; however, that did not mean to say that following its disappearance European countries should be allowed to continue to work with it.

The Secretary referred to paragraph 3.3.6 on page 10 of Appendix B3 and said that the next meeting of the Research Group would be from 12 to 14 June at Lindholm. He asked that papers intended for presentation at this meeting should be delivered to him by the end of April 1979.

6.4 Deliberations of the Executive Committee

There was no discussion on this section of the Report.

7. Future activities

At the request of the Chairman the Working Paper (Appendix B4) was introduced by the Secretary. The Chairman said that two additional future activities which had been discussed during the Session were the vaccine bank (See Appendix B2) and the international provision of physical assistance (See paragraph 12). He wished now to suggest two further areas of possible future activities which members might like to consider. These were problems associated with (a) the international movement of meat especially frozen meat with special reference to "free ports" (i.e. entrepôt trade) and to counterfeit certificates and (b) the international trade in game meat from sources outside Europe.

With regard to international movement of meat, the Chairman said that there was evidence that meat entering free ports had undergone a change of identity and by means of misleading certification had then entered into trade in Europe. Such

meat could be highly dangerous from the FMD point of view and it would be extremely sad if this illicit trade were to undermine the success of the Commission's activities in reducing the general level of disease in the member countries. The delegate from Austria agreed that this was an important problem. Meat had entered Austria on a number of occasions from extremely doubtful sources and in two recent cases international police investigations had been made but, as might be expected, tracing was fruitless; the trade usually involved a long chain of operators. The delegate from Cyprus said that the policy of his country was to allow only direct importation but the shipping lines were progressively employing containers and it was difficult to ensure validity of certification after containers had been opened. Denmark supported the Chairman's proposal that importing countries should be strongly advised to take precautions with regard to meat imported indirectly from allegedly-safe sources. Countries having free ports should exercise veterinary control over shipments of meat in those ports; the Republic of Ireland supported these remarks. The Netherlands reported that veterinary officers and other officials collaborated closely with police in the Dutch ports. There were constant investigations and all veterinary staff were well aware of the dangers of certifying meat when the origins were obscure. Luxembourg pointed out that the members of the European Community were obliged to maintain proper animal health surveillance at ports. The delegates agreed that intermediate countries should be encouraged to accept responsibility for checking so far as possible the certification and origin of meat which passed through their territories.

The Chairman then turned to the question of importation of game meat especially from Africa into western Europe and said that this could be an even greater danger than that of the illicit import of meat of domestic animals. The delegates from the Netherlands, Denmark, Sweden and Germany contributed to the ensuing discussion after which the Chairman suggested that this would make a valuable topic for full discussion at the Twenty-Fourth Session. Meantime he suggested that member countries should prepare their data and ideas on this topic.

The delegates agreed to this suggestion.

Bulgaria proposed an amendment to the second indent of para. 3 of Appendix B4 as follows:
".....Italian Government and other member Governments" and this was agreed.
The Bulgarian delegate wished to put on record his country's gratitude for the assistance received from Italy.

In response to a question from the delegate of the Federal German Republic (the penultimate paragraph of page 4 of Appendix B4 refers), the Chairman asked Dr. Griffiths to confirm the system for allocation of the costs of the visits of the secretariat according to the purposes of these visits. Dr. Griffiths explained that if for example the Secretary visits S. America on FMD business then the Commission pays his expenses. However, if the Secretary makes a visit where the Commission's interest is minor then FAO pays. Dr. Griffiths went on to discuss a proposal recently received that the Secretary should advise countries on an FMD programme by means of a consultative visit to south east Asia; in this instance although the request came to FAO, the major activity coincides with the interests and expertise of the Commission and so the expenses (or at least a proportion of them) should perhaps come from Commission funds. The Chairman believed that it was right that the "blueprint" so successfully developed by the Commission during the last 25 years should be made available as widely as possible not only for advantages to requesting countries or regions but also for the greater protection of the member countries of the Commission. The delegate from the Federal Republic of Germany supported the veterinary principles involved but reminded the delegates that it would be necessary to justify the expense involved as being in the Commission's interest. Dr. Boldrini recalled that for visits outside Europe it was the practice for the Secretary to obtain the agreement of the officers of the Commission

and the Chairman confirmed that this was still the case. The delegates agreed to the proposals for future activities as outlined in the working paper and took note of the further suggestions which had emerged from the discussion.

8. Financial Report, Statements and Budgets

Miss Raftery, administrative assistant, and Mr. Fiorentino (FAO Office of Programme and Budget) joined the meeting for this item and the Chairman asked Miss Raftery to introduce the financial statements (Appendix B5).

8.1 Accounts for the years 1976, 1977 and 1978

In reply to a question from the delegate from the Federal Republic of Germany, Dr. Boldrini explained that the General Account is intended to cover administrative expenses to which the Commission is committed. This commitment does not necessarily apply year after year to such activities as Research Group meetings and regionalization activities so that if in a particular year funds were low the Special Account might be unable to cover such expenses; in this event these activities would cease. There was some discussion on the question of transfer of monies between the two accounts and it was emphasized that while the Commission may authorize its officers to disburse funds from the Special Account without specific reference to a full Session of the Commission, such monies could be taken only from the Special Account. It was therefore essential to maintain sufficient funds in this account to cover unforeseen contingencies.

8.2 Budgets for the years 1979, 1980 and 1981

The delegate from the Federal Republic of Germany complimented the secretariat on the form of presentation of the accounts. He said that budget forecasting should be as accurate as possible and that the allocation of $30,000 to Chapter II (Emergency Exp) in successive years seemed excessive in view of the fact that only $3490 was spent in recent years i.e. in 1978. After further discussion it was agreed that only $10,000 would be allocated annually under this heading. Some discussion took place on the desirability of increasing the membership contribution rate and in this context it was pointed out that it had been found necessary to use Trust Fund 9097 (non-EEC) to cover the expenses of certain consultancies details of which were given to the delegates by the Secretary. In addition the fact was that by 1981 the entire membership contribution would be needed to cover administrative costs.

The delegates agreed to refer this problem to the Executive Committee to formulate proposals in time for the Twenty-Fourth Session.

There being no further discussion the meeting approved the accounts and budgets.

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

(a) Elected as Chairman of the Commission - Dr. A.C.L. Brown

Proposed by Dr. A. Rojahn
Seconded by Dr. E. Stougaard

(b) Elected as Vice-Chairmen:

1. Dr. L. Bellani

2. Dr. R. Vollan

Proposed by Dr. J. Paniagua Arellano
Seconded by Dr. L. Vella

(c) Election of Executive Committee members. Since six nominations were received a secret ballot was held in accordance with FAO Rules of Procedure.

The following five delegates were elected to membership of the Executive Committee:

Dr. H.A. van den Berg, Netherlands

Dr. M. Bügü, Turkey

Dr. P. Dragonas, Greece

Dr. W. Eckerskorn, Federal Republic of Germany

Dr. F. Walla, Austria

The Chairman paid tribute to the valuable work of Dr. Bugarski the outgoing member of the Executive Committee.

(d) The members of the Research Group were re-elected en bloc

10. Amendments to the Constitution

The Chairman explained the history of the events leading up to the proposal to amend the Constitution (Appendix B6) and asked Mr. A. Roche, Office of the Legal Counsel, to advise the meeting on the legal technicalities involved. Mr.Roche said that the origin of the words in question in Art. XII in the Basic Texts which incidentally differ in the English and French versions was unknown. However, there was no doubt that the provision for the Commission to be involved so deeply in the appointment of its Secretary was unique among the Constitutions of the nine similarly established Commissions within FAO. There was no question of a hasty opinion being sought at this particular session of the Commission since amendments to the Constitution had to be presented as proposals both to the Director-General and to the Chairman of the Commission before inclusion on the agenda of a future session. In addition, 120 days notice had to be given before the session could take a decision on this point.

The delegate of the Federal German Republic said that it would be of assistance when discussing this problem with national governments if delegates could be given some details of the nine other bodies to which reference had been made and it was agreed to request that these details be furnished.

The Italian delegate emphasized that this was not merely a question of a form of words but a matter of principle since account had to be taken of the clear wishes of the founder members of the Commission when the Constitution had been drawn up.

The delegates agreed to refer this question to their respective governments for consideration at the next session.

V. REPORT OF THE TWENTY-THIRD SESSION

Prior to the adoption of the draft Report, the Chairman extended a welcome to Dr. Vittoz and Dr. Lucam who had joined the meeting.

11. Adoption of the draft Report

On the proposal of Dr. Schaupp seconded by Mr. van den Berg, the draft Report of the Twenty-Third session was approved subject to amendments made at the final session and to any necessary editorial changes.

VI. ANY OTHER MATTERS

12. Physical assistance during disease emergencies

The Chairman asked participants for their preliminary views on the possibility that the Commission with the close association of OIE might establish a system for the provision of assistance in the form of a veterinary team which would augment the national veterinary service of a Member Nation of FAO during a disease emergency. The team would be made available immediately on request by the member countries through FAO/OIE or directly through the Commission on condition that all travel and per diem expenses would be paid by the requesting country and salaries would continue to be paid by the country of origin of the team member; arrangements would be coordinated by FAO. An example of what could be done was the sending of a team of British veterinary officers to assist the veterinary service of Malta during the outbreak of FMD there in 1975 but the Chairman thought that such teams in future should be international in composition and it appeared that the Commission was the natural and obvious body to engage in this activity.

Dr. Brooksby welcomed the proposal which he was sure would meet with support from OIE. Dr. van den Berg was in favour in principle provided OIE was also involved. Dr. Rojahn asked if the Chairman intended to include other diseases in this proposal and pointed out that, if so, it would be necessary to consider an amendment to the constitution of the Commission to extend its functions. The Chairman said that he had in mind the provision of assistance where Member Nations request it for any exotic disease.

Dr. Vittoz said that this matter would require further study and that indeed negotiations were presently going on between OIE and FAO. In particular certain legal aspects required further consideration. It was necessary to bear in mind the requirements of areas outside the jurisdiction of the European Commission, in particular Africa and Latin America.

Dr. Mussman welcomed the Chairman's initiative as an enlightened offer of assistance in time of need. He added that there were a number of points of detail which would require further study, including a need to amend, or even to revise completely the Commission's Constitution to provide for additional functions.

After further discussion, it was agreed to refer the suggestion to the Executive Committee for examination.

13. Proposed review of Commission decisions

The Chairman proposed that there should be a review of the various decisions made at previous sessions so that they could be updated and consolidated and this was agreed without discussion.

14. Documentation

The Chairman complimented the secretariat on the provision of documents for the meeting and some discussion took place on the timing and method of communication of these documents prior to the session. It was agreed that the Executive Committee should review this matter. It was also agreed that a list should be published and circulated of all papers prepared by the Commission since the publication of the report of the previous session for the information of members.

15. Remarks by Secretary

Dr. Stouraitis took the opportunity to thank FAO and the Commission for their confidence in appointing him as Secretary to the Commission.

16. Closing remarks

In his closing remarks the Chairman acknowledged the assistance given to him by the secretariat, the interpreters and the other officers of FAO who had assisted in any way during the meeting. The Session had reviewed the past biennium and had identified the future role of the Commission. Despite evident success, the Commission could not afford to become complacent.

Although its main interest was in Europe, there was a need for the Commission to share its expertise with other authorities throughout the world to the mutual benefit of all. He looked forward to working with the new Executive Committee during the next biennium. On a motion of Dr. Vollan a vote of thanks to the Chairman was passed.

17. Date of Twenty-Fourth Session

During first week of April 1981.

APPENDIX B I

FMD POSITION IN EUROPE, NEAR EAST, NORTH AFRICA AND CAMPAIGNS IN SOUTHEASTERN EUROPE

1. The 41st Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease was held at the Palacio de los Congresos y Exposiciones, Torremolinos, Spain, from 23 to 26 January 1979. A shortened version of the report of that meeting is as follows:-

2. Disease position in Europe and related activities of the Secretariat

2.1 At the meeting of the Executive Committee held at FAO Headquarters in February 1978, the evolution of FMD in 1977 was described (Table I). In 1978 the FMD situation in Europe was further improved (Table II). The disease has occurred in only a few countries and only sporadic foci had been reported. The position of those countries having disease on record since the last Session (February 1978) was then examined.

Italy The disease incidence in 1978 was higher than in 1977 but the sporadic outbreaks which occurred were brought rapidly under control. Type C was dominant and an outbreak of type A was found to be similar to A Sicily 1977. In November 1977, type O_1 appeared in Sicily in cattle, pigs and goats and caused 9 outbreaks on the whole island. The disease occurred in mild clinical form and its origin remained unknown. The Italian veterinary services have since informed the Secretary that the disease is under control and strict sanitary measures and general vaccination were applied to susceptible animals.

The virus isolated from pig bone marrow imported from Brazil and designated as A/Italy/1/78 by the World Reference Laboratory was found to be rather distant from the present South-American A strain. This does not change the origin of the virus since it had been isolated from meat imported from South America.

Malta After three years of freedom from FMD, 14 outbreaks occurred in cattle farms near the Luqa airport in 1978. The virus has been typed by the W.R.L. Pirbright, as type A, close to A_5. Stamping out of 403 cattle and 266 small ruminants has been carried out and mass vaccination with trivalent vaccine $A_5/O_1/C$ of all the susceptible animals in the country has been applied.

The vaccine was procured with European Commission funds (TF-9042) with the collaboration of the Italian Government. 13,000 doses of vaccine were dispatched from the Padova FMD Institute to Malta in addition to 5,000 doses which the Government of Malta bought from Wellcome(Germany). The Secretary visited Malta and advised on the Emergency action and measures to be taken pending arrival of the vaccine. Dr. Boldrini, the former Secretary of the European Commission, was appointed to assist the Maltese Government in dealing with outbreaks and to supervise the vaccination campaign. In addition to the first vaccination, the animals received a second vaccination with the same vaccine $A_5/O_1/C$ (25,000 doses provided by the European Commission also under TF 9042).

Since the last outbreak in December 1978, no further cases have been reported. The disease was introduced into the country in all likelihood with imported cattle from Hungary through Yugoslavia, as Dr. Boldrini stated in his report; and this was clearly supported by the results given by the WRL in which it was shown that the two A virus strains isolated in the case of both Yugoslavia and Malta are identical or very closely related (See Table IV).

Hungary has repeatedly stated that FMD has not occurred in the country.

The Chairman thanked the Italian veterinary authorities for their prompt assistance in supplying vaccine to Malta. He then asked members of the Group to endorse the action taken by the Chairman, Vice-Chairmen, and Secretary to meet the emergency situation in Malta. The Committee unanimously approved this action.

Yugoslavia Details were furnished by Dr. Bugarski on the outbreak which was detected in the port of Ploče among animals from Hungary in transit through Yugoslavia. Information on the outbreak, which had been noted on 18 November 1978, was despatched to the veterinary authorities of neighbouring countries, to OIE, and to the European Commission for the Control of Foot-and-Mouth Disease on 22 November. This was the first outbreak in the country since September 1974. A total of 1,497 cattle and 903 sheep were involved. The animals were being shipped to various countries in North Africa. The virus type, identified as A_5, was later confirmed by the W.R.L. All necessary veterinary measures were taken i.e. cordoning off of the outbreak area and the town of Ploče, observation of all susceptible animals en route from the border area of Kotoriba to the port of Ploče as well as susceptible animals in the districts of the Hungarian/Yugoslav border, those of the port area, and neighbouring districts. Import restrictions were imposed on meat and meat products originating in Hungary with the exception of tinned meat and strict stamping out measures and burial of all carcasses were carried out. In all 1,497 cattle and 903 sheep were slaughtered. Prophylactic measures were applied to all cattle, sheep and goats in the communes of the frontier areas (Slovénie and Croatie) and in the commune of Ploče and the surrounding area. A total of 220,000 cattle and 12,000 sheep and goats were vaccinated with trivalent vaccine and disinfection of infected premises was undertaken. Due to these measures there were no further outbreaks. Dr. Bugarski wished to thank the veterinary authorities of neighbouring countries for their interest during the outbreak.

The Federal Republic of Germany, France and Switzerland The outbreaks related to type C in the three countries are considered to be of indigenous origin and the strict control measures applied have brought the FMD situation in the affected countries back to normal.

German Democratic Republic Late in 1978, virus type C made its appearance.

U.S.S.R. Reported that there were outbreaks due to C after a lapse of many years (1970).

Spain In describing the present FMD situation in Spain, Dr. Campos stated that there has been FMD in Spain since 1963 and a peak was reached in 1964 followed by a brief down-turn and a new up-swing in the period 1968-1973. From then on the intensity decreased again until 1977 and the last case was reported in July of that year. The country has been disease free since that time. Annual compulsory vaccination campaigns began in 1969 and were continued until 1975 on the following pattern:

a) compulsory vaccination twice yearly of all cattle over four months of age

b) compulsory vaccination of sheep and goats moving from one production area to another

c) compulsory vaccination of pigs being moved from one production area to another

d) compulsory vaccination of breeding sows and boars

In the case of ruminants, vaccines have been supplied free of charge. In the case of pigs vaccine has been supplied free of charge in some years, while in others only up to 50% of supplies were free of charge. These were used to cover breeding animals.

This same system has been continued from 1975 onwards with one change only, namely that cattle vaccination takes place only once yearly, except in the provinces on the French and Portuguese borders where it is still compulsory every six months.

This policy made it possible to keep reducing the incidence of the disease year by year but a marked drop was recorded only in 1972 when a special oil adjuvant vaccine for

pig vaccination was made available by Spanish vaccine production units. The use of this vaccine increased every year and there was a corresponding decrease in the number of outbreaks. At the present time, oil vaccine is being used on a routine basis as in d) above. Additionally many breeders resort to its wider use of their own accord. In consequence residual foci in the pig population have disappeared entirely, and the epizootic can be regarded as eradicated. This highlights the importance of including pig vaccination in eradication campaigns. In view of the fact that the country has been disease free for two years, the Spanish Government is at present considering the possibility (although no firm decision has yet been taken) of discontinuing the policy of annual mass vaccination, and replacing it by general prophylactic measures, stamping out, and ring vaccination, if and when outbreaks occur.

Greece Dr. Dragonas stated that the last outbreak was reported in October 1977 in pigs in the province of Agrinio, Etoloakarnanias in mainland Greece. Of the 200 animals in the piggery, 150 were affected. All animals were slaughtered and destroyed on the spot. As regards the type of A virus which had caused the last two outbreaks (August and October 1977), initial serological studies carried out at the Greek FMD Institute showed that it differed from A22 and A5. The A Platy/77 strain had been compared with A Megara/76 which had caused an outbreak of FMD in June 1976, and it had been found that a very close serological relationship existed between them (R=87). These two strains had been sent to the W.R.L. which carried out a joint study with the Pan American Center on a number of A strains which had caused FMD outbreaks in Europe, North Africa and South America during 1976 and 1977. This study showed a strong inter-relationship between the strains despite the fact that they were found not to be identical. The strictly applied meat importation rules (boneless meat) on meat from S. America have helped to keep the country free from FMD since 1977.

Prophylactic schemes in 1978 The Secretary informed the Committee that there has been no change in the programme carried out in 1977 with the exception of increased vaccination coverage in Romania, Hungary and Czechoslovakia. (Appendix B I(a))

3. Position of FMD in Turkey and campaigns in southeastern Europe and Anatolia
In Turkey the FMD situation has been more critical during the past year. Thrace, after more than four years' freedom from the disease, has been infected with O type. From January to December 1978, 30 outbreaks of FMD type O occurred in the area in which vaccination campaigns have been systematically carried out every year. No cases of A22 have been reported in Thrace. In Anatolia both virus O and A22 were present. During 1978 a total of 710 outbreaks were reported in which type O virus has been prevalent. (Table III)

Diagnostic activities Type identification was actively carried out at the Ankara FMD Institute as shown by 1323 specimens which were examined during the year. Of this number 756 were found to be type O and 376 were type A22. Since the disease has occurred generally in mild clinical form it has not been possible in many cases to collect samples for typing. According to the W.R.L. serological investigations the type O virus present in Thrace and in other parts of Turkey is little distant from O_1 BFS 1860 - European strain (O_1 Lausanne) and the difference is not great enough to rule out the use of a high potency O_1 BFS 1860 vaccine. This information is of great importance for European countries but the problem of the antigenic relationship between the O Manisa strain and possibly other O strains intended against the European O_1 strain is still not clear since the number of FMD outbreaks with type O virus has increased in vaccinated animals which were supposed to be protected. The Committee is very concerned about this problem, all the more so since the latest immunological results provided by IFFA, Lyons, on vaccinated cattle with O_1 European strain and challenged with O Manisa Turkish strain have not been satisfactory. It is not yet established that the O_1 Manisa strain is identical with the current field strain.

Vaccination campaigns The maintenance of the buffer zone in Thrace was carried out during the spring period. According to reports received from the countries concerned, the frontier areas of Turkey with Greece and Bulgaria received vaccination coverage during May and June.

Early in 1978, bivalent FMD vaccine A22/O1 was furnished by FAO to the three countries concerned as follows:

Turkey	400,000 doses plus a follow-up delivery of 200,000 doses of O_1 (Brescia production) in October
Bulgaria	180,000 doses
Greece	120,000 doses

The following vaccinations were carried out in Turkey during the year: Thrace buffer zone - cattle 309,290, sheep and goats 918,143, Anatolia cattle 983,508, sheep and goats 973,395.1/

Provision for the maintenance of buffer zones in 1979 The Secretary reported that following the provision of vaccine for the buffer zone in Thrace in 1978, the campaign funds have been practically exhausted.

From the balance of the FAO/TF 9111 (EEC) an emergency supply of 200,000 doses of type O vaccine have been made available to Turkey in October 1978.

The Executive Committee was informed on the future financial status of the campaigns at its 40th Session in February 1978 and at this Session it was recommended that maintenance of the buffer zones be continued. In addition, on the occasion of a meeting held in Paris on 25 May 1978, and in Brussels on 16 June, the FAO/EEC/OIE Tripartite Committee was briefed by FAO on the financial status of the campaign funds and it was agreed that additional funding up to an amount of US$ 1,200,000 would be necessary to assure the continuation of the campaigns until 1983. Following this an appeal letter has been sent to EEC and non-EEC countries requesting funds for this purpose. Austria and Norway reacted positively to this appeal and have already deposited contributions in the relevant Trust Fund (9097).

The Secretary reported that the appeal has been favourably considered by EEC and is being submitted for approval to the Council of Ministers. He was informed verbally that a certain sum would be made available from EEC early in 1979 to be used for the supply of vaccine in time for the vaccination campaigns in spring.

On the basis of the request made by the veterinary services of the three countries involved in the maintenance of the buffer zone in Thrace, the Secretary estimated that an amount of 700,000 doses of O1/A22 bivalent FMD vaccine at a cost of approximately US$ 300,000 will be needed for the next spring campaign in the Thrace buffer zone to be distributed as follows:

Turkey	450,000	doses
Bulgaria	200,000	"
Greece	50,000	"

Priority should be given to Turkey and Bulgaria.

The Turkish Delegate expressed the appreciation of his Government to FAO for the assistance given for the maintenance of the buffer zones and to the Commission for its technical assistance to Ankara FMD Institute.

1/ The vaccine produced at Ankara during the year amounted to 2,175,000 doses of monovalent of which 1,350,000 doses were of O type and 825,000 were A22.

The Committee examined reported failures of vaccines containing the O_1 Lausanne strain and O_1 Manisa strain to protect cattle in Turkish Thrace against FMD. There was some evidence for an antigenically distinct O strain being present in Turkey. In recent experiments conducted by IFFA, it was shown that out of 5 cattle vaccinated with a single full dose of O_1 Lausanne strain vaccine, and subsequently challenged with the Turkish O Manisa strain (identified in 1969) only three were protected. This finding confirmed earlier laboratory studies in Turkey with O_1 Brescia vaccine. Taking into account that the O_1 Lausanne strain vaccine had previously protected Turkish cattle against the O virus, the evidence presented suggested that there was an "antigenic drift" in the O virus in Turkey.

The Committee decided that a substantial research study based on challenge of vaccinated animals was required, with the possibility that a new "seed" strain would need to be isolated for the purpose of vaccine production. However, this would take time and it was considered impossible to conclude investigations before the start of the Spring campaign of 1979. The question therefore arose as to the immediate action to be undertaken.

In this connection, it was important to note from field experience that double vaccination at an interval of approximately two weeks either with O_1 Lausanne or with O Manisa gave adequate protection against the uncharacterized local strain. Accordingly it was decided to accept a proposal from the delegation of Turkey that the 1979 Spring campaign programme in Turkish Thrace should be conducted as follows:

i) Initial vaccination in the frontier areas for a depth of 10 km with O Manisa strain vaccine produced at the Sap Institute, Ankara, up to 300,000 doses.

ii) Follow-up vaccination with bivalent O_1 Lausanne/A22 vaccine to be supplied by FAO through the European Commission for FMD, subject to funds becoming available by April 1979.

The delegation of Turkey informed the Committee that samples of a virus recovered from O_1 Lausanne vaccination breakdown cases at Çanakkale, Thrace, and tentatively named O_1 Çanakkale 1978 had been sent to the W.R.L., Pirbright, for investigation. As no challenge experiments had been conducted in Turkey with this virus, it was considered important to undertake a trial at the Sap Institute, Ankara, immediately in order to determine whether or not a potent O_1 Manisa vaccine could protect against O_1 Çanakkale 1978. While such a trial could probably not be completed in time to influence the vaccination policy for the 1979 Spring campaign, its results would be important relative to the 1979 Autumn campaign. If O_1 Manisa vaccine failed to protect the challenged animals then it was imperative to produce a vaccine containing the homologous O_1 local strain for future campaigns. (See Tripartite Committee Report - Appendix B 11)

Infrastructure and assistance to FMD laboratories in southeastern Europe

The main points of the report to the Committee were:

In Turkey the new FMD laboratory is under construction and will require at least two years to be completed with the equipment and become operational. This depends mainly on the assistance which Turkey has requested from EEC and other sources.

The present FMD laboratory owing to problems with the water used for cell growth media has considerably reduced vaccine production in cell suspension. The Secretary informed the Committee that the European Commission assisted through providing an expert in tissue culture from A.V.R.I., Pirbright, who has spent three weeks in Ankara investigating the problem. The very useful contribution of the Padova Institute through bilateral assistance is also acknowledged.

Dr. Bügü stated that for an effective campaign against FMD in Turkey there is a great need for vaccine production. Taking this into consideration, the Turkish Government has prepared and put into practice an expansion project for the Ankara FMD Institute in order to increase vaccine production. Within the framework of this project it is assumed that the new vaccine production unit will go into operation at the end of 1981. Assistance has been requested from EEC to provide the necessary equipment and supplies which must be imported from Europe to equip the new laboratories.

US$ 3,000,000 has been requested from EEC and of this amount $ 1,000,000 has already been deposited with the Government. From this four pieces of essential equipment will be purchased. However ever increasing inflation over the past few years and the addition of a few items of equipment to the list which had been omitted earlier make it necessary to request that the balance of $ 2,000,000 to be provided by EEC be increased to US$ 3,600,000. An approach has been made in this respect in October 1977.

In Greece the FMD laboratory has increased its vaccine production capacity by using the 100 litre fermentor for cell production in suspension. The Commission contributed to this effort by providing some essential items of equipment and two fellowships for a total period of four months have been provided at the Institutes of Brescia and Padova for training and refresher work in the field of FMD. Dr. Dragonas thanked the Committee for its interest and valuable assistance.

In Bulgaria the FMD laboratory is now operational as a pilot unit using BHK cell growth in suspension and monolayer (rolling bottle). An amount of 600,000 doses of monovalent vaccine O_1 has been produced in 1978 and was used for vaccination other than in the buffer zone. Two 200-litre fermentors for cell growth in suspension were delivered and installed at the FMD Institute.

The Commission contributed to this development by providing specialist missions from the Brescia Institute and technical assistance by the Secretary. Further assistance has been received through the UNDP project (BUL/77/011) which has now become operational and a plan for the new FMD center is under preparation. The Secretary of the European Commission is the Chief Technical Adviser to this project.

4. FMD situation in North Africa, Near East and other regions of particular interest to Europe

Morocco Following invasion by FMD A virus in 1977 and the mass vaccination campaigns with homologous vaccine, the disease is now under control. An additional consignment of one million doses of A Morocco vaccine was provided by FAO under TCP project in 1978. The technical assistance missions included in the project have been provided through the services of Professor Panina from Brescia and Dr. Stouraitis. The Secretary reported that no decision has been taken yet by the Government of Morocco about the establishment of a new FMD Institute.

In Algeria with the assistance of a TCP project one million doses of vaccine have been delivered but it has not been possible to obtain further information regarding the FMD situation in the country.

In Egypt further assistance was provided by an FAO TCP project for the implementation of the programme for vaccine production in the FMD laboratory in Cairo. Equipment has been delivered to complete the existing pilot unit at a total cost of US$ 56,000. Two fellowships have been granted in FMD laboratory techniques at the Institutes of Tübingen and Pirbright and a short-term consultancy has been provided by Professor Zoletto from Padova Institute which has accepted to assist the Cairo FMD laboratory to overcome its technical problems. With a view to having a free flow of information, it was recommended that every effort be made to establish closer links with the authorities in North Africa and also with those countries in eastern Europe which are not members of the Commission.

TABLE I

Outbreaks of foot-and-mouth disease and virus types recorded in Europe, the Near East and Northern Africa during 1977
(Dates in brackets relate to the last outbreak recorded)

EUROPE	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Iceland never had FMD												
Norway (1952) Sweden (1966) Finland (1959) Ireland (1941)												
Denmark (1970)												
U.K. Great Britain (1968) North. Ireland (1941) Jersey (1974)												
Belgium												
Netherlands Type:	1 A**											
Luxembourg (1963)												
France (January 1975)												
Fed. Republic of Germany Type:	1 A**		2 C									
Italy Type:					2 O	1 A**						15 A**C
Switzerland (March 1973)												
Austria (March 1975)												
Spain Type:	1 C	9 C	6 C	3 C	4 C		3 C					
Portugal (1971)												

See notes overleaf.

Table I (cont'd) 1977

EUROPE (cont'd)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Czechoslovakia (May 1975)												
German Democratic Republic Type:												1_0
Poland (1971)												
Yugoslavia (September 1974)												
Hungary (November 1972)												
Romania (January 1973)												
Bulgaria (February 1973)												
Albania (1959)												
Malta (July 1975)												
Cyprus (1964)												
Greece Type:								1 A**		2 A**		
Turkey (1)	60	51	68	73	90	107	64	64	54	45	37	22
Type:	0	0	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*
U.S.S.R. (2)	14	12	10	10	9	12	12	11	5	6	...	...
Type:	0 A*	0 A*	0	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*		

Notes: A blank indicates no outbreak Subtypes: 0=0; A=$A_5(A_7)$; A*=A_{22}; A**= South American/European/North-African group of Inter-related strains (W.R.L. December 1977)
... = no information

(1) Turkey: Last $Asia_1$ outbreak reported in September 1973.

(2) U.S.S.R.: The Soviet Republics of Lithuania, Lettonia and Estonia have been disease-free since 1966; Ukraine's last reported A_{22} outbreak was in April 1973; Bielorussia had one A_{22} outbreak in June 1974.

Table I (cont'd) 1977

NEAR EAST	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Jordan												
Type:												
Lebanon												
Syria		2										
Iraq	5	7	6			3	1	2				
Iran		5	3	3	2	8	5	12	9	5		
Type:		0	0	0	0 A*	0 A*	0	0 A*	0	0		
Israel	-	-	-	-	-	-	-	-	-	-	-	-
Type:												
NORTHERN AFRICA (1)												
Arab Republic of Egypt	2		1		1							
Type:	0	-	0	-	0							
Tunisia	-	-	-	-	-	-	-	-	-	-	-	
Algeria			12	11								
Morocco					25	3	4					

Notes: A blank indicates no information received A dash indicates no outbreak A* = A22

A**= South-American/European/North-African group of inter-related strains.

Types of virus: Asia1 last report from Iraq in July 1975. The World Reference Laboratory carried out typing on samples from the following countries: Iraq (0); Kuwait (A*); Yemen (A* and 0); U.A. Emirates (A*); Algeria (A**); Morocco (A**). Typing was carried out locally in Israel, Iran and Egypt.

(1) No report from Lybia.

TABLE II

Outbreaks of foot-and-mouth disease and virus types recorded in Europe, the Near East and Northern Africa during 1978
(Dates in brackets relate to the last outbreak recorded)

EUROPE	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Iceland never had FMD												
Norway (1952) Sweden (1966) Finland(1959) Ireland (1941												
Denmark (1970)												
U.K. Great Britain (1968) North. Ireland (1941) Jersey (1974)												
Belgium												
Netherlands (Jan. 1977)												
Luxembourg (1963)												
France (January 1975) Type:				1 C								
Fed. Republic of Germany Type:				3 C								
Italy Type:	13 CA **		1 C	1 C	1 C						8 0	1 0
Switzerland (March 1973) Type:			1 C									
Austria (March 1975)												
Spain												
Portugal (1971)												

See notes overleaf.

Table II (cont'd) 1978

EUROPE (cont'd)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Czechoslovakia (May 1975)												
German Democratic Republic												1
Type:												C
Poland (1971)												
Yugoslavia											1	
Type:											A	
Hungary (November 1972)												
Romania (January 1973)												
Bulgaria (February 1973)												
Albania (1959)												
Malta											6	8
Type:											A	A
Cyprus (1964)												
Greece (Sept. 1977)												
Turkey (1)	26	32	30	23	60	104	112	127	125	104	65	22
Type:	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*	0 A*
U.S.S.R.	5	2	3	2	4	4	4	2	2	-	2	2
Type:	0 A*	0 A*	0 A*	C A*	C 0	0 A*	0	0	0		A*C	0 C

Notes: A blank indicates no outbreak

Subtypes: $0=0_1$; $A=A_5(A_7)$; $A^*=A_{22}$; A**= South American/ European/North-African group of inter-related strains (W.R.L. December 1977)

...=no information

(1) Turkey: Last Asia$_1$ outbreak reported in September 1973.

Table II (cont'd) 1978

NEAR EAST	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Jordan	4	1	1				1	1	1			
Type:	0	0	A*				0	0	0			
Lebanon				1								
				A**								
Syria									1			
									0			
Iraq	2	1	4		11	44	20	13		5		
Iran	5	8	4	4	5	11						
Type:	0	0	0	0	0	0						
Israel	-	-	-	1	-	-	-	1	-	-	-	-
Type:				A**				A**				
NORTHERN AFRICA (1)												
Arab Republic of Egypt	-	-	7	8	11	1	7	-	-	-	-	-
Type:			0	0	0	0	0					
Tunisia	-	-	-	-	-	-	-	-	-	-	-	
Algeria												
Morocco	1											
	A**											

Notes: A blank indicates no information received A dash indicates no outbreak A* = A_{22}

A** = South-American/European/North-African group of inter-related strains.
Types of virus: $Asia_1$ last report from Iraq in July 1975. The World Reference Laboratory carried out typing on samples from the following countries: Iraq (0); Kuwait (A* ASIA I); S. Arabia (0); U.A. Emirates (A*); Algeria (A**); Morocco (A**). Typing was carried out locally in Israel, Iran and Egypt.

(1) No report from Algeria, Lybia and Yemen

TABLE II (a)

FMD statistics for Europe from 1965* to 1978

Country	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Sweden		1												
U.K. incl.Channel Islands	1	34	2 210	187						1				
Denmark	2	39	5	5	8	2								
Netherlands	1 426	2 194	196				21	7		3	2			
Belgium	112	323	22	1	3	2	1			60	21	1		
France	10	59	17	40	35	4	8	2	1	89	2			1
German Fed. Rep.	15 942	4 689	3 350	68	12	8	12	21	7	14	13	5	3	3
Switzerland	671	321		23	1				1					1
Austria	34	22							1 651	7	1			
Italy	5 842	1 554	210	23	132	147	14	9	13	5	31	61	18	25
Malta											24			14
Spain	1 303	29	306	561	522	473	508	361	353	244	90	29	26	
Portugal	770	17	520	923	160	103	1 055							
German Dem. Rep.	80	29	66	3	4	2	3					9	1	1
Poland	39	3	9		6	1	1							
Czechoslovakia	40	4		9	7			11	17		1			
Hungary	53	1	4	60				18						
Romania	4	1		17	6			12	1					
Bulgaria	1	1							3					
Yugoslavia	115	12		76				12	9	4				1
Greece	3	1	80		111	24	18	284	356	13		1	2	
Turkey	3 963	816	2 173	303	1 654	650	359	1 351	1 118	465	351	864	735	840
U.S.S.R.	2 884	3 013	3 323	1 359	473	573	349	569	705	194	120	196	101	32
TOTALS	33 295	13 163	12 491	3 658	3 134	1 989	2 349	2 657	4 235	1 099	656	1 166	886	918

*Totals for the period 1960/1964 were: 22 500 in 1960; 29 229 in 1961; 28 868 in 1962; 21 344 in 1963; 26 781 in 1964

** Approximate figures

WORLD REFERENCE LABORATORY FOR FOOT AND MOUTH DISEASE TABLE II(b)

CUMULATIVE REPORT FOR 1978

During 1978 307 samples from 29 countries have been examined for type of virus. Virus was demonstrated in 212 of these samples (70%) and the types of virus recovered are tabulated below:-

COUNTRY	No. of samples	O	A	C	SAT1	SAT2	SAT3	Asia 1	No virus recovered
ANGOLA	4								4
BANGLADESH	19	16	1					1	1
BOTSWANA	23				4	10			9
BURMA	13	7	1					3	2
HONG KONG	14	9							5
INDIA	2	1	1						
IRAQ	2		2						
ITALY	3	1	2						
JORDAN	12	6	1						5
LAOS	4	4							
LIBYA	6								6
MALTA	13		13						
MALAYSIA	23	14							9
MOZAMBIQUE	25				8	7			10
NEPAL	1	1							
NIGERIA	13								13
OMAN	12	8							4
PAKISTAN	30	12	10						8
PHILIPPINES	3			1					2
RHODESIA	29				7	15	4		3
SAUDI ARABIA	6	3							3
SOUTH AFRICA	19					16			3
S.W. AFRICA	3					3			
SOMALIA	1		1						
SRI LANKA	4	3		1					
SYRIA	1	1							
TURKEY	9	7	2						
UGANDA	11	3			2				6
VIETNAM	2								2
TOTAL	307	96	34	2	21	51	4	4	95

The positive results were obtained in tests using:-

C.F. tests on original material in 38 cases = 18%

C.F. tests after passage in tissue culture 174 cases = 82%

Table III Monthly Distribution of FMD outbreaks in 1976-1978

Monthly incidence of FMD outbreaks.

Years	Regions	Jan.	Feb.	March	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1976	Thrace	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anatolia	24	14	21	43	112	233	129	93	65	45	46	39	864
1977	Thrace	-	-	-	1	-	-	1	-	-	2	-	-	4
	Anatolia	60	51	68	72	90	107	63	64	54	41	37	22	729
1978	Thrace	-	5	3	1	5	6	4	4	1	1	-	-	30
	Anatolia	26	27	27	27	59	98	108	123	124	29	40	22	710

Table IV

THE ANIMAL VIRUS RESEARCH INSTITUTE

NOTES ON EXAMINATION OF STRAINS FROM YUGOSLAVIA AND MALTA 1978

These strains have been examined in one direction only as homologous sera are not yet available. Information given is the titre of available antisera against the homologous strain and against the Malta and Yugoslav strains, respectively. This enables the calculation of 'r' values. The Agreement between the results in the case of both Yugoslavia and Malta suggests that the two strains are identical or very closely related.

YUGOSLAVIA 15.12.78

SERA	ANTIGEN	SERUM TITRE	'r'
A5 FRANCE 1/68	A5 Fr.	113	
	YUG. 1/78	160	1.4
A10 KEMRON	A10	226	
	YUG.1/78	113	0.5
A22 IRAQ 24/64	A22 Ir.	452	
	YUG. 1/78	113	0.25
A22 MAHMATLI	A22 MAHM.	1808	
	YUG. 1/78	226	0.125
A24 CRUZEIRO	A24	226	
	YUG. 1/78	452	2.0
A MOROCCO 5/77	MOROCCO	226	
	YUG. 1/78	57	0.25
LEBANON 1/78	LEBANON	640	
	YUG. 1/78	226	0.35
A PARMA (VACCINE STRAIN)	PARMA	226	
	YUG. 1/78	226	1.0

MALTA 29/11/78

A5 FRANCE 1/68	A5	226	2.0 (1.4)
	MALTA 1/78	452	
A22 IRAQ 24/64	A22 Ir. 24/64	1280	0.18
	MALTA 1/78	226	
A22 MAHMATLI	A22 MAHM.	1808	0.09
	MALTA 1/78	160	
A24 CRUZEIRO	A24 CRUZ.	320	1.41 (2.0)
	MALTA 1/78	452	
A MOROCCO 5/77	MOROCCO	160	0.36
	MALTA 1/78	57	
A PARMA (ITALIAN VACCINE STRAIN)	PARMA	226	1.0
	MALTA 1/78	226	

Position of Foot-and-Mouth Disease Prophylaxis in Europe during 1977/78

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	period of vaccination	Territory covered by vaccination	Valencies Cattle dose Cost	Potency required Results
Netherlands	All cattle above four months Cattle: 1977 4,400.000 1978 4,022.000	From 15 Nov. to 1st March	the entire country since 1953	Triv. $O_1/A_{10}/C$ (Frenkel) Cattle: 15 cc. 1.75 D.Fl. Vaccine plus injection: D. Fl. 4.15 (1)	At least 5 cattle PD_{50}. Resistance to generalization after intradermolingual challenge with 10 000 cattle PD_{50}. PD_{50} are calculated from three groups of 5 cattle. Results of potency testing: about 10 cattle PD_{50} per valency.
Belgium	All cattle above three months of age The maximal interval between two consecutive vaccinations is 13 months	From 1 Dec. to 31 March	the entire country since 1962	Trivalent OAC (O_1 A_5 C_2) cattle: 10 cc. sheep 5 cc. 25 B. Fr. (1)	More than 5 cattle PD_{50} the challenge being 10 000 ID_{50} intradermolingually.
Luxembourg	All cattle above two months of age	From 1st Dec. 1977 to 31st January 1978	the entire country since 1966	Trivalent OAC (O_1 A_5 C_2) Cattle: 5 cc. Price 10.79 B.Frs (2)	More than 5 cattle PD_{50} the challenge being 10 000 ID_{50} intradermolingually.

Notes: (1) vaccine and vaccination costs borne by owner.

(2) vaccine free of charge; vaccination cost (16 B.Fr.) shared by the state (6 B.Fr.) and the owner (10 B.Fr.)

Appendix B I (a) contd

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required and results
France	A. All cattle above 6 months. '77:cattle=19,000.000 '78: " =18.511.000	All the year round but mainly from Nov. to May	A. The entire country since 1962	Trivalent OAC (O Allier 1960 O Lausanne, A_5 C Vosges 1960) cattle: 5 cc. sheep :1.7 cc. Price: 2.18 F.Fr. (triv. dose) (1)	Principle: 85% protection rate in cattle against generalization by intradermolingual challenge. Methods and minimus: Index K (Lucam) = 1.2 Index C = 10^2 Index S = $10^{1.5}$
	B. Sheep and goats above 3 months. '77:sheep= 420.000 '78: " = 832.042	Before transhumance (5)	B. The frontier departments of the Pyrennees		
Switzerland	All cattle born before 1 January	From 15 Feb. to 15 May	The entire country since 1966	Trivalent OAC cost of vaccine: SF. 1.6 (2); cost of injection:SF. 1.7	Vaccines almost entirely imported from France.
Federal Republic of Germany	All cattle above five months	Late in winter before admission to pasture	The entire country since 1965	Trivalent OAC (O_1 A_5 C) Dose: 5 cc. Cost: DM 3.-(3)	Three cattle per type are challenged by rubbing a virus suspension on the tongue. No generalization admitted.
Democratic Republic of Germany	All cattle above five months	From 1 Oct. to 31 Dec.	The entire country since 1950	Trivalent OAC Dose: 5 ml (4)	

Notes: (1) vaccination of cattle: all expenditure borne by the owner.
(2) vaccine and injection (total cost: S.Fr. 3.30) free of charge to owner;
(3) in some "Länder" vaccination is free of charge, in others the owner is charged 50% of cost
(4) cost of vaccine and injection free of charge to owner.
(5) compulsory vaccination of sheep with triv. vac. OAC in the Department of Bouches-du-Rhône in April 1978

Appendix B I (a) contd

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle dose Cost	Potency required Results
Italy	A. All cattle above 3 months. B. Cattle, sheep and goats sent to alpine pastures. swine only in Lombardia Province	A. From 15 Sept. to 15 Dec. B. From 1.4 to 30 June	The entire country since 1968	Trivalent OAC (O_1 A_7 C) (1)(2) 5 cc. Lit.180 per dose	8 PD_{50} measured on cattle (3 groups of 5 cattle per valence - Dilutions 1 : 1; 1:4, 1:16 in buffer)
Spain	A. All cattle above 4 months. Sheep & goats destined for transport. B Swine: compulsory for breeding stock, all transported pigs, all pigs, radius 25 Km outbreak	A. Spring(& autumn in border provinces. B. Twice yearly for breeding animals	The entire country	A. Triv. OAC 16 Pst. per dose (3) B. Two types in use: DEAE & oil vaccines 40 Pst. per dose	Potency testing based on the cattle PD_{50} determination has been started, as reference. Routine: 2 vacc. animals are challenged against field strains; both must remain protected. Results: very successful in pigs
U.S.S.R.	Cattle above 4 months Sheep and goats above 2 months 1977 Cattle:131,529.000 Sheep: 77,998.500 Pigs : 3,094.100	Early spring and autumn	Rep. of Transcaucasus Kazakhstan, Middle Asia with bordering regions of RSFSR & Ukraine	Mainly monovalent; occasionally bivalent vaccines. Cattle dose: 5 cc, 5 Kopeck (1)	Required duration of immunity: 6 months

Notes: (1) Vaccine and vaccination programme paid by Government

(2) Veterinarians receive the following reimbursement fee from the State. Herd fee = Lit. 800 for 1 to 5 vaccinated animals; Lit. 600 for 6 to 20 vaccinated animals plus a fee of Lit. 200 or 100 respectively for each vaccinated head of cattle or sheep.

(3) 50% of the cost of vaccine free of charge; vaccination paid by owner (in case of compulsory vaccination only)

Appendix B I (a) contd

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered	Valencies Cattle dose ....Cost	Potency required Results
Hungary	Cattle & sheep above two months of age. Pigs not vaccinated.	Two programs: Spring and Autumn	eastern border provinces in 1977	Trivalent OAC(1) cattle dose: 5 cc sheep dose: 3cc.	Vaccination free of charge.
Czecho-slovakia	A. All cattle above three months Adult sheep, goats and pigs.	During the whole year	The entire country	Trivalent OAC	Five cattle per type are challenged by rubbing a virus suspension on the tongue. One generalization tolerated.
Denmark	Total prohibition of vaccination as of 1 January 1977				
Austria	Cattle, sheep, goats and pigs.	A. Autumn	Around the FMD Institute (Vienna)	OAC cattle 10 ml sheep 5 ml 15 A. Schill.(1)	3 cattle vaccinated with 0.5 ml and 3 cattle with 2 ml of monovalent vaccine are challenged intradermolingually with 10 000 ID_{50}. Maximum number of generalizations admitted: 2.
		B. Spring	Animals to be sent to mountain pastures		

Note: (1) Vaccine and vaccination free of charge to owner.

Appendix B I (a) contd

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required and results
Turkey	Cattle, buffaloes, sheep and goats above 4 months of age 1977: cattle: 2,116.105 sheep: 3,008.863 1978: (1) cattle: 1,292.805 sheep: 1,800.000	March-May in buffer zones. Ring vaccination all year round	A. Turkish Thrace including Istanbul and Celibolu. B. Frontier areas in eastern and southern Anatolia C. State and dairy farms, feedlots and other exposed areas	Trivalent O/A_{22}/ ASIA vaccination in all border areas Compulsory trivalent $O_1/A22/ASIA_1$ vacc. in all border areas in 1977 and bivalent $O_1/A22$ in 1978.	9 cattle per batch (3 cattle per type are challenged intradermolingually; 6 controls)
Greece	Cattle, sheep and goats above 3 months of age Approx. 50 000 cattle & 100 000 sheep and goats	Spring campaigns (April - May)	Frontier areas in Greek Thrace. Area vaccination in Attica and other exposed areas 1977	Trivalent $O_1/A_{22}/ASIA_1$ in 1977. Bivalent O_1/A_{22} in 1978.	Potency evaluated on Guinea pigs, the protective dose being above 0.3 ml. (monovalent cattle dose: 3 ml.)
Bulgaria	Cattle and sheep above three months 1977 Approx. cattle: 1,370,000 sheep. 841,000	Spring Autumn	30 Km buffer zone along frontiers with Turkey and Greece and at frontier posts	Triv. $O_1/A_{22}/ASIA_1$ in 1977 Biv. O_1/A_{22} in 1978 of border areas with Turkey. Triv. OAsia elsewhere. (2)	100% protection against generalization in 4 cattle Intradermolingual challenge with 10 000 ID_{50} Seroneoutralization index above 3.

(1) Vaccination campaign is still continuing

Notes: (2) Vaccine and vaccination free of charge to owner.

Appendix B I (a) contd

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle dose Cost	Potency required Results
Romania	Cattle and sheep above 6 months	Twice a year (6 months interval) Young cattle are revac-cinated after 15 - 21 days	Frontier districts in the West. Frontier areas in the South and Southeast	Monovalent vaccines produced against O_1, C, A_5, cost of the dose: 4,32 lei	The ordinary monovalent dose must contain 8 cattle PD_{50}. Satisfactory results.
Yugoslavia	Cattle and sheep above 3 months - approx. 200 000 animals in 1978.	All the year round	Frontier areas with Greece, Romania, Austria and Hungary	Trivalent OAC or monovalent C	
Cyprus	All cattle above six months; sheep and goats above 3 months	Early Spring and Autumn	Entire country in South with O_1/A_{22} and near North with ASIA 1.		
Malta	Cattle, sheep, goats,	Winter	Double vaccination in the entire Country in 1978/79 No vacc.in 1976/77	OAC vaccine (European)	

APPENDIX B II

CONCEPTS FOR A STRATEGIC RESERVE BANK OF FOOT-AND-MOUTH DISEASE VACCINES *

The establishment of a strategic vaccine reserve (or bank) is of primary interest to those countries which are disease free and have no experience in FMD vaccine manufacture. However, any country could take advantage of the existence of a strategic reserve with respect to FMD viruses which are exotic for the region. The possibility that FMD might be spread "artificially" is today to be taken into serious consideration.

The cost of maintaining a vaccine bank could roughly correspond to the annual financial effort necessary to keep the animal population protected from disease in a small country, like Belgium or the Netherlands. This cost should be shared by all countries participating in the scheme.

Guiding principles of the project are:

1) Preparation and/or stockage of as many monovalent vaccines as there are immunologically distinct (or autonomous) FMD virus strains active in the world. Initially the number of vaccines to be stored will be high (say 20 to 25) but their number should be reduced, at least by 50%, as work proceeds on the immunological classification of FMD viruses. This is one important ancillary objective of the Bank, especially as regards the preparation of reference vaccines for use against O, A and C viruses in South America.

2) Vaccines of the conventional types which are known for their outstanding quality and widespread availability on the market (i.e. European O, A and C) would only be stored for the Bank.
All other vaccines will have to be prepared for and disposed of by the Bank.

3) Only vaccines will be purchased and stored which are able to give good immunity at the first injection. It is not the purpose of the Bank to rely on or wait for booster effect of vaccination.

4) The criteria adopted by the European Pharmacopoeia (and the European Commission for FMD) for evaluating vaccine quality, potency in particular, would be the Reference used by the Bank. Preference would be given to vaccines which are expected to remain above the level of minimal activity for the whole period of 18 months.

5) After 12 months' storage, all vaccine stocks will be replaced by new batches; those vaccines which are owned by the Bank will be disposed of within the following 6 months through donations to be effected according to a technical assistance programme coordinated by an international committee. Recipient countries will have to pay for the freight in order to ensure interest in and correct use of the vaccine.

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* Draft project prepared by Dr. G.M. Boldrini, in consultation with Prof. L. Nardelli, Brescia, (June 1978)

6) The suppliers of the Bank should be as few as possible, in order to facilitate inspection and control activities, however, more than one, so as to prevent a monopoly position, stimulate competition and facilitate decentralization (regularization) of vaccine manufacture. The selection of the suppliers will be effected by taking into account their organization and experience in vaccine manufacture, their layout and structure and, in particular, their capacity to conform with the OIE and FAO regulations or recommendations on disease security in handling viruses.

7) Funding will be provided by the participating countries. Funds will be deposited with a Trust Fund of FAO. Resources will be provided for:

   a) the purchase (or simply) storage of the vaccines,

   b) the checking of quality and immunological relationships of vaccines;

   c) management of the bank.

   The contribution of FAO in providing financial control and clerical services will be negotiated.

8) While located within the FAO framework, in order to take advantage of the benefits of the world infrastructure of the Organization, the bank will operate under the supervision of the FAO/OIE/EEC Tripartite Committee and the guidance of a Technical Committee in which all major international FMD Commissions or Centers will be represented.

TEXT OF THE PROJECT

1. Background

Despite the remarkable progress made in achieving and maintaining disease freedom in a number of countries, the chances for any country in the world to be invaded by FMD virus have not lessened. Apart from the frequent occurrence of country to country infection, there have been cases, also in recent years, of disease transmission from continent to continent.

After the SAT_1 invasion of the Near East in 1962, another virus, A_{22}, spread from its original area probably in eastern Africa, to the Near East and involved the Middle East and also southeastern Europe. Other viruses, like SAT_2 and $ASIA_1$ have affected large areas of their continent of origin and now more than ever represent a threat for Europe and other continents. The more recent recovery of inter-related strains of the south American A_{24} group in western Europe, northern Africa and the Far East, and finally the wide range of distribution shown by the C virus in 1978 and 1979 in a number of European countries including U.S.S.R., are but an indication of the infection potential in the world.

These are examples of what comes to notice from a very confused situation where conditions of under-development, not only in the African and Asian continents, incapacity of the field veterinary services to control the movement of large animal populations, the pressure of economic interests ranging from livestock exchange to the market of vaccines, the reluctance to notify the disease often resulting from fear of drastic reactions from importers and last but not least, the masking effect of vaccination on the clinical manifestation of disease, all contribute to making public opinion either ignore or under-estimate the dangers deriving from the widespread presence of the virus in the world.

While a number of countries may have good reason for not worrying unduly about the possibility of introducing FMD from overseas either because of their powerful vaccine production facilities or their proven ability in organizing eradication campaigns, the fact remains that the majority of countries are not only exposed to infection but in many cases are not even prepared to meet emergency situations with much probability of success. There is also the case of "advanced"countries, which thanks to their geographic position were able to maintain freedom from the disease in the absence of provision for the procurement of vaccines or plans for emergency action.

The disease has in fact remained overt or latent in three continents, and the possibilities for the virus to spread from infected countries has even increased; such spread could take place easily enough in the natural way facilitated by the steadily increasing movement of animals, livestock products and people. The "artificial" spread of disease is not to be neglected either; on the contrary, what in the past could have simply been taken as an absurd or extravagant conjecture is today to be considered as probable. The artificial introduction of the infection could bring about a true explosion of outbreaks which would make control extremely difficult and vaccination indispensable.

In the U.S.A., it was estimated that the introduction of FMD might cause losses up to 3.5 billion dollars.

In conclusion, despite the progress made in FMD control, especially in Europe, alertness is today more justified than ever and preparations for emergency action appear to be fully justified.

2. Economic losses and cost-benefit considerations

From the material published on the economic impact of FMD, significant examples of

losses and costs of eradication campaigns are quoted hereunder; this will offer an opportunity for a better understanding of the advantages to be derived from the establishment of a strategic reserve (bank) of vaccines.

2.1 Losses and costs of eradication campaigns

The losses suffered in 1937-38 by Germany, just before the Waldmann-Schmidt vaccine was industrially prepared, amounted to over 200 million dollars. After the Second World War, the losses caused to Europe by the 1951-52 panzootic were estimated at over 600 million dollars. The study made by FAO on that occasion is a good reference for economists because the final figure resulted from a meticulous enquiry carried out with the collaboration of all involved countries. When Turkey was invaded by A_{22} virus the cost of the disease in 1964-65 was estimated at US$ 86 million. In the U.K. direct and indirect losses totalled £35.1 million on the occasion of the 1967-68 epidemics, during which 400,000 head of animals (including 212,000 cattle) were slaughtered and destroyed.

The first and most impressive example of vaccination playing a determining role in the eradication of FMD is given by the Mexico campaign in 1950-1952; the cost was high (approximately US$ 140 million) but the result of the joint USA/Mexico efforts was definitive. Examples of new invasions successfully eliminated by the slaughter method combined with vaccination are given by the Netherlands in 1967 (18,000 animals destroyed, 8 million Dutch Florins spent of which 3 million as slaughter indemnity; by Austria in 1973 (some 1,400 animals slaughtered, 15 million schillings spent of which 6.7 million for slaughter indemnities), by France in 1974 (some 33,000 animals destroyed, 54 million Fr. F. spent for stamping out and vaccination campaigns).

2.2 Cost-benefit considerations

There is a considerable amount of literature on the economic assessment of losses, including cost-benefit evaluation of FMD control, not to mention the number of unpublished reports and material produced by Government offices both to justify expenditure and fund new disease control operations. Those who gained experience in this exercise, particularly in countries where it was not possible until recently to adopt or to make widespread use of the stamping out policy, know all too well that it is impossible to make accurate forecasts of the economic implications which might result from a new attack of FMD. There are at least two groups of variables to be considered, the first linked to the country, its organization and ability to deal with FMD outbreaks, the second depending on the virus itself, i.e. its invasiveness, pathogenicity with respect to species (swine in particular) to tissues (cardiac and other malignant forms) antigenicity, resistance etc. Mortality may be high also in adult animals (i.e. as during some epizootics of the thirties) or be negligible.

Indirect losses are also very difficult to predict. It should be borne in mind, furthermore, that as progress advances in the eradication of FMD in the world, the economic implications for countries which continue to be affected by the disease become more and more serious. Apart from the most obvious effect on animal and meat exports, agricultural development will suffer because animal production activities and foreign investments in particular, will be discouraged merely because of the presence of FMD. This was well understood by all those countries which adopted the stamping out policy already before the turn of the century, i.e., long before administrators resorted to the use of more elaborated, computerized systems of statistical analysis.

Once established in a country, FMD will require the setting up and maintenance of vaccine production facilities; this, together with the systematic application of the vaccine will determine the annual cost of the disease, while the component resulting from losses caused by the disease may be even brought down to nil.

Ten million monovalent doses of vaccine (i.e. the annual stock required to cover the

needs of a small country like Belgium) may cost 1 million dollars to produce; but the expenditure relevant to the maintenance of FMD Institutes, properly staffed and isolated, will double if not treble the cost of the vaccine. By adding the expenditure on vaccination (vaccine distribution, injection fees), the total cost should be in the range of four million dollars. The benefit is disease freedom, thanks to basic immunity prevailing in the country or at any rate the possibility of quickly re-establishing disease freedom by using national resources.

The annual expenditure required for FMD control and prophylaxis in a country like Belgium, corresponds roughly to the cost of the programme described hereunder for the maintenance of a strategic reserve of vaccines. This would constitute a low-cost insurance for any country wishing to count on an internationally controlled source of vaccine should an emergency arise.

Ancillary benefits of a joint effort in the stock piling of vaccines would be:

a) re-classification of FMD viruses based on practical immunological concepts,

b) levelling of average vaccine potency in the world, with the bank stocks serving as reference;

c) identification of the best sources of vaccines for use in follow-up operations (i.e. after the first intervention with the bank stock).

d) decentralization (regionalization) of FMD vaccine production and furtherance of FMD control in the developing world.

The social impact of benefits deriving from a soundly planned system of vaccine donations should by itself get countries to support the programme independently of their being equipped or not for vaccine manufacture.

3. Vaccine reserve and alternatives

3.1 Vaccine reserve

The establishment of a vaccine reserve (bank) should not imply any change in control policies; preventive and stamping out measures should be maintained unaffected in all participating countries. Participating countries must consider vaccination only as an adjunct to slaughter. Plans for emergency vaccination should be kept in constant readiness for implementation, if deemed necessary.

Vaccines should be kept in storage in view of their immediate delivery to the participant country concerned. This would entail storing of at least 20 to 25 different monovalent vaccines until more is known about immunological relationships within the types (see under Section 12).

3.2 Establishment of production facilities

The alternative of establishing and maintaining vaccine production facilities, ready to operate in case of emergency only, is perhaps attractive, but impracticable.

Apart from the heavy investment costs, maintaining production facilities ready, however in the absence of know-how kept in continuous training, would probably miss the objective. "Good" vaccines are difficult to produce for many reasons, not all of which are known. It would be unrealistic, therefore, to think that vaccine manufacture would be successful at the first attempt, even in advanced countries. Whatever the result, in any case, it would take at least two months to pass the first batch of vaccine, i.e. time enough for the outbreak either to evolve in a catastrophy or for the disease to be brought under control; in both cases, the vaccine would become available too late.

3.3 Seed-virus stockage

Reliance on the already available seed virus stocks would also be risky because unforseeable factors might considerably delay vaccine manufacture on an industrial scale; time would then be required for testing of the new product.

In any case this alternative would not solve the problem of countries which have maintained disease freedom in the absence of vaccination and/or institutes equipped for vaccine production.

3.4 Stockage of concentrated antigens

The stockage of concentrated antigens might constitute a cheaper alternative to the maintenance of vaccine stocks, however, research is still under way on this very attractive prospect.

3.5 Conclusions on alternatives

The establishment of a vaccine reserve bank should be considered as the only practical solution for the time being.

4. Admission to the vaccine reserve (bank)

4.1 Non-vaccinating countries

4.1.1 Initially, access to the bank will be open to countries which have maintained disease freedom by the rigorous application of all necessary preventive veterinary measures with the exclusion of vaccinations, and are committed to continue to do so independently from the existence of a vaccine reserve. Immediately eligible in this group would be: Canada, United States, Mexico, the Scandinavian countries, the United Kingdom, Ireland, Iceland, Japan, Australia and New Zealand.

4.1.2 Admission of other countries which are disease free, but more exposed to infection (e.g. countries in Central America, in the Mediterranean area, etc.), should be decided case by case.

4.2 Vaccinating countries

4.2.1 The participation of countries which apply the same preventive measures as mentioned above, but use vaccination, could also be considered with favour: these countries would have access to those vaccines which are "exotic" for the region where such countries are located.1/ Non-adherence to the internationally agreed import-export regulations implies exclusion from the bank.

4.2.2 The participating countries should share the funding of the bank.

1/ For the purpose of this project, the definition of "exotic" applies to FMD virus strains against which two vaccinations carried out at three-weekly intervals with any inactivated vaccine of the same type produced in the region conforming to the European Pharmacopoeia requirements, will not be able to confer the minimal protection required by the European Pharmacopoeia for FMD vaccines.

5. Primary condition for obtaining the stored vaccines

Vaccines will not be transferred to the contributing country before the disease has been officially notified and both casual virus and the corresponding vaccines have been determined by the World Reference Laboratory, Pirbright. Notification and exchange of information with the W.R.L. should be carried out by telex.

The release of the vaccine for emergency use will be subject to the advice of the Technical Committee of the Bank.

6. Vaccines and Suppliers

6.1 General

In principle, only vaccines would be considered for stockage which give strong immunological response at the first injection. Reference is made to the results expected and observed in Western Europe following the use of vaccines which have passed official control (see section 7).

This would imply the stockage of as many monovalent vaccines as there are autonomous or immunologically distinct strains active in the world within the seven types of FMD virus.1/ Initially, the number of vaccines to be stored would be high(say 20 to 25),but a reduction would soon become possible as work proceeds in virus classification based on immunological relationships among strains, and results accumulate on cross protection trials in cattle.

Alternatives based on reliance on the booster effect of vaccination to make up for poor antigenicity with respect to a different strain of virus would considerably reduce the number of vaccines in storage, and operation costs, but would practically miss the very objective of the scheme, which is to have, after strain identification, the corresponding efficient vaccine immediately available. In other words, participating countries should by no means be offered vaccines of which the potency is questionable or subject to "a posteriori" evaluation.

6.2 Storage

Two main groups of vaccines should be considered for storage, viz.

(a) The vaccines which already meet or can easily be brought to meet the quality requirements of the bank, and which are already available in large quantities on the market; these are the O, A and C vaccines produced in Western Europe. They need only to be selected and stored. The production potential of some European firms, and the turnover are such as not to pose problems as to their rotation and replacement: the bank will have to pay for the storage.

(b) The group of vaccines which must be produced for the Bank either because the available ones do not meet the quality requirements of the bank (see Section7) (i.e. the South American vaccines) or because they would have no guaranteed market (SAT, ASIA, A_{22} vaccines etc.). The Bank will be responsible for production, storage and rotation of these vaccines.

1/ For the purpose of this project, the definition of "immunologically distinct or autonomous" applies to any FMD virus subtype or strain against which no type-specific vaccine, other than the homologous one, is able to produce the minimal protection required for FMD vaccines by the European Pharmacopoeia.

6.3 Selection of strains

The Bank should aim at having the South American vaccines selected, produced, tested and stored under the same conditions as the best European ones. This will entail gradual reduction in the number of vaccines to be stored as soon as results of cross-immunity within the type become available. In the long run, some of the European and South American vaccines will be unified and this will further reduce operation costs.

6.4 Suppliers

Suppliers will have to be selected which have first of all demonstrated, through available records, long experience in the production of vaccines and are able to comply with all requirements set by the bank concerning quality. In particular, account should be taken of:

(a) organization of the institute, lay-out, production potential and technical capacity to meet requests for vaccine deliveries, additional to those envisaged with the bank.

(b) location of the institute and affiliated laboratories in the world and communication possibilities and facilities;

(c) perfect isolation of the institute in the country, quality of the facilities available for testing vaccine on cattle and possibilities for obtaining testing animals;

(d) possibility for the institute to work in conformity with the OIE recommendations concerning the preparation of exotic vaccines and in line with the FAO principles and policies concerning the regionalization of vaccine production;

(e) possibilities for the institute to prevent and exclude viral contamination of the vaccine at any time or phase of its preparation, storage and delivery;

(f) preparedness of the institute to show technical protocols relevant to the vaccines in store for the bank.

Suppliers of the bank should be as few as possible, in order to facilitate inspection. However, more than one supplier should be considered in order to prevent a monopoly position, to stimulate competition and facilitate decentralization of vaccine manufacture.

7. Quality of the vaccines

There should be no ambiguity as to safety and potency requirements of the vaccines to be stored. As a guiding concept it should be considered that these vaccines are primarily intended for disease free countries and a fully susceptible animal population. Therefore, testing procedures should be meticulously negotiated and rigorously applied and controlled.

Only vaccines will be accepted which have been found to be very potent and are expected to remain sufficiently active until final disposal (18 months).

Producers will be free to produce vaccines according to their particular methods, but must be prepared to apply the quality tests required by the bank (see hereunder) and to show all relevant protocols. The finished product will be bottled and identified in serial numbers. Samples of the bottled product will be made available to the bank at any time for checking purposes (innocuity-potency).

7.1 Sterility

(as described in relevant sections of the European Pharmacopoeia Vol. II p. 53).

7.2 Safety

The innocuity of the vaccine will be tested in both cell cultures and cattle after elution and concentration of the antigen. The method of reference is that applied in the Federal Republic of Germany and recommended by the European Commission. (See Appendix VI of the report of the Research Group Meeting, Lelystad, 22-24 October 1974).

7.3 Potency

The potency will be expressed by the number of cattle PD50 content resulting from challenge of three groups of bovines aged 18 months at least with virulent virus, as indicated below.

7.3.1 All vaccines destined for the strategic reserve must conform to the testing procedure and minimal requirements as described in the proceedings of the International Association of Biological Standardization (October 1976) and adopted by the European Commission (XXII Session, March 1977), reading as follows:

"For each vaccine valency, three fourfold vaccine dilutions in carbonate buffer are injected into 3 groups of 5 fully susceptible bovines. Three weeks later, all the vaccinated animals and two control animals receive an intradermolingual innoculation at two sites with 0,1 ml virulent suspension containing 10,000 50% infectious doses for bovines in a volume of 0,2 ml. The testing virus is homologous with the vaccine strain. No less than 5 days after the test, all the animals are slaughtered and the results recorded.

The number of 50% Protective Doses (Pb) (Puissance bovine) per full dose together with its minimum value, is estimated with p at 0,95.

A vaccine will conform to the recommendation of the OIE, the demands of the European Pharmacopoeia, and the recommendations of the European Commission for the Control of Foot and Mouth Disease (FAO) when the minimum potency is at least 3 for each of the vaccine valencies, which corresponds to a minimum protection of 87% with p at 0,95".

With 3 PD50 as lower fiducial limit in the cattle test; the average number of PD50 per dose should be six to nine.

7.3.2 When other and cheaper methods have demonstrated on the basis of accumulated experience not to be inferior to the cattle test they will be considered by the bank.

8. Shelf life of vaccine and validity for the bank

8.1 On the basis of information built up in the course of the years on the duration of activity of the vaccines prepared in Europe for use in prophylactic schemes, including campaigns in southeastern Europe and, in particular, of retesting results and performance in the field of such vaccines, a shelf-life of 1,5 years should be considered a reasonable period for conventional vaccines that have shown high potency, as indicated in 7.3.1.

8.2 However, the validity of vaccines for the bank should be limited to 12 months; after that time and within the remaining six months of validity, all vaccines should be replaced. This will allow for the correct disposal of vaccine before expiry.

The bank should control from time to time the potency of the vaccine in storage. The purpose is twofold:

(a) to check the potency indicated by the producer

(b) to make sure that at the 12th month of validity the minimum protection is not below 70%.

8.3 No vaccine should be kept in the storage facilities for the bank after expiry date.

9. Storage, labelling, protocols

9.1 In principle, vaccines should be bottled and stored at a temperature of 2 to 6°C in a specially identified compartment of the storage facilities of the producer. The storage compartment must be provided with a temperature recorder and all relevant sheets should be kept on file. No other vaccine should be kept in the same compartment. Unauthorized persons should not have access to this compartment.

9.2 The label of each container should indicate: producer and place of production; dates of preparation and testing; specification of the vaccine strain or subtype; series number of the batch; expiry date; dosage and any other indication suggested by the bank.

9.3 The producer will provide the bank with a copy of the protocol concerning innocuity, safety and potency tests of all the batches kept in storage for the bank.

10. Quantity to be stored (doses per vaccine)

In principle, 1,000,000 doses of vaccine should be stored for every type or subtype of virus.

Reduction to 500,000 doses could be decided in special cases, (e.g. strains of very limited geographical diffusion).

11. Rotation of vaccines

After 12 months of storage all vaccines should be replaced by new batches. Those vaccines which are the property of the bank will be disposed of by donation to developing countries. Freight costs will have to be met by the recipient country, as a demonstration of interest in their use, and a brief report on the use made of the vaccine should be handed to the bank.

Donations will be effected according to a plan approved by the Advisory Committee of the bank.

12. Organization

12.1 Funding should provide for three main yearly activities: **

(a) - purchase and storage of 10 to 12 monovalent vaccines of the types and subtypes of SAT1, SAT2, SAT3, ASIA1 and A_{22}.
approx. cost: 2.5 million dollars.

** Funding under point (a) is expected to be reduced by 50%, as soon as knowledge becomes available on immunological coverage by the selected strains.

- purchase and/or storage only of 8 to 10 monovalent vaccines of the conventional O, A and C types (initially the South American vaccines will be purchased)

  approx. cost: 1 million dollars.

(b) participation of the bank in quality testing, (e.g. check of potency testing, cross immunity trials, etc.)

  approx. cost: US$ 300,000

(c) management, including travel expenses of the bank inspector(s), meetings, etc.

  approx. cost: US$ 150,000

12.2 Countries should participate in the fund according to the criteria used for the FAO scale of contributions.

Ad hoc contributions, in cash or kind, could be accepted from countries wishing to participate in the programme of the bank, especially in the field of quality testing and cross protection of vaccines of specific interest to the bank.

All contributions would be deposited in a Trust Fund of FAO. Owing to its structure, administrative competence, and network in the world, FAO seems to be the ideal international Organization for accomodating the bank.

12.3 Management

A person of proven experience in FMD control (not necessarily a full-time employee) should be in charge of the bank. He should be attached to FAO which should also provide control and clerical services, under conditions to be negotiated.

12.4 Main duties of Manager will be:

- to keep records of all vaccines in storage, including copies of all relevant protocols concerning quality testing.
- to inspect testing operations and storage of the vaccines
- to organize meetings of consultative committees
- to maintain contacts with collaborating institutes and other sponsoring organizations.

12.5 Collaborating institutes

- AVRI (Pirbright): responsible for virus calssification and main consultant for the determination of the vaccines to be stored.
- The Pan American FMD Center, Rio: main consultant for determination of vaccines to be selected in South America.
- The Animal Virus Research Center (Plum Island): should act as main reference institute for the checking of vaccine quality and for cross immunity trials.
- Federal Research Institute of Tübingen (Federal Republic of Germany)
- FMD Institute of Lelystad (Netherlands).

Collaboration will be open to other national institutes and to private companies.

12.6 Consultative Committees:

(a) Technical committee should be established to give advice, at any time, on major technical problems of the project. The Technical committee will be composed of specialists representing FAO (Research Group of the European Commission), OIE (Permanent FMD Commission) and the Pan American FMD Center (Rio).

(b) Tripartite (FAO/EEC/OIE) Committee: The Tripartite Committee should be consulted on general policy matters such as decision as to the release of vaccine in emergency cases, destination of vaccines to be rotated by the bank, etc.

The Pan American Center will have the right to be represented at all meetings of the Tripartite Committee.

12.7 Meetings and reports

To reduce expenditure, meetings should be held on the occasion of other major meetings of the sponsoring organizations (FAO, OIE, WHO, EEC).

Administrative and technical reports should be presented annually by the manager of the bank. A general report on the bank activity should be presented and discussed every three years at the session of the OIE Permanent Commission for FMD.

APPENDIX B III

REPORT OF THE EXECUTIVE COMMITTEE ON THE COMMISSION'S ACTIVITIES DURING THE BIENNIUM 1977-1978

Introductory note

This report covers the period which has elapsed since the XXII Session of the European Commission (29 March - 1 April 1977). Since then the Executive Committee has held an ad hoc consultation on 25 and 28 May 1977, in Paris, and two sessions, the 40th in Rome in February 1978, and the 41st in Torremolinos in January 1979.

The reports of the ad hoc consultation and of the 40th Session contain full information on the activities and missions carried out in 1977 and have been distributed to all member countries as well as to other interested governments, agencies and laboratories.

This report is divided into four sections:-

1. General and current activities
2. Special and other activities of the Commission and its Secretariat
3. Conclusions and recommendations of meetings of the Research Group
4. Summary and deliberations of meetings of the Executive Committee

1. General and current activities

1.1 Epizootiological investigations The general activities of the European Commission and its Secretariat have followed much the same pattern as in the previous biennium.

In conformity with Article IV of the Constitution, implementation was assured of the programme of work approved by the XXII Session of the Commission with emphasis being placed on evolution and control of FMD in the continent. To this end action was primarily directed at collecting and exchanging epizootiological information of direct and indirect interest to member countries.

Thanks to the overall improvement of the disease situation in the continent, it was possible to concentrate attention on investigations and enquiries concerning the relatively few primary outbreaks which occurred during the period and their possible origin. The main matter for concern in 1977 was the continuation of a situation characterized by the appearance both in Europe and Northern Africa of infection foci caused by viruses of type A, all more or less serologically related to strains prevalent in South America. The problems deriving from that situation and the implications of different attitudes in Europe in

dealing with importation of meat from South America entailed considerable work, in particular interviews and exchange of correspondence at FAO headquarters, and were amply debated both at Paris (ad hoc consultation) and at Rome by the Executive Committee.

As of February 1978, disease manifestations related to "foreign" viruses ceased in Europe but indigenous sources of infection caused concern again when FMD appeared almost simultaneously in six countries. In fact, sporadic foci were caused by virus type C in the Federal Republic of Germany, the German Democratic Republic, Italy, Switzerland, France and U.S.S.R. and their interrelationship remained obscure. The continuous threat from smouldering foci caused by European strains of virus has led once again to emphasize the need for not only maintaining but also extending protection coverage in eastern Europe.

The detection of virus type C in the U.S.S.R. and German Democratic Republic after a lapse of many years and, furthermore, the almost simultaneous appearance (late in 1978) of virus type A in Malta and at the place where animals destined for Malta were in transit pending loading on board, have revealed once again the existence of wide gaps in both the prophylactic system and disease surveillance over the continent.

The possibility that the situation might suddenly deteriorate in southeastern Europe was always kept in mind during the last year of activity, especially following the recrudescence of the O virus infection in Turkey, including Thrace. Contrary to what was observed after vaccination in the course of sixteen years of campaigns, Turkish Thrace had O virus foci every month throughout 1978, also within the repeatedly vaccinated areas, which formerly remained disease-free. Both the Secretariat and the Chairman have been much concerned about such a situation which seemed to indicate changes either of an epizootiological nature (new virus mutants within O type?) or in the efficiency in the application of mass vaccination and control of animal movements. Information was systematically collected regarding vaccine production and application in the region (see also under Sections 1.2 and 2.4).

In brief, disease surveillance and coordination of disease control activities contributed during the biennium to arresting the development of dangerous situations caused by either "foreign" or indigenous strains of foot-and-mouth disease.

1.2 Survey on vaccination programmes By implementing recommendations and resolutions of previous meetings concerning the need for European countries to maintain and further strengthen vaccination coverage in the continent, the Secretariat kept European countries informed on the Commission's deliberations and collected information on extension and timing of vaccination programmes as well as on the kind, quality and cost of the vaccines used. The results of a survey on the capacity of vaccine production in Europe were published as Appendix II of the Report of the 40th Session of the Executive Committee (Rome, February 1978).

1.3 Seed virus stocks Based on the opinion expressed by the Research Group in 1976 that with reasonable probability the seed virus stocks held in liquid nitrogen at the W.R.L. would enable mass virus production to be started immediately, the Commission deliberated at the XXII Session that the policy of keeping seed virus stocks should be continued.

Therefore, the Secretariat has checked on the position of the stocks at the W.R.L. and, as in the past, gives the list of the stored viruses. (See Table I).

1.4 Activities concerning other vesicular diseases Action by the Secretariat consisted in collecting information from the countries affected by swine vesicular disease. Of particular interest was the random survey carried out in the U.K. (1977) of swine presented for slaughter in order to trace and eliminate residual sources of infection.

Unfortunately, it has not been possible to improve knowledge of the disease position in other parts of the world where the agent of African swine fever is likely to be present.

2. Special and other activities of the Commission and its Secretariat

2.1 Campaigns in southeastern Europe The disease position and campaigns in southeastern Europe are dealt with in a separate paper (Items 2-5 of the Provisional Agenda). The Secretariat's activities consisted mainly in (a) frequent contacts with the authorities of the three countries entrusted with the maintenance of buffer zones and also with EEC and OIE; (b) visits to Turkey and technical review of the UNDP project (TUR 542) with a view to improving vaccine and to assisting in the setting up of new production units at Ankara; (c) a fund-raising campaign conducted in autumn 1978 to obtain new participation by EEC and other countries in financing the continuation of programmes for the maintenance of buffer zones until 1983; (d) preparation of reports for use by EEC and of progress reports for wider distribution.

2.2 Assistance to Malta As mentioned in the paper on Items 2-5 of the Provisional Agenda the Government of Malta requested FAO assistance in November 1978, when the country was hit by FMD after three years of disease freedom.

While the previous outbreak was controlled by a team of experts made available by the British Government, this time the local staff and three veterinarians seconded by the Italian Government were able to organize and implement an efficient stamping out/mass vaccination operation. Technical advice and especially vaccine were needed. The European Commission's assistance was provided through two consultancies, one carried out by the Secretary on 5-6 December, the other by Dr. G.M. Boldrini on 11-17 December. Arrangements for the delivery of vaccine were made and with a view to saving as many animals as possible assistance was given especially when the Government had to take decisions as to when and by which measures the eradication policy initiated on 26 November with drastic application of stamping out in infected premises could be modified following evidence that vaccination was working.

The Commission procured the vaccine necessary for the emergency campaign carried out between 8 and 18 December and the revaccination campaign scheduled to start in mid-January 1979. In all 13 000 doses of trivalent vaccine were procured with the Commission's funds, and the Italian Government was kind enough to make the vaccine available under the same conditions and cost applied to Italian farmers (i.e. 5 US cents the trivalent dose).

The Government of Malta was advised to reinstate annual mass vaccination.

2.3 Assistance to Bulgaria

2.3.1 Background At the meeting held by the Executive Committee at Varna in October 1975, the Government of Bulgaria informed delegates about the decision to allocate 13 million Leva for setting up an FMD Institute near Sofia. The Italian delegate promised assistance in the form of technical expertise and know-how to be provided free of charge by the Istituto Zooprofilattico of Brescia for the organization of a pilot unit with a capacity of one million polivalent doses of vaccine. In view of the importance of these initiatives for the strategy of FMD control in southeastern Europe, all possible support was given by the Commission and by FAO (through UNDP Technical Assistance Programme) to assist Bulgaria in taking the greatest possible advantage of bilateral collaboration from Italy. For the last three years various missions have gone from Brescia to Sofia to evaluate programmes and assist the Bulgarian Government in procuring all equipment necessary for a pilot production unit. In the meantime, various members of the Bulgarian Research Institute have been trained at Brescia in cell growth and vaccine manufacture. A special mission composed of two consultants (Dr. Jensen, Denmark, and Dr. Panina, Brescia) visited Sofia, in October 1976 at the request of the Bulgarian Government, to give advice on the methods and equipment which would be best suited to the needs of the National Center for FMD. Other missions and fellowships followed in 1977 and 1978. All costs were met by the European Commission until October 1978, when a three-year UNDP project came into operation (BUL/77/011).

The allocation and adaptation at the Research Institute of Sofia of all premises necessary to accommodate the pilot unit took much more time than initially envisaged. Equipment costing US$ 300 000 had to be installed and tested.

Some pieces of equipment were damaged or had to be modified to correspond to the agreed specifications. The Secretary of the Commission assisted Bulgaria in arranging for modifications and repairs; to complete the unit, a few additional supplies (including chemicals) were procured from TF 9097 (Non-EEC campaign fund). For this purpose expenditure did not exceed US$ 20 000.

2.3.2 The Bulgarian project In view of the lack of interest shown in the so-called inter-country component of a "cooperative" project (see background and development in the report of the 40th Session of the Executive Committee) UNDP accepted to support national country programmes, aiming at strengthening FMD laboratory structures in south-eastern Europe. Bulgaria and Turkey received priority consideration.

The draft of a project for technical assistance was submitted by Bulgaria to UNDP and FAO for consideration in October 1977. The project, which contained a request for US$ 450 000 as UNDP counterpart contribution to the national effort (approximately 10 million dollars), was accepted in principle by FAO subject to some modifications which were discussed and approved on the occasion of a visit paid by the Secretary to Sofia in April 1978. On this basis and pending presentation of the work plan, UNDP accepted to finance the project and made a pre-allocation of US$ 35,000 for operations in 1978.

This made it possible to make provisions in the autumn of the same year, for two fellowships at Brescia (to improve knowledge of cell suspension techniques) and for a study tour to be carried out by a qualified team in five European institutes. The objective of the study tour, which took place between November and December 1978, was to reach definite conclusions as to the planning of work and the layout of the Institute scheduled to be constructed in 1979.

The Bulgarian project at Sofia is directed by Dr. Ourutchev (Project Manager) while the Secretary of the Commission will act as Chief Technical Adviser. Administration of the project will be supervised by FAO.

The main objective of the project will be to build up experience in pilot production of FMD vaccine. Training will also concern diagnosis of exotic virus diseases.

Installation will be planned so as to ensure safe handling of viruses and prevention of virus escapes from the Institute.

2.3.3 The Turkish project As stated in previous reports of the Executive Committee, a further two-year extension of the UNDP project (TUR 549) has been approved to ensure continuation of the technical assistance provided during the last decade. The main components of the project are special consultancies to be carried out in 1978 and 1979. The project, together with the financial grant of a million dollars already obtained from EEC and possible further grants from the same source will be of great help during the more critical phase of the move from pilot to industrial production in the new building constructed for this purpose.

As reported under Items 2-5 difficulties still persist in Ankara in getting regular output of vaccine; the new Secretary has visited the Ankara Institute and discussed the various problems which have still to be resolved.

Dr. Girard, former Director of the projects TUR 33 and TUR 549 is senior consultant/ adviser for the Turkish project.

2.3.4 Assistance to the Greek FMD Institute The Athens FMD laboratory has been assisted in order to increase vaccine production capacity and quality. To this end, US$ 16 700 of the campaign funds have been spent in 1977 on the procurement of some essential items of equipment and for two fellowships (for a duration of two months each) on different aspects of BHK and S particle in European Institutes (Tübingen and Brescia).

2.4 Regionalization of FMD vaccine production and related problems The activities related to assistance to the laboratories of Sofia, Ankara and Athens have been in line with the regionalization concepts affirmed by FAO and the Commission on many occasions. In addition, the Secretariat participated in various FAO programmes directed towards the same objective in other parts of the world.

In north Africa, the FMD vaccine production was furthered in the Arab Republic of Egypt through a Technical Cooperation project (6-EGY/01/T FMD) in which Dr. Stouraitis served as project manager for the period 1974-76. The Cairo unit has produced experimental vaccines only but has equipment at its disposal for a capacity of at least two million doses of vaccine per annum. Unfortunately, difficulties are still encountered in cell growth in suspension when using a 250 litre fermentor and in maintenance of the equipment.

Following the A virus epizootic, Morocco obtained FAO assistance through a TCP project implemented during the biennium. The Secretary of the Commission and two specialists in vaccine production (Dr. Stouraitis and Dr. Panina) carried out visits and consultancies which included advice and the draft of a plan for the establishment of a pilot production unit near Casablanca.

Acting within the framework of the Animal Health Service, FAO, the Secretary undertook the following responsibilities:-

(a) Subject Matter Officer of the FMD project in Burma (project manager Dr. P. Stouraitis);
(b) Arrangements for a consultancy which was carried out by Dr. Anderson, U.K. in a number of African countries to explore possibilities for regional activities;
(c) Finalization of TCP projects for emergency assistance in FMD control in Botswana and Mozambique.

Much remains to be done in the regionalization of FMD vaccine production but obstacles to be overcome are many; apart from difficulties in getting countries to cooperate in FMD control within any region, impediments of another nature make it almost impossible to transfer the technology of FMD vaccine manufacture from the advanced countries of Europe to the developing world. What may succeed at the purely experimental stage is already doomed to failure at the semi-industrial stage. This has been seen repeatedly in the course of FAO projects despite the presence of good experts and experienced staff on the spot. The results obtained with tissue culture in cell suspension are a striking example. While in advanced European Institutes the method has given very satisfactory results, all too often in the assisted Institutes cell suspension has caused endless trouble.

Experience has taught that FMD vaccine production should not be attempted in conditions of industrial under-development without the backing of a specialized institute, prepared not only to receive trainees but also to supply expertise. Positive examples, during the biennium, have been the combinations Brescia/Sofia and Padova/Cairo, which made it possible, not without difficulties, to lay the ground for promising developments both in Bulgaria and Egypt.

Finally the setting up of an FMD laboratory in Botswana, for which the Secretary of the Commission was consulted, and one in Onderstepoort, constitute a major achievement in the regionalization of vaccine production because new sources of exotic vaccines become available outside Europe and possibilities are also offered to compare results obtainable with conventional methods of tissue culture (Frenkel, monolayers) in growing the three SAT types of virus.

This leads to mention of the work carried out by the Secretariat and the Chairman concerning available stocks of exotic vaccine to meet possible emergencies. (See Table II)

A document entitled "Strategic vaccine reserve" was prepared in 1978 by the former Secretary for submission as a "draft project" to the XIV Conference of the OIE Permanent Commission. Although circumstances did not permit timely finalization and distribution of this document, the Chairman of the Commission, Dr. Brown, presented it verbally during

the OIE conference, Paris, 10-14 October 1978. The idea was accepted in principle by FAO and OIE and it was recommended that it be methodically studied by the FAO/EEC/OIE Tripartite Committee.

2.5 Activities concerning FMD position in South America and importation policies

The main issues at the 40th Session of the Executive Committee (Rome, 14-16 February 1978) were discussions on the A virus infection introduced into Europe from overseas and on import policies. The report of the Session raised much interest on the part of all parties concerned and exchange of correspondence between the Director of the Pan American Center, Rio, and the Chairman of the Commission. PAHO explained efforts and activities directed towards improving the situation in the continent but rejected the attribution to South America of the origin of certain strains isolated in Europe (or north Africa); the Chairman reiterated remarks made at previous meetings of FAO and OIE and stressed once again that the European attitude should be taken as a sincere offer of collaboration in the common interest of both continents.

The evolution of FMD in South America (See Table III and Table IV) remained under scrutiny by the Commission's Secretariat also during 1978, and also the changes on the importation policies adopted by European countries to prevent new introduction of disease from overseas. Concern was caused by non-adherence in some member countries to the resolution passed by the European Commission in 1972 concerning "Conditions for importation of beef from countries where FMD is endemic and is caused by viruses not considered exotic for Europe.

In November 1978, the Secretary attended together with the Director of the Animal Production and Health Division, FAO, the "Hemispheric Meeting on Foot-and-Mouth Disease and International Trade of Meat and Livestock" organized by the Organization of American States and PAHO, in Buenos Aires, Argentina.

The FAO and European Commission's position and suggestions concerning FMD control in South America were illustrated by Dr. H.C. Mussman on the basis of an ad hoc document prepared in Rome in collaboration with the former Secretary. Among the resolutions of the meeting, that presented by the Mexican Delegation concerning the "Appointment of a Commission to Study the establishment of An Inter-American Institute for Animal Health", was of particular interest.

The Secretary also attended the meeting of the "Sextas Jornadas Internacionales de la Facultad de Ciencias Veterinarias" where the above-mentioned document was also presented. A visit has also been paid to the Pan American Foot-and-Mouth Disease Center in Rio de Janeiro, where discussions were held on the problems of the FMD virus strain and particularly those isolated in Europe and considered to be related to the South American strain.

2.6 Other activities

2.6.1 Membership of the Commission Contacts were maintained with countries which had expressed the desire to adhere to the European Commission. While negotiations were very successful with Spain, difficulties still persist with Czechoslovakia in finding a solution to the problem of the payment of contributions. It was gratifying to note the willingness of Czechoslovakia to become a member of the Commission.

2.6.2 Attendance at OIE Sessions The Secretary attended the annual sessions of OIE where he had had an opportunity to collect information on epizootiology and control of FMD and discuss the problem of regionalization of FMD vaccine production especially in Southern Africa.

2.6.3 Publications The Chairman of the Commission made arrangements for a contribution on FMD by the former Secretary to a special issue of the Veterinary Record. An article entitled "Vaccination and control of FMD" was published in March 1978.

2.6.4 Office of the Secretary Dr. P. Stouraitis who had been selected as Secretary of the European Commission, had the opportunity of working jointly with Dr. G.M. Boldrini from 1-30 June 1978, separation date of the former Secretary. Since then Dr. Boldrini's collaboration with the Commission has continued in the form of short consultancies (mission to Malta, etc.) and assistance in the preparation of working papers relevant to his activity as Secretary.

3. Conclusions and recommendations of meeting of the Research Group of the Commission

Considerable work was carried out by the Research Group during the biennium under the Chairmanship of Dr. J.G. van Bekkum. In addition to expertise and advice given to the Commission on all matters referred to it for examination, the Group continued, under the leadership of A.V.R.I., Pirbright, studies and activities directed towards reaching the highest possible uniformity both in the use and interpretation of the testing techniques currently applied in laboratories concerned with the manufacture of vaccines.

Two meetings were held during the biennium:-

3.1 Meeting of the Research Group, Brescia, June 1977 The Research Group of the Commission held a laboratory meeting at Brescia on 6 and 7 June 1977. At this meeting the work of the Research Group was briefly reviewed especially in regard to inter-laboratory evaluation of methods for virus and antibody assays. Particular reference was made to the involvement of some 20 laboratories in the first and second phases of the operation. It was hoped that the third phase of the exercise would be completed before the Brussels meeting in June 1978.

Conditions for the laboratory exchange of exotic viruses were considered. It was noted that recognition of the presence of A_{24} virus in Northern Europe was delayed because available sera gave positive but weak reactions. If there was an invasion of a true exotic virus there would be real cause for concern. Exotic antigens should be available in some national laboratories, with appropriate safeguards and on the responsibility of the relevant national veterinary services. There should be no testing on large animals. This matter should be considered by the Executive Committee and the Commission especially in the light of the considerable improvement of virus security attained during the last ten years.

Attention was drawn also to the stockage of seed virus or as an alternative, of vaccines of exotic types, and the advantages and shortcomings of both were examined.

The meeting considered that both the results of the inter-laboratory study and the advice given on the various problems referred to by the Research Group should be submitted for consideration to the XXIII Session of the Commission.

Finally the Committee briefly reviewed the problems related to the composition of the Research Committee and emphasized that membership was on the basis of the appointment of individuals by direct invitation. It was considered that existing members should continue in office, particular reference being made to the distinguished Chairmanship of Dr.J.G. van Bekkum. Certain complex issues were involved but it was stressed that individuals would preferably be Directors of Institutes who would serve in a private capacity. In line with this principle, it was agreed that Dr. Eskildsen, new Director of the Lindholm Institute, and Dr. G.F. Panina, Istituto Zooprofilattico, Brescia, should be invited to become members of the Research Group, replacing Dr. E. Michelsen and Professor L. Nardelli.

3.2 Meeting of the Research Group, Uccle, June 1978 A session of the Research Group of the European Commission for the Control of Foot-and-Mouth Disease (FMD) was held at the National Veterinary Research Institute of the Ministry of Agriculture at Uccle (Brussels), Belgium, from 14 to 16 June 1978.

The meeting was chaired by Dr. J.G. van Bekkum, Director of the Virology Department, Central Veterinary Institute, Lelystad, and Chairman of the Research Group. The members of

the Research Group present were:

Dr. J.B. Brooksby, Director of the Animal Virus Research Institute, Pirbright, accompanied by Dr. F. Brown, Dr. H. Pereira and Dr. A.J.M. Garland; Dr. M. Mussgay, President of the Federal Institute for Animal Virus Diseases, Tübingen, accompanied by Dr. K. Strohmaier; Dr. J. Leunen, Director of the Veterinary Research Institute, Uccle, accompanied by Dr. R. P. Strobbe, Dr. J. Debecq, and Dr. M. Mammerickx; Dr. G. Kubin, Director of the Federal Institute for Virus Diseases, Vienna; Dr. M. Eskildsen, Director of the State Veterinary Research Institute, Lindholm, accompanied by Dr. J.C. Lei; Dr. G.F. Panina, Zooprophylactic Institute, Brescia, accompanied by Dr. F. De Simone. Dr. J.G. van Bekkum was accompanied by Dr. S.J. Barteling.

The following observers attended: Dr. F. Lucam, Vice-Chairman of the FMD Permanent Commission of OIE; Dr. D. Abaracon, Chief Vaccine Production, Pan American FMD Center; Dr. H.L. Bachrach, Chief Scientist, Plum Island Animal Disease Center, U.S.A.; Dr. J. Fontaine and Dr. H. Favre, IFFA-MERIEUX, Lyons; Dr. U. Kihm, Director, Federal Vaccine Institute, Basel.

Dr. G.M. Boldrini, retiring Secretary of the European Commission, Dr. P. Stouraitis, successor to Dr. Boldrini, and Miss J. Raftery from the European Commission, FAO, provided the secretariat. Dr. Garland acted as rapporteur to the Session.

Mr. A.C.L. Brown, Chief Veterinary Officer, Ministry of Agriculture, Fisheries and Food, Tolworth, U.K. attended on the last day of the meeting in his capacity as Chairman of the European Commission for the Control of Foot-and-Mouth Disease when he made a presentation to Dr. G.M. Boldrini, the retiring Secretary.

The Chairman of the Session welcomed the participants, in particular the newly appointed members, Dr. Eskildsen and Dr. Panina and the visitors from outside the European Community, Dr. Abaracon and Dr. Bachrach. He expressed the highest appreciation for the arrangements made by Dr. Leunen and his staff in providing very suitable accommodation and all the necessary facilities and equipment for the meeting.

The following agenda was presented and adopted:

(a) Advances in physical measurements and biochemical data on FMD virus
(b) Strain comparison of FMD viruses using pools of sera
(c) Incorporation of more or less exotic strains of FMD virus in European vaccines
(d) Collaborative study of laboratory methods for the assay of FMD virus and antibody. Results of Phase Two and plans for Phase Three.
(e) Naming of field isolates of FMD virus
(f) Next Session of the Research Group

3.3 Conclusions and recommendations of the meetings

3.3.1 Advances in physical measurement and biochemical data on FMD virus

The routine application of the physical measurement of virus is well advanced in many laboratories but common problems exist and have been identified. Apart from technical problems such as the aggregation of virus great difficulties have been encountered in attempting to establish the correlation between the parameters of the amount of 146S virus and the complement fixing activities of virus preparations on the one hand and of the immunogenicity of these preparations in animals on the other. The problem is particularly difficult in cattle because of inaccuracy but it is recognized that the final criterion of immunogenic potential must still be by testing in this species. Recent advances in the knowledge of the biochemistry of FMD virus have great promise for the future.

It is recommended that the various technical problems of biophysical assay of FMD virus should continue to be actively investigated together with the correlation of these parameters with the immunogenicity of the preparations in animals.

It is also recommended that, in order to avoid the present confusion in terminology, the polypeptides of the FMD virus should be identified according to the amino acid found at the N terminal of the polypeptide where this is known. Thus the Trypsin sensitive, major immunogenic polypeptide known variously as VP1 or VP3 should now be designated as $VP_{Threonine}(VP_{THR})$, the polypeptide known as VP2 should now be designated as $VP_{Asparagine}$ (VP_{ASP}), and the polypeptide known as VP3 or VP1, should now be designated as $VP_{Glycine}$ (VP_{GLY}).

The present terminology for the polypeptide would be relevant only for the polypeptide VP4 until its N terminal amino acid residue becomes known.

3.3.2 Strain comparisons of FMD viruses using series of sera from individual cattle Vaccinated populations are continually at risk from the possible introduction of new strains of field virus. The serological methods which are to be employed in assessing the degree of protection likely to be afforded by current vaccines and the choice of the best available vaccine strain to be used against these strains are of critical importance. The gross variations which are apparent in serological results between the sera of individual vaccinated cattle require that adequate numbers of sera must be tested if misleading results are to be avoided. Similarly, the use of pooled sera gives false results if the pool contains individual sera of atypical activity against the field strain.

It is recommended that in the investigation of current strains of vaccine virus for use against a new field strain, the sera from at least ten cattle which have been vaccinated once and ten cattle which have been vaccinated twice, should be examined individually in serological tests. Sera of high antibody activity should be chosen for any further tests. The use of pools of sera from vaccinated animals is not recommended. Further comparisons on different test systems and their relation to challenge tests should be investigated.

3.3.3 Incorporation of more or less exotic strains of FMD virus in European Vaccines Strains of type O, A and C viruses currently used for the preparation of European vaccines may bear little relationship to the viruses which are responsible for the present outbreaks in other parts of the world. A possible safety precaution might be the incorporation of some selected more or less exotic viruses in European vaccines. However, recent experience has shown that provided any outbreak of disease in Europe is treated by the rapid application of stringent zoosanitary measures including slaughter, movement control and ring revaccination, the disease can be brought under control in a short time. Indeed some such recent outbreaks in Europe have been caused by viruses which were different to the vaccine strains currently employed. There appear to be no compelling reasons for the incorporation of exotic viruses in European vaccine at the present time.

It is recommended that new strains of classical European virus which are more or less exotic strains of FMD virus should not be incorporated in European vaccines at the present time. This policy should only be changed if the existing measures failed to contain an outbreak. The recommendation would not apply to those countries within Europe which maintain a strategic reserve of vaccine but which do not practise routine prophylactic vaccination.

The present epizootiological surveillance of countries outside Europe should be maintained and encouraged as should the monitoring of selected exotic strains in serological tests and in the production and testing of experimental vaccines. The provision of emergency supplies of seed virus stocks and, possibly, formulated vaccine should be arranged. Contingency plans should be prepared and a central authority designated with powers to sanction the inclusion of exotic strains in European vaccine if the need should arise.

3.3.4 Collaborative study of laboratory methods in the assay of FMD virus and antibody. Phase Two has been completed and Phase Three is under way. Preliminary results received from the second phase of the collaborative international study were discussed. The initial phases of the project had provided useful quantitative data on the variation in results between laboratories for the first time. The use of standard cells and agar gave results which showed good reproducibility within laboratories but wide variation was again apparent between laboratories. These findings emphasize the role of other sources of variation and the difficulties of obtaining standard conditions between laboratories. The desirability of establishing International Reference Preparations for FMD viruses and antibodies was agreed upon.

Integration of this project with the scheme for vaccine strain characterisation and selection, recently initiated under the auspices of the International Association for Biological Standardisation, was considered as a desirable future possibility.

It has been recommended that the Third Phase of the collaborative international project on the standardisation of techniques for the assay of virus and antibody in FMD vaccine preparation should proceed with the quantitative assay of the weight of 146S component and the complement fixing activity of standard virus preparations.

In addition, virus and serum should be distributed in sufficient quantity to serve as International Reference Preparations allowing a degree of standardisation of the results obtained from various assay systems employed in different laboratories.

3.3.5 Naming of field isolates of FMD virus It was recommended that the system proposed for the naming of field isolates of FMD virus in the Proceedings of the International Symposium on FMD: Variants and Immunity, Lyons, 1976, should be universally adopted. Field isolates should therefore be identified by a name which includes the following:-

(a) The type of virus
(b) The subtype of virus (where this is known)
(c) The country or major geographical area of origin
(d) The serial number of the sample
(e) The year of isolation.

3.3.6 Next Session of the Research Group The Chairman accpted Dr. Eskildsen's invitation to hold the next meeting of the Research Group at the State Veterinary Institute for Virus Research, Lindholm, Denmark, in mid-June 1979. The official government invitation has been received.

The provisional agenda for the next Session of the Research Group was established as follows:-

(a) Precautionary measures to prevent escapes when dealing with FMD virus
(b) Laboratory methods - Phase 3 of the Joint Study
(c) Use of sera in the evaluation of vaccine strains
(d) Long-term storage of inactivated antigens
(e) Persistance of FMD virus in milk and milk products
(f) Any other business.

4. Meetings and deliberations of the Executive Committee during the biennium

4.1 Ad hoc consultation held in Paris on 25 and 28 May 1977

4.1.1 The major item for discussion was the situation caused by the spread in north Africa of a new strain and the procurement of homologous vaccine.

The Committee expressed its concern regarding the manipulation in continental

laboratories of A Morocco strain in the absence of any official communication about this matter and agreed that the Pan American Center should be provided with the strain for comparative studies with south-American strains.

The Committee unanimously recommended "that the production of A Morocco vaccine should not be undertaken on the European continent if such an action could be avoided, thus keeping in line with the principles which, since 1962, have guided the campaigns against exotic FMD in southeastern Europe". It also recommended that A.V.R.I. should undertake the preparation of seed virus for distribution in case of need.

A programme of technical assistance missions to Morocco and Algeria was also approved by the Committee.

4.1.2 Modalities for the recruitment of the Commission's new Secretary were discussed. It was agreed that "FAO will draw up a short list of candidates eligible for the post and will submit this to the Executive Committee for examination" at its next Session.

4.2 40th Session of the Executive Committee, Rome, 14-16 February 1978

The Commission's activities since the XXII Session (April 1977) were examined. The main issues were:-

4.2.1 Position of FMD in Europe The Committee discussed the prevention of FMD of non-European origin. The report of the meeting contains the position as expressed by various delegates on the control of FMD in South America and suggestions made to improve the exchange of communication between that continent, through PAHO, and European member countries.

4.2.2 An enquiry into the capacity of vaccine production in all European Laboratories was presented by the Secretary (published in the report).

4.2.3 An account was given on the position of FMD in Turkey and campaigns in southeastern Europe. Provision for the maintenance of buffer zones in 1978 was approved by the Committee. The efforts made by Turkey for the development of new industrial production units were appreciated and the Turkish proposals for financial help by EEC and other agencies in the furtherance of prophylactic structures in southeastern Europe were supported.

4.2.4 The Committee appreciated the assistance given by FAO, through its Technical Cooperation Programme to the control of FMD in Algeria and Morocco and to the establishment of a vaccine production unit in the Arab Republic of Egypt.

4.2.5 Appreciation was also expressed for the investigations and surveys carried out in the U.K. with a view to eliminating residual sources of infection by the virus of swine vesicular disease.

4.2.6 Regional activities The Committee felt that countries had not yet given to the training component of the European Cooperative Project the full consideration that it merited. It was understood that for the time being efforts should be directed to the strengthening of the laboratory structures in southeastern Europe by supporting UNDP assistance for national FMD projects in Turkey and Bulgaria.

4.2.7 Activities of the Research Group The Committee noted the contribution given by the Research Group especially through the Joint Study on virus and antibody assays and approved the agenda of the meeting planned to be held at Uccle, Belgium (See Section 3 of this Report).

The Committee reviewed problems related to the composition of the Research Group. It was considered that existing members should continue in office, particular reference

being made to the distinguished Chairmanship of Dr. J.G. van Bekkum. In line with the principle that regular members should preferably be individuals who are in a position to ensure the cooperation of their respective laboratories, it was agreed that Dr. Eskildsen, new Director of the Lindholm Institute, be invited to replace Dr. Michelsen and after consultation with the Vice-Chairman, Professor Bellani, that Dr. G.F. Panina, Chief of the FMD laboratories in Brescia, be invited to replace Professor L. Nardelli who had retired.

4.2.8 The administrative budget of TF 9042 was reviewed and approved by the Committee.

4.2.9 Office of the Secretary In a closed session of the Executive Committee, the question of the appointment of a new Secretary was discussed. Dr. P. Stouraitis was identified from a list of four candidates as the person whose name would be forwarded by the Chairman through the Director of the Animal Production and Health Division to the Director-General of FAO.

The appointment of the Secretary was effected in conformity with Article XII.1 of the Constitution.

As indicated in Section 6.3 of the Report of the 40th Session of the Executive Committee (distributed to all member countries) in view of a discrepancy existing between FAO rules and the Constitution of the European Commission concerning the appointment of the staff of the Commission's Secretariat, the Executive Committee decided that a letter summarizing FAO's position on this matter should be circulated to member countries.

4.3 41st Session of the Executive Committee, Torremolinos, 23-26 January

At the invitation of the Government of Spain, a meeting of the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease was held in Torremolinos, from 23 to 26 January 1979.

Dr. A.C.L. Brown, Chairman of the Commission, in opening the meeting congratulated Spain on becoming a member of the Commission and on behalf of the members as a whole wished the Spanish authorities many years of fruitful membership. On behalf of the Minister for Agriculture, and of Dr. José Garcia Ferrero, Director-General, Producción Agraria, Dr. J. Paniagua Arellano, Sub-director General de Sanidad Animal, welcomed the delegates and informed them that Spain had become a member of the Commission as of 20 December 1978.

Following adoption of the agenda the Commission's activities were reviewed, in particular the period which had elapsed since the last meeting of the Committee and the agenda for the Twenty-third Session was examined.

4.3.1 Disease position in Europe The Committee, in reviewing the FMD situation in European countries, noted that in 1978 the FMD situation was further improved. The disease had occurred in sporadic foci in only a few countries with the exception of Italy and Malta where O_1 and A_5 respectively were present in a number of outbreaks.

The A_5 virus strain isolated in Malta and in Yugoslavia (Port of Ploče) are identical or very closely related according to the results given by the W.R.L. Pirbright.

4.3.2 Position of FMD in Turkey and campaigns in southeastern Europe

The Committee after reviewing the FMD situtation in Turkey, noted that it had been more critical during the last year and type O virus had been isolated again in Thrace with sporadic foci in the area in which vaccination campaigns had been systematically carried out every year. (See Table 3 Prov. Agenda - Items 2-5)

The Committee examined reported failures of vaccines containing O_1 Lausanne strain to protect cattle in Turkish Trace against O local strain. There was evidence for an

antigenically distinct O strain in Turkey. (See Report of the Committee).

Provision for the maintenance of the buffer zone in Thrace was discussed and the campaign was approved.

The efforts made by the Turkish Government to establish the new FMD laboratory for industrial FMD vaccine production with the assistance of FAO and EEC, were appreciated. It is hoped that the new laboratory will go into operation by the end of 1981.

4.3.3 The Committee appreciated the assistance given by the FAO through its Technical Cooperation Programme to Algeria, Morocco and Egypt.

4.3.4 A few sporadic foci of SVD reported in Europe show that the disease incidence in 1978 had further decreased. The Committee took note of the information presented by the Secretary and agreed that countries where more than two distinct foci of infection occurred must not claim freedom from the disease without the evidence of statistically significant virological surveys.

5. The Committee reviewed the working paper on Item 6 of the agenda. Appreciation was expressed for the role played by the W.R.L. through the years in the development of diagnostic services and facilities in Europe. Particular emphasis was placed on the more recent contribution of the W.R.L. to the joint inter-laboratory study which is being carried out under the sponsorship of the Commission.

The question as to whether national institutes should be allowed to hold exotic FMD strains for diagnostic purposes was also debated but no firm proposal could be made as to possible concessions in this complex issue. The Chairman recommended that the subject be retained on the agenda for the 23rd Session.

The problem of seed virus stocks and a vaccine reserve was then discussed and it was agreed that the draft project (Item 6 c) on the vaccine bank which had already been supported in principle by FAO should be circulated at the 23rd Session of the European Commission in order to have a preliminary discussion on its merits.

5.1 Meeting of the Research Group, Uccle, June 1978 The Secretary drew the Committee's attention to the report of this meeting and the Chairman invited Dr. van Bekkum, Chairman of the Research Group to comment on it and the agenda for the next meeting of the Research Group (to be held at Lindholm in June '79) was approved by the Committee (See Section 3)

5.2 The administrative budget of TF 9042 was reviewed and approved as it stood by the Committee.

5.3 The Chairman after a general discussion stated that he would like to see the Secretary devote more attention to eastern European countries, in particular Poland, Czechoslovakia and Albania. He added that he hoped the present difficulties which interfered with these countries becoming members of the Commission could be resolved in the near future.

FAO VACCINE VIRUS STOCKS AT 9.1.79

Table I

Type	Strain	Passage History	Date of Storage	Amounts Stored	Titre at Storage	Titre at 9.8.76
A_{22}	USSR 1/66	BTY1,BHK8,S1	Feb.'71	25x200 ml. 36x4 ml.	$10^{7.0}$pfu/ml	$10^{7.3}$pfu/ml
SAT_1	Rho 5/55	BTY1,BHK5,S1	March'71	32x200 ml. 30x4 ml.	6.8	7.0
SAT_2	Uganda 6/70A	BTY1,BHK12,S1	March'71	48x200 ml. 69x4 ml.	6.1	6.2
SAT_3	Bec 1/65	BHK2, S1	Feb.'71	34x200 ml. 32x4 ml.	6.8	6.2
Asia 1	Israel 3/63	BTY1,BHK7,S1	March'71	35x200 ml. 33x4 ml.	6.1	6.2
Asia 1	Iran 1/73	RS_2,BHK7,S2	Dec.'74	9x700 ml. 17x4 ml.	7.2	6.7

BTY = Bovine Thyroid culture BHK = Monoloyer cell culture.

S = BHK suspension cell culture. RS_2 = $IBRS_2$ pig kidney cell line.

Table II

STOCKS OF VACCINE AGAINST EXOTIC STRAINS HELD BY WELLCOME FOUNDATION

These stocks are held as bulk samples but could be bottled rapidly and made available in an emergency. However, 100,000 doses of each are currently available. The strains concerned are :

A22

A Philippines

A24 Cruzeiro

Asia 1

SAT 2

SAT 3

For SAT 1 there are currently only 70,000 doses, but this is due for renewal shortly.

****

Table III

HERDS AFFECTED BY FOOT-AND-MOUTH DISEASE ACCORDING TO VIRUS TYPE BY COUNTRY AND YEAR.

SOUTH AMERICA 1972-1978

Country	Type of virus	1972	1973	1974	1975	1976	1977	1978
Argentina	O	637	819	134	310	139	283	40
	A	849	966	337	334	455	313	114
	C	108	14	349	460	132	191	88
Bolivia	O	33	2	2	9	7	2	5
	A	22	-	3	11	2	15	4
	C	-	1	7	2	6	12	-
Brazil	O	493	665	280	698	382	383	731
	A	506	518	500	635	2835	2131	667
	C	790	1166	368	136	93	65	28
Colombia	O	82	82	100	23	14	231	190
	A	181	142	261	310	639	183	118
	C	-	-	-	-	-	-	-
Chile	O	3	4	-	-	-	2	-
	A	6	2	10	-	-	3	-
	C	1	-	-	-	6	7	1
Ecuador	O	124	50	41	29	28	36	37
	A	6	4	19	133	26	8	9
	C	-	-	-	-	-	-	-
Paraguay	O	10	4	4	36	29	14	8
	A	2	6	3	3	2	2	-
	C	5	3	14	7	1	4	2
Peru	O	19	24	10	-	2	15	-
	A	27	10	9	38	4	-	9
	C	1	-	-	-	-	-	-
Uruguay	O	16	154	60	95	19	50	7
	A	27	30	6	34	61	187	9
	C	5	9	7	54	40	21	1
Venezuela	O	42	59	24	52	37	42	31
	A	25	11	25	23	47	19	17
	C	-	-	-	-	-	-	-

Source: According to Epidemiological Report, Panamerican FMD Center

Table IV

FOOT-AND-MOUTH DISEASE IDENTIFIED VIRUS SUBTYPES BY COUNTRY

SOUTH AMERICA 1978

Argentina	A_{24}	O_1	C_3
Bolivia	A_{24}	O_1	-
Brazil	A_{24}	O_1	C_3
Colombia	A_{27}	O_1	-
Chile	-	-	C_3
Ecuador	A_{24}, A_{27}	O_1	-
Paraguay	-	O_1	C_3
Peru	A_{24}	-	-
Uruguay	A_{24}	O_1	C_3
Venezuela	A_{32}	O_1	-

Source: Panamerican FMD Center, and information by countries of COSALFA - VI

APPENDIX B IV

FUTURE ACTIVITIES

The Commission will continue to promote and encourage national and international action for the control of FMD in Europe. To this end, close contact will be maintained with Government authorities, OIE, EEC and other specialized agencies and institutes.

The epizootiology of the disease in Europe will be further studied in collaboration with executive authorities and laboratory specialists. Coordination of enquiries and research is still needed to improve knowledge of immunity levels in vaccinated livestock, and of disease latency and virus persistence under different systems of control.

The Secretariat will continue to collect all available information on timing, application and extension of prophylactic schemes in Europe, including results of official testing of vaccines.

Member countries should furnish the Secretary in time with all information which could prove useful in carrying out epizootiological surveys and in furthering implementation of the functions specified under Articles IV and V of the Commission's Constitution. In particular:

1) The prevention of the introduction of FMD into Europe will continue to receive fullest attention; buffer zones will be maintained in Thrace and efforts by all interested countries should be coordinated in order to ensure efficient disease surveillance, simultaneous application of vaccination and control of animal movements and people in border areas. Vaccine will be procured from the funds especially allocated for this purpose and, in case of need, from the Commission's funds.

2) Collaboration among member countries will be sought with the objective of strengthening the laboratory network in both western and eastern Europe. The joint study so far undertaken for the evaluation of laboratory techniques will continue in order to arrive at the greatest possible harmonized implementation of methods and procedures in Europe.

3) Regionalization of FMD production will continue in the spirit of the recommendations made by the Informal Working Group Meeting on the Regionalization of FMD vaccine production held in Rome on 7 July 1974.

   The plans for the setting up of an FMD Institute in Bulgaria will continue to receive technical support in collaboration with the Italian Government. This activity will be carried out in accordance with the programme contained in the UNDP project for FMD in Bulgaria, with the Secretary acting as Chief Technical Adviser.

   The Commission, through its Secretary, will participate in all activities carried out by FAO for regionalization purposes in other parts of the world, in particular for assisting in the development of FMD laboratories and epizootiological investigation in countries affected by different or exotic strains of FMD.

4) The Commission will give full support to the FAO activities aimed at implementing the disease-free zone concept in the world. However, priority consideration will be reserved to regions of interest for Europe within the context of intercontinental trade of meat and animals.

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

Accounts for the Years 1976 and 1977

STATEMENT I

GENERAL ACCOUNT

Administration	$			$
Personal Services	106,501.26	Member Governments' Contributions received in 1976 and 1977 (as per Schedule I):		
Travel	7,712.59			
Meetings of the Commission	5,876.31	For 1974	$ 325.72	
Contractual Services	1,000.00	For 1975	4,680.00	
General Operating Expenses	548.52	For 1976	63,902.58	
Supplies (Emergency Expenditure)	770.76	For 1977	55,890.00	
		For 1978	1,672.96	
	122,409.44			126,471.26
Transfer to Special Account	5,448.83	Interest received		1,387.01
	$ 127,858.27			$ 127,858.27

STATEMENT II

SPECIAL ACCOUNT

	$		$
Travel of the Research Group	2,853.93	Balance at 1 January 1976	63,524.87
Supplies of the Research Group	3,630.72	Transfer from General Account	5,448.83
Regionalisation	4,202.31	Interest received	4,330.44
Balance at 31 December 1977	62,617.18		
	$ 73,304.14		$ 73,304.14

APPENDIX BV

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

Accounts for the Years 1976 and 1977

STATEMENT III

BALANCE SHEET AT 31 DECEMBER 1977

Liabilities	$	Assets	$
Special Account	62,617.18	Current Account with the Organization	62,617.18
	$ 62,617.18		$ 62,617.18

Certified correct

A.J. Brenssens
Director
Financial Services Division

Approved

Edouard Saouma
Director-General

I have examined the above Accounts. I have obtained all the information and explanations that I have required, and I certify, as a result of the audit, that, in my opinion, the above Accounts are correct.

D.O. Henley
(Comptroller and Auditor General, United Kingdom)
External Auditor

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

Statement of Contributions at 31 December 1977

SCHEDULE I

	Contributions due for Prior Years	1976 Contributions received in advance	Contributions due in respect of 1976 and 1977	Total Amounts due 1976 and 1977	Receipts in 1976 and 1977	Contributions Outstanding 31 Dec. 1977	1978 Contributions received in advance
	$	$	$	$	$	$	$
Austria	-	-	4,680.00	4,680.00	4,680.00	-	-
Belgium	-	-	7,800.00	7,800.00	7,800.00	-	-
Bulgaria	-	1,009.09	2,340.00	1,330.91	1,060.91	270.00	-
Cyprus	-	-	780.00	780.00	780.00	-	-
Denmark	-	-	7,800.00	7,800.00	7,800.00	-	-
Finland	-	-	4,680.00	4,680.00	4,680.00	-	-
Germany, Fed. Rep. of	-	-	15,600.00	15,600.00	15,600.00	-	-
Greece	1,441.50	-	2,340.00	3,781.50	3,781.50	-	-
Hungary	-	-	4,680.00	4,680.00	4,680.00	-	-
Iceland	-	-	780.00	780.00	780.00	-	-
Ireland	-	-	2,340.00	2,340.00	1,170.00	1,170.00	-
Italy	-	218.33	15,600.00	15,381.67	7,581.67	7,800.00	-
Luxembourg	-	-	780.00	780.00	780.00	-	-
Malta	-	-	780.00	780.00	780.00	-	-
Netherlands	-	-	7,800.00	7,800.00	7,800.00	-	-
Norway	-	-	2,340.00	2,340.00	2,340.00	-	-
Portugal	1,170.00	-	2,340.00	3,510.00	4,040.00	-	530.00
Sweden	-	-	7,800.00	7,800.00	7,800.00	-	-
Switzerland	-	-	7,800.00	7,800.00	7,800.00	-	-
Turkey	2,394.22	-	4,680.00	7,074.22	8,217.18	-	1,142.96
United Kingdom	-	-	21,840.00	21,840.00	21,840.00	-	-
Yugoslavia	-	-	4,680.00	4,680.00	4,680.00	-	-
	$ 5,005.72	1,227.42	130,260.00	134,038.30	126,471.26	9,240.00	1,672.96

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

(as presented for audit)

ACCOUNTS FOR THE YEAR 1978

GENERAL ACCOUNT

STATEMENT I

Administration	$			$
Personal Services	72,847.54	Member Governments' Contributions received in 1978 (as per Schedule I):		
Travel	7,561.79			
Meetings of the Commission	3,409.57	For 1977	$ 9,240.00	
Contractual Services	2,000.00	For 1978	82,996.04	
General Operating Expenses	93.89	For 1979	495.57	
Supplies (Emergency Expenditure)	3,490.00			
	89,402.79			92,731.61
Transfer to Special Account	4,779.75	Interest received		1,450.93
	$ 94,182.54			$ 94,182.54

SPECIAL ACCOUNT

STATEMENT II

	$		$
Travel of the Research Group	5,605.67	Balance at 1 January 1978	62,617.18
		Transfer from General Account	4,779.75
		Interest received	3,531.62
Balance at 31 December 1978	65,322.88		
	$ 70,928.55		70,928.55

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

ACCOUNTS FOR THE YEAR 1978

STATEMENT III

BALANCE SHEET AT 31 DECEMBER 1978

Liabilities		Assets	
Special Account	65,322.88	Current Account with the Organization	69,212.98
Unliquidated Obligations	3,890.10		
$	69,212.98	$	69,212.98

Certified correct

A.J. Bronsema
Director
Financial Services Division

Approved

Edouard Saouma
Director-General

I have examined the above Accounts. I have obtained all the information and explanations that I have required, and I certify, as a result of the audit, that, in my opinion, the above Accounts are correct.

D.O. Henley
(Controller and Auditor General, United Kingdom)
External Auditor

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

Statement of Contributions at 31 December 1978

SCHEDULE I

	Contributions due for Prior Years	1978 Contributions received in advance	Contributions due in respect of 1978	Total amounts due 1978	Receipts in 1978	Contributions Outstanding 31 Dec. 1978	1979 Contributions received in advance
	$	$	$	$	$	$	$
Austria	-	-	3,042.00	3.042.00	3.042.00	-	-
Belgium	-	-	5,070.00	5,070.00	5,070.00	-	-
Bulgaria	270.00	-	1,521.00	1,791.00	1,791.00	-	-
Cyprus	-	-	507.00	507.00	507.00	-	-
Denmark	-	-	5,070.00	5,070.00	5,070.00	-	-
Finland	-	-	3,042.00	3,042.00	3,042.00	-	-
Germany, Fed. Rep. of	-	-	10,140.00	10,140.00	10,140.00	-	-
Greece	-	-	1,521.00	1,521.00	1,521.00	-	-
Hungary	-	-	3,042.00	3,042.00	3,042.00	-	-
Iceland	-	-	507.00	507.00	507.00	-	-
Ireland	1,170.00	-	1,521.00	2,691.00	2,691.00	-	-
Italy	7,800.00	-	10,140.00	17,940.00	17,940.00	-	-
Luxembourg	-	-	507.00	507.00	507.00	-	-
Malta	-	-	507.00	507.00	507.00	-	-
Netherlands	-	-	5,070.00	5,070.00	5,070.00	-	-
Norway	-	-	1,521.00	1,521.00	1.521.00	-	-
Portugal	-	530.00	1,521.00	991.00	991.00	-	-
Sweden	-	-	5,070.00	5,070.00	5,070.00	-	-
Switzerland	-	-	5,070.00	5,070.00	5,070.00	-	-
Turkey	-	1,142.96	3,042.00	1,899.04	2,394.61	-	495.57
United Kingdom	-	-	14,196.00	14,196.00	14,196.00	-	-
Yugoslavia	-	-	3,042.00	3,042.00	3,042.00	-	-
	9,240.00	1,672.96	84,669.00	92,236.04	92,731.61	-	495.57

BUDGET FOR 1979

(Note by the Director-General of FAO)

1979 Administrative Budget

1. In accordance with the Constitution of the Commission and with its Financial Regulation III, the proposed Annual Administrative Budget is presented herewith.

2. The budget estimates have been drawn up in the form established in the Financial Regulations.

3. In the absence of "supplementary details", the estimates for Chapter II are presented in a single total in accordance with Financial Regulation III 3.5. No expenditures have so far been incurred under this Chapter and in the absence of more accurate information, it is recommended that an amount of $30 000 be provided here for 1979.

4. The proposed Annual Administrative Budget for 1979 totals $118,200, a certain amount of which ($28 957) is not covered by contributions from Member Governments. In accordance with Financial Regulation VI 6.2.2, it is proposed to meet the deficit in the General Account from the Special Account.

5. Under Code .10 "Personal Services" of Chapter I, the budget estimates for 1979 allow as in 1978 for one P-5 Secretary to the Commission, one G-6 Administrative Assistant and temporary conference staff. The higher provision for personal services against 1978, reflects cost increases. Total contributions received in 1978 from Member Governments amount to $94 183 including accrued interest.

1979 Special Budget

6. In the Special Budget for the Special Account in 1979, it is recommended that the following amounts be provided for: (a) $8 500 to cover any necessary travel and per diem of the members of the Standing Technical Committee; (b) $3 500 for reimbursement to the World Reference Laboratory for work related to the Research Group; (c) $6 000 for fellowships; (d) $28 957 to meet the deficit foreseen in the General Account.

7. Attached are: Table A showing the Annual Administrative Budget for 1979 and Table B showing the Special Budget for the Special Account. Table C shows the breakdown of expenditure for 1978 and the estimated budget for 1980 and 1981 respectively.

Assistance given by FAO

8. Besides the above expenditures, there are services provided by the Organization which have not been included in the cost estimate. Items not charged to the Commission include part-time services of senior officials of the Organization, the services of the Budget and Finance Units, office accommodation, equipment, supplies of stationery, document processing and publication, etc., as well as postal and cable services.

TABLE A

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

Trust Fund 9042 - Revised Provisional Budget for 1979

Source of Fund: Contributions from Member Governments of the Commission.

Purpose of Fund: To support activities of the Commission whose object is to promote national and international action with respect to control measures against FMD in Europe.

Contributions pledged in respect of 1979:	$ 89,739
	$ 89,739
Less Contributions recd. in advance for 1979 and transferred to Gen. Acc.	$ 496
	$ 89,243
Transfer from Special Account to meet deficit:	$ 28,957
TOTAL	$ 118,200

Application of Resources in 1979:

Ch.I Administrative Expenditure under Articles IV and XII.2 of the Constitution

P - 5 Animal Health Officer x 12 months - (Post No.6162.660)
G - 6 Admin. Assistant x 12 months - Post No.6162-546)
Temporary Conference Staff

Code 9042.0010	Personal Services	$ 76,500
.20	Travel on Official Business[1]	$ 9,000
.30	Contractual Services	$ 2,000
.40	General Operating Expenses	$ 700
	Sub-total,Ch.I	$ 88,200

Ch.II Emergency Expenditure (Special Functions) under Art. V of the Constitution(campaigns) $ 30,000

TOTAL 118,200

TABLE B

SPECIAL ACCOUNT

Funds available carried forward from 1978, including interest:	$ 65,323
Transfer to General Account to meet deficit	$ 28,957
TOTAL	$ 36,366

Code 9042.00.20	Travel of Research Group on Official Business	$ 8,500
.30	Contractual Services	$ 3,500
.80	Fellowships, Grants & Contributions	$ 6,000
		$ 18,000
	Reserve:	18,366
	TOTAL	$ 36,366

[1] Travel of secretariat and Chairman of the Commission

TABLE C

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

Trust Fund 9042 - breakdown of expenses 1978 - proposed budgets 1979/80/81

Application of Resources[1]

	1978		1979	1980	1981
	Approved budget	Actual expenditure	Proposed budget	Proposed budget	Proposed budget
.10 Personal services					
- Salaries	$ 65,000	$ 72,668 [2]	$ 68,600	$ 80,400	$ 80,400
- Meetings (interpreters, temp. assistance)	$ 4,500	$ 3,410	$ 6,000	$ 4,000	$ 7,000
- Overtime	$ 500	$ 180	$ 1,900	$ 500	$ 2,500
Sub-total	$ 70,000	$ 76,258	$ 76,500	$ 84,900	$ 89,900
.20 Travel on Official Business					
.23 Travel of secretariat	$ 6,500	$ 7,562	$ 9,000	$ 9,000	$ 9,000
.30 Contractual Services					
.39 Services to be rendered by World Reference Laboratory	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
.40 Gen. Operating Expenses	$ 700	$ 94	$ 700	700	700
.50 Supplies and materials					
.55 Emergency Exp. (Art. V of the Constitution)	$ 30,000	$ 3,490 [3]	$ 30,000 [5]	$ Nil	$ Nil
TOTAL	$109,200	$ 89,404	$118,200	$ 96,600 [4]	$101,600 [4]

1/ Annual income of Commission as of 1 Jan '79 from contributions by member countries $ 89.739
2/ This figure includes terminal emoluments for former Secretary
3/ Consultancy of former Secretary in Malta and emergency supply of vaccine
4/ Deficit to be met from reserve in Special Account
5/ By a decision of the Session on 30/3/79, this sum is to be split into three sums of $10,000 for 1979, 1980 and 1981 (see paragraph 8.2 of the report).

TABLE C (contd)

SPECIAL ACCOUNT

Application of Resources[1]	1978		1979	1980	1981
	Approved budget	Actual expenditure	Proposed budget	Proposed budget	Proposed budget
.20 Travel of Research Group	$ 7,000	$ 5,606	$ 8,500	$ -	$ -
.30 Contractual Services reimbursement to Pirbright for work carried out for Research Group	$ 3,500	$ Nil[2]	$ 3,500	-	-
.80 Fellowships, Grants & Contributions	Nil	Nil	$ 6,000	-	-
TOTAL	$ 10,500	5,606	$ 18,000	-	-

1/ Annual income of Commission as of 1 Jan. '79 from contributions by member countries $ 89,739
2/ Work not completed by AVRI in 1978

APPENDIX B VI

AMENDMENTS TO THE CONSTITUTION

1. Article XII.1 of the Constitution of the European Commission for the Control of Foot-and-Mouth Disease reads as follows:-

> "The staff of the Secretariat of the Commission shall be appointed by the Director-General with the approval of the Executive Committee, and for administrative purposes shall be responsible to the Director-General. They shall be appointed under the same terms and conditions as the staff of the Organization".

2. At the 40th Session of the Commission's Executive Committee (Rome, February 1978) the question arose whether Article XII.1 was consistent with the FAO Constitution, the General Rules of the Organization (GRO) adopted by the Conference, and the "Principles and Procedures which Should Govern Conventions and Agreements Concluded under Articles XIV and XV of the Constitution, and Commissions and Committees established under Article VI of the Constitution", (Section "R" of the Basic Texts). At that Session, the Committe was informed that it would be asked to examine amendments to the Commission's Constitution that would bring Article XII.1 into line with the provisions of the Organization's Basic Texts.

3. At its 41st. Session (Torremolinos, January 1979) it was considered that it would be useful if a short note summarising the position were to be prepared for submission to the forthcoming session of the Commission in March 1979.

4. The present document has therefore been prepared in response to the Executive Committee's wishes.

5. The relevant provisions of the Organization's Basic Texts read as follows:-

(a) Article VIII.1 of the Constitution

> "The staff of the Organization shall be appointed by the Director-General in accordance with such procedure as may be determined by rules made by the Conference".

(b) Rule XXXIX.4 of the General Rules of the Organization

> "Except as provided in paragraph 1* of this Rule, the Director-General shall act in his unfettered judgment in appointing, assigning and promoting staff personnel, and shall not be bound to accept advice or request from any other source".

(c) Paragraph 32(iii) of the Principles and Procedures (Section "R" of the Basic Texts)

> "32. The statutes of bodies established under Article VI of the Constitution and the basic texts of bodies established under Article XIV of the Constitution shall specify that:
>
> (i) .....
> (ii) .....
> (iii) the Secretary of each body shall be appointed by the Director-General and shall be administratively responsible to him.
> (iv) .....".

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* Not relevant in the present context.

6. From the provisions quoted in paragraph 5 above, it is clear that the appointment of all FAO staff is a constitutional prerogative of the Director-General, and that he acts in his "unfettered judgment" and "shall not be bound to accept advice or request from any other source". Since staff assigned to service the Commission are staff members of FAO, the requirement of approval by the Executive Committee provided for in Article XII.1 of the Commission's Constitution is - and was at the time when the Conference approved the said Constitution in 1953 - clearly in conflict with Article VIII.1 of the FAO Constitution read in conjunction with Rule XXXIX.4 of the General Rules of the Organization. It is also inconsistent with the policy reflected in the Principles and Procedures subsequently adopted by the Conference in 1957, and specifically paragraph 32 (iii). Article XII.1 of the Commission's Constitution also seems to have been inconsistent with the policy of the Organization even at the time of its adoption, since none of the three other instruments previously adopted by the Conference under Article XIV of the FAO Constitution contains a comparable provision.

7. It should also be observed that there appears to be an internal inconsistency between the first and second sentences of Article XII.1 as at present conceived. The first sentence refers to the Commission's Secretariat being appointed with the approval of the Executive Committee, while the second provides that they shall be appointed under the same terms and conditions as the staff of the Organization. The staff of the Organization are subject to the Organization's recruitment and selection procedures. These procedures do not include, as a condition for appointment, approval by any intergovernmental body, whether inside or outside the framework of FAO.

8. When the Conference adopted the "Principles and Procedures" applicable to Article XIV bodies, it simultaneously approved Resolution 46/57 inviting the parties to instruments adopted under that Article to amend them in order to bring them into line with the Organization's policy. Accordingly, the Director-General wishes to draw the constitutional and legal situation outlined above to the attention of Members of the Commission, since he considers that it would be consonant with the wishes of the Conference expressed in Resolution 46/57 for the parties to the Commission's Constitution to amend that instrument in a manner which would make it entirely consistent not only with the Constitution and General Rules of the Organization, but also with the Principles and Procedures applicable to all Article XIV bodies.

9. The above could be done by amending the first sentence of Article XII.1, to read as follows:

> "The staff of the Secretariat of the Commission shall be appointed by the Director-General [with the approval of the Executive Committee,] and for administrative purposes shall be responsible to [the Director-General] <u>him</u>".

(words in square brackets to be deleted, word underlined added).

In accordance with Article XIV of the Commission's Constitution, amendments may be proposed by any Member of the Commission and are adopted by the Commission by a two-thirds majority of its Members.

10. In recommending the above amendments to Article XII.1 of the Commission's Constitution, the Director-General wishes to emphasize that these amendments would not preclude appropriate consultations with Members of the Commission on the appointment of members of the Secretariat as might prove desirable from time to time in the interests of the effective functioning of the Commission.

APPENDIX B VII

POSITION AND CONTROL OF SWINE VESICULAR DISEASE (SVD)

IN THE UNITED KINGDOM (UK)

Current situation

The first outbreak of SVD in the UK occurred in December 1972. The Annex lists the annual incidence of outbreaks to date, the number of pigs slaughtered and the compensation paid. It also includes a table of origins. It should be noted that between September 1975 and September 1976 only one case was confirmed and this was a recrudescence following restocking at the premises of the last confirmed outbreak in 1975, so that there was virtually a 12 month period of freedom of the disease during that time. A further 20 month period of freedom occurred between June 1977 and February 1979.

On 3/2/79, SVD was confirmed on a farm in Humberside, with a further 25 outbreaks confirmed to date.

Twenty-two of these outbreaks have occurred in the North Humberside area, but the primary outbreak in this series has not yet been established. However, tracing has shown that in 11 of these outbreaks, 7 arose through the carriage of pigs in infected hauliers' vehicles, 2 from movement of pigs from owners' premises where SVD was present, and 2 from movement of equipment or personnel from owner's other SVD premises. The origins of the other 11 outbreaks are still under investigation, but it is almost certain that 9 of these outbreaks can be attributed to the movement of infected hauliers' vehicles, while the origin of the remaining 2 remains obscure.

In order to control the spread of disease in the UK, a Controlled Area was imposed between 14 February and 1 March 1979 on parts of Cleveland, North and West Yorkshire, Humberside and the whole of South Yorkshire.

The Controlled Area restrictions, which apply to live pigs only, prohibit the marketing of store pigs and movement of pigs into and within the Area is allowed only under licence. No movement out of the Area is permitted.

The distribution of the remaining 4 cases of the current series is North Yorkshire (1), West Yorkshire (1) and Leicester (2). The origin of the Yorkshire outbreaks and one in Leicester is not fully established, but the evidence is that the origin of all three lies in the purchase of market pigs before the imposition of the Controlled Area. The second Leicester outbreak was linked to the first through movement of pigs in a contaminated haulage vehicle.

Eradication policy

In any series of outbreaks in a defined area, a Control Centre is established. To deal with the Humberside outbreaks, a Control Centre was immediately set up in the Animal Health Office in Beverley with a complement of 20 Veterinary Officers and 20 Technical Assistants, drafted from different counties.

The stamping out policy, with full market value for all pigs slaughtered, continues.

Infected premises are thoroughly cleansed and disinfected using a highly alkaline industrial detergent, followed by spraying with 1% caustic soda solution and flame-gunning of all suitable surfaces. The spraying and flame-gunning is repeated after 14 days. Controlled restocking is allowed 8 weeks after completion of disinfection. Other controls are implemented by the Waste Foods Order 1973 and the Movement and Sale of Pigs Order 1975 and include the licensing of all pig movements, separation of slaughter and store pigs during transport, the licensing of pig markets and stringent standards for the construction, hygienic management and operation of all waste food processing and holding premises.

A notable feature of the 1979 outbreaks has been the confirmation of SVD in units containing large numbers of pigs. One such complex had 12,118 pigs on 4 premises. This inevitably leads to delays in slaughter and disposal of carcasses (by burial, incineration or conveyance to an approved processing plant for sterilization). The seizure, with compensation, of large amounts of contaminated feeding-stuffs has also been involved. The UK intends to issue a Code of Practice to owners of such large livestock units, which will give advice on the precautions to be taken to reduce the risk of the introduction of disease to the livestock complex and the subsequent spread of disease within the complex. Advice will also be offered on the correct storage and handling of feed-stuffs to prevent contamination of the large quantities of feed-stuff which at present have to be destroyed at high cost to the State.

The results of six serum surveys carried out in GB have been published.* It is considered essential to conduct regular serological surveys during and after a series of outbreaks, to confirm that eradication is succeeding and that low-grade clinical infection is not creating an endemic situation. It is disappointing that only one or two countries have published serological survey data. Claims for national freedom can only be made by countries in which SVD has occurred on the basis of statistically significant surveys.

To assist in establishing the primary focus of infection in the current series and to investigate the possibility of the existence of low-grade or undisclosed disease, arrangements are in hand to collect blood samples for laboratory testing for SVD antibodies at 12 slaughterhouses collecting pigs from the Humberside area. This survey has already commenced at 2 slaughterhouses and 643 samples originating from 103 premises have been screened by the double-immuno-diffusion test. One positive result has been obtained and disease confirmed on clinical grounds on the premises of origin.

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* Serum Survey No.1 — Veterinary Record 95, 535, 1974

Serum Surveys Nos. 2, 3 and 4 — Veterinary Record 100, 363, 1977

Serum Surveys Nos. 5 & 6 — Veterinary Record 102, 126, 1978

Annex

Year	Number of confirmed outbreaks	Total pigs slaughtered	Compensation paid
1972	13	3,579	101,942.50
1973	137	87,839	2,221,382.12
1974	187	89,036	2,660,067.90
1975	45	24,060	780,852.29
1976	3	2,102	90,130.26
1977	18	8,311	367,294.77
1978	NIL	NIL	NIL
1979	26	29,499	1,367,013.00
Total	429	244,426	7,588,682.84

OVERALL ORIGIN OF OUTBREAKS

Swill	59
Movement of pigs from Infected Premises	74
Market contacts	60
Lorry contacts	2
Movement of pigs in contaminated transport	70
Local spread	13
Movement of personnel	16
Movement of vehicles	24
Recrudescence	12
Obscure	99
Total	429

ORIGIN OF OUTBREAKS 1979

Movement of pigs from Infected Premises	3
Movement of pigs in contaminated transport	7
Movement of personnel/equipment	2
Movement of vehicles	9
Obscure (still under investigation)	5
Total	26

APPENDIX B VIII

SEROLOGICAL AND IMMUNOLOGICAL STUDIES OF THE NEAR-EAST FOOT-AND-MOUTH DISEASE VIRUS STRAINS O_1 MANISA 1969 AND O_1 OLTU 1977 *

The epizootiological importance of the Near East Foot-and-Mouth Disease virus strains is obvious for all FMD specialists in Europe and the Middle East.

In collaboration with the Veterinary Authorities, we have started the study of two O-type strains, which were kindly made available to us: O_1 MANISA 1969 and O_1 OLTU 1977.

Our present results regarding the general characteristics of these two strains and their serological and immunological relationships with the French O_1 LAUSANNE 1965 vaccine strain are exposed in this paper.

Further laboratory tests should make it possible to determine the antigenic relationships between the Turkish viruses and the O-type strains presently classified in Europe.

The work undertaken dealt with the following aspects:

1. Serological study of the O_1 MANISA 1969 and O_1 OLTU 1977 virus strains.
2. Immunological study of the O_1 MANISA 1969 virus strain vis-à-vis animals vaccinated with the O_1 LAUSANNE 1965 vaccine strain.

I MATERIALS AND METHODS

Omitted from this edited version.

II RESULTS

2.1 Present Serological Results (complement fixation)

Subtyping tests carried out by the Osler's method with culture antigens (Frenkel's or cell cultures) vis-à-vis 12 of our collection sera made it possible to establish the corresponding heterologous serum titres.

These results are shown in Tables no.1 and no.2 The latter one enables useful comparisons with the O-type strains found in Eastern Europe and Iran.

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* Lombard, Mr. M. - Brun, Mr. A. - Duret, Mr. C.

IFFA-MERIEUX 254, rue Marcel Mérieux 69007 LYON (France); Director: Jean Fontaine, D.V.M.

2.2 Immunological Results

Cattle vaccination - challenge

The classical method of active immunization followed by a deferred virulent challenge, remains the basic reference for the immunological study of FMD virus (Henderson 1948 - Girard and Mackowiak 1950 - Ubertini 1951).

As a matter of fact, it is the only method which puts to the test simultaneously all the components of the immunity conferred by the vaccine.

The O_1 MANISA 1969 strain was studied against the French vaccinal strain, O_1 LAUSANNE Switzerland 1965.

- First experiment

  Vaccination with O_1 LAUSANNE - challenge with O_1 LAUSANNE.

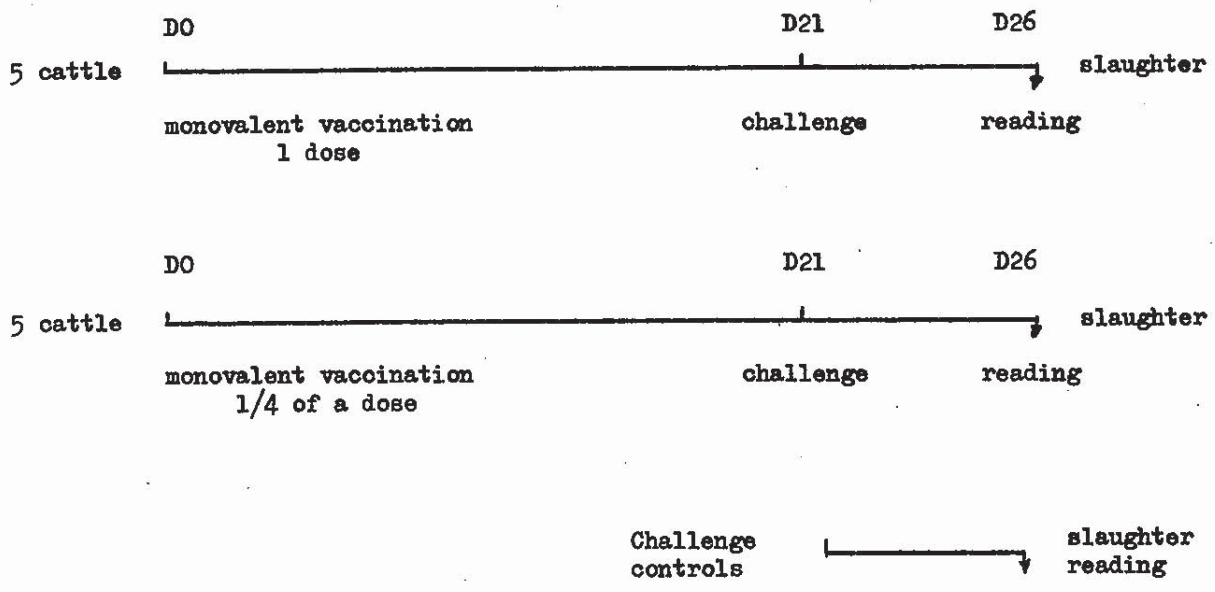
- Second experiment

  Vaccination with O_1 LAUSANNE - challenge with O_1 MANISA.

A) FIRST EXPERIMENT

The system selected was that of variable vaccinal doses- constant challenge dose (Fontaine 1966 - Terré 1966) schematized as follows:

O_1 LAUSANNE 1965 monovalent vaccine



RESULTS : see Table no. 4

B) SECOND EXPERIMENT

The same vaccine was engaged against the O_1 MANISA 1969 strain according to the following scheme :

$O_1 - A_5 - C_1 - O_1$ LAUSANNE 1965 trivalent vaccine

2 cattle

D0	D21	D42	D46
1 dose	booster 1 dose	challenge	slaughter reading

O_1 LAUSANNE 1965 monovalent vaccine

5 cattle

D0	D21	D26
monovalent vaccination 1 dose	challenge	slaughter reading

5 cattle

D0	D21	D26
monovalent vaccination 1/4 of a dose	challenge	slaughter reading

Challenge controls → slaughter reading

RESULTS : see Table no. 4

III DISCUSSION

3.1 From a serological point of view

The O MANISA 1969 and O OLTU 1977 viruses seem to be identical from the results of the unilateral studies. This fact has to be confirmed by the study of the sera prepared from these strains. If this was verified, the conclusion would be that the O virus strains which appeared in Turkey from 1969 to 1977 have not undergone antigenic changes. This should be compared with what had been previously demonstrated for the Iranian strains.*

The results , in complement fixation as well as in analytical serum neutralization (see Tables no.1, 2 and 5) show that the inclusion of these two viruses in the O_1 subtype seems as being at the limit ($0.24 < r_1 < 0.40$ with O_1 LAUSANNE and 0.51 with O_1 LOMBARDY). The relationship with our vaccinal strain is slightly looser than that of the strains from Iran or Thailand.

From a general point of view, it should be noted that the antigenic spectra of these strains, illustrated by the histograms (see Table no. 3) show a progressive and continuous antigenic variation according to the more or less oriental origin of the virus.

3.2 From an immunological point of view

Looking at Table no.5, which translates the results of Table no.4 into percentages of protection, confirms the serological results, namely:

That the O_1 MANISA strain is different from the O_1 LAUSANNE strain, but it does not breach the immunity conferred by several vaccinations with the European vaccine.

From its characteristics, it is a O_1 subtype, although far from the French vaccinal strain as shown by the serological results obtained in complement fixation as well as serum neutralization.

The studies in progress on the O_1 MANISA 1969 and O_1 OLTU ERZURUM 1977 viruses lead to the following conclusions:

- Both viruses appear as identical, which fact would prove a remarkable homogeneity of the antigenic spectrum of the O-type FMD virus in the Near-East for nearly ten years.
- Their unilateral relationships with the O_1 LAUSANNE 1965 virus, evaluated by complement fixation, show a noticeable, but not extreme, difference.
- The cross challenges of cattle vaccinated with the French vaccinal strain confirm this difference (60% of heterologous protection).

However, as it was observed in many instances with other viruses, the booster vaccination confers a strong protection to the animals. These results emphasize once more that serological results alone are not sufficient to enable a final choice of the FMD virus strains to include in the vaccines used for FMD medical prophylaxis within a defined region.

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* "Present results of the serological study of a few O-type viruses that have appeared in the Middle-East and in Europe" by AMIGHI M., MASTAN M.B., FIROUZI-BANDPAY, LOMBARD M., PERRENOT F. and FAVRE H.

XV Conference of the OIE Permanent Commission on Foot-and-Mouth Disease - Paris - October 1978.

Although a serological study may be sufficient to define an emergency action confined to two successive vaccinations, it is more difficult not to consider the use of a homologous vaccinal strain or of a strain very close to the threatening virus, when a systematic prophylaxis has to be implemented, as it is the case in the buffer zone between Asia and Europe.

Table no 1

UNILATERAL SEROLOGICAL RELATIONSHIPS r_1

VIRUSES / SERA	0_1 LOMBARDY	0_1 LAUSANNE	0_2 BRESCIA	0_7 SICILY	0_1 MANISA	0_1 OLTU
0_1 Lombardy 1946	1	0.52	0.55	0.49	0.51	0.56
0_1 Lausanne 1965	0.34	1	0.35	0.22	0.40	0.40
0_2 Brescia 1947	0.26	0.14	1	0.19	0.10	0.13
0_7 Sicily 1958	0.25	0.33	0.21	1	0.40	0.51

$$r_1 = \frac{\text{heterologous serum titre}}{\text{homologous serum titre}}$$

Table no 2

UNILATERAL SEROLOGICAL RELATIONSHIPS r_1

VIRUSES / SERA	0_1 Lausanne 1965	0_1 Spain 1964	0 Evros Greece 1972	0 Rumania 1972	0 Austria 1973	0 Kabul 1965	0 Mashouré 1968	0 Isfahan 51/1977	0 Tabriz 1977	0 Iraq 1977	0 USSR 1618	0 USSR 194 1958	0 Thaïland 1975	0 Manisa Turkey 1969	0 Oltu Turkey 1977
0_1 Lausanne 1965	1	0.37	0.48	0.24	0.27	0.47	0.52	0.50	0.49	0.45	0.46	0.44	0.53	0.40	0.40
0_1 Spain 1964	0.74	1	0.46	0.40	0.50	0.50	0.40	0.35	0.35	0.35	0.33	0.50	0.36	0.40	0.51
0 Evros Greece 1972	0.53	0.52	1	0.50	0.66	0.64	0.70	0.70	0.70	0.60	0.88	0.55	0.80	0.80	0.80
0 Rumania 1972	0.28	0.27	0.16	1	0.39	0.50	0.30	0.20	0.26	0.36	0.45	0.25	0.68	0.50	0.40
0 Austria 1973	0.49	0.48	0.51	0.80	1	0.90	0.74	0.53	0.56	0.69	0.79	0.73	0.95	0.55	0.60
0 Kabul 1965	0.45	0.30	0.40	0.30	0.40	1	0.55	0.73	0.52	0.45	0.51	0.58	0.58	0.55	0.55
0 Mashouré 1968	0.48	0.18	0.40	0.20	0.30	0.60	1	0.97	1	0.97	0.95	0.41	0.95	0.75	0.85
0 Isfahan 1977	0.50	0.37	0.60	0.50	0.50	0.75	0.82	1	0.98	0.93	0.85	0.55	0.95	0.75	0.85
0 USSR 1618	0.35	NT	NT	NT	NT	NT	NT	NT	NT	NT	1	NT	NT	NT	NT
0 USSR 194 1958	0.49	0.35	0.36	0.20	0.4	0.58	0.38	0.37	0.55	0.40	0.35	1	0.39	0.90	0.90

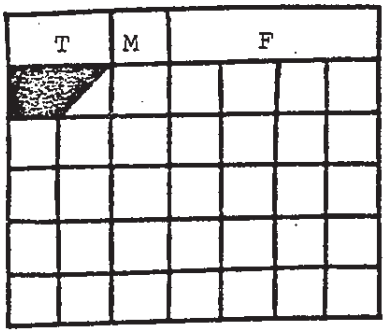
Table no 3

VACCINATION

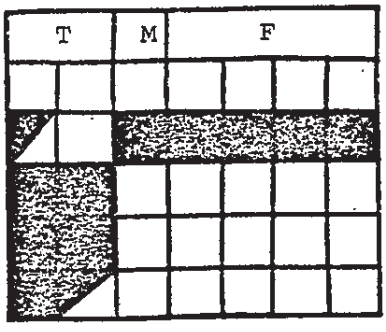
O_1 LAUSANNE 1965

challenge O_1 LAUSANNE 1965

1 dose



1/4 dose

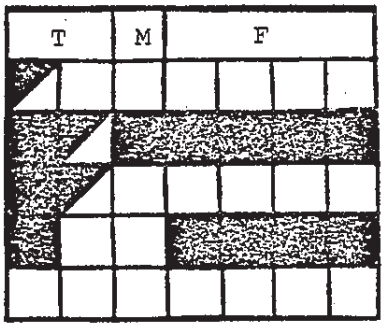


VACCINATION

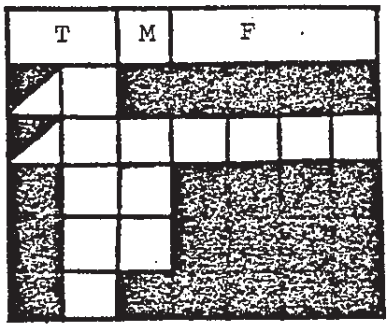
O_1 LAUSANNE 1965

challenge O_1 MANISA 1969

1 dose



1/4 dose



1 dose
Primovaccination
+
booster

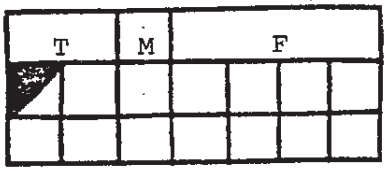


Table no. 4

SUBTYPING CROSS-SERUM NEUTRALIZATION TEST

SERA \ VIRUS		O_1 MANISA 1969	
Primovaccinated cattle (1 dose) Monovalent O_1 Lausanne	No 1	$r_1 = 0.16$	$r_1 = 0.39$
	No 2	$r_1 = 0.47$	
	No 3	$r_1 = 0.71$	
	No 4	$r_1 = 0.25$	
	No 5	$r_1 = 0.35$	

SUBTYPING CROSS-SERUM NEUTRALIZATION TEST

SERA \ VIRUS		O_1 MANISA 1969	
Twice vaccinated cattle (2 doses at 15 days of interval) Trivalent $O_1A_5C_1$	No 1	$r_1 = 0.40$	$r_1 = 0.30$
	No 2	$r_1 = 0.21$	
	No 3	$r_1 = 0.25$	
	No 4	$r_1 = 0.33$	

PLAQUE REDUCTION TEST

SERA \ VIRUS	O_1 MANISA 1969
Primovaccinated cattle Monovalent O_1 LAUSANNE	$r_1 = 0.24$

Table n° 5

HISTOGRAM OF O STRAINS FROM OCCIDENTAL AND ORIENTAL EUROPE, FROM THE NEAR, MIDDLE AND FAR EAST

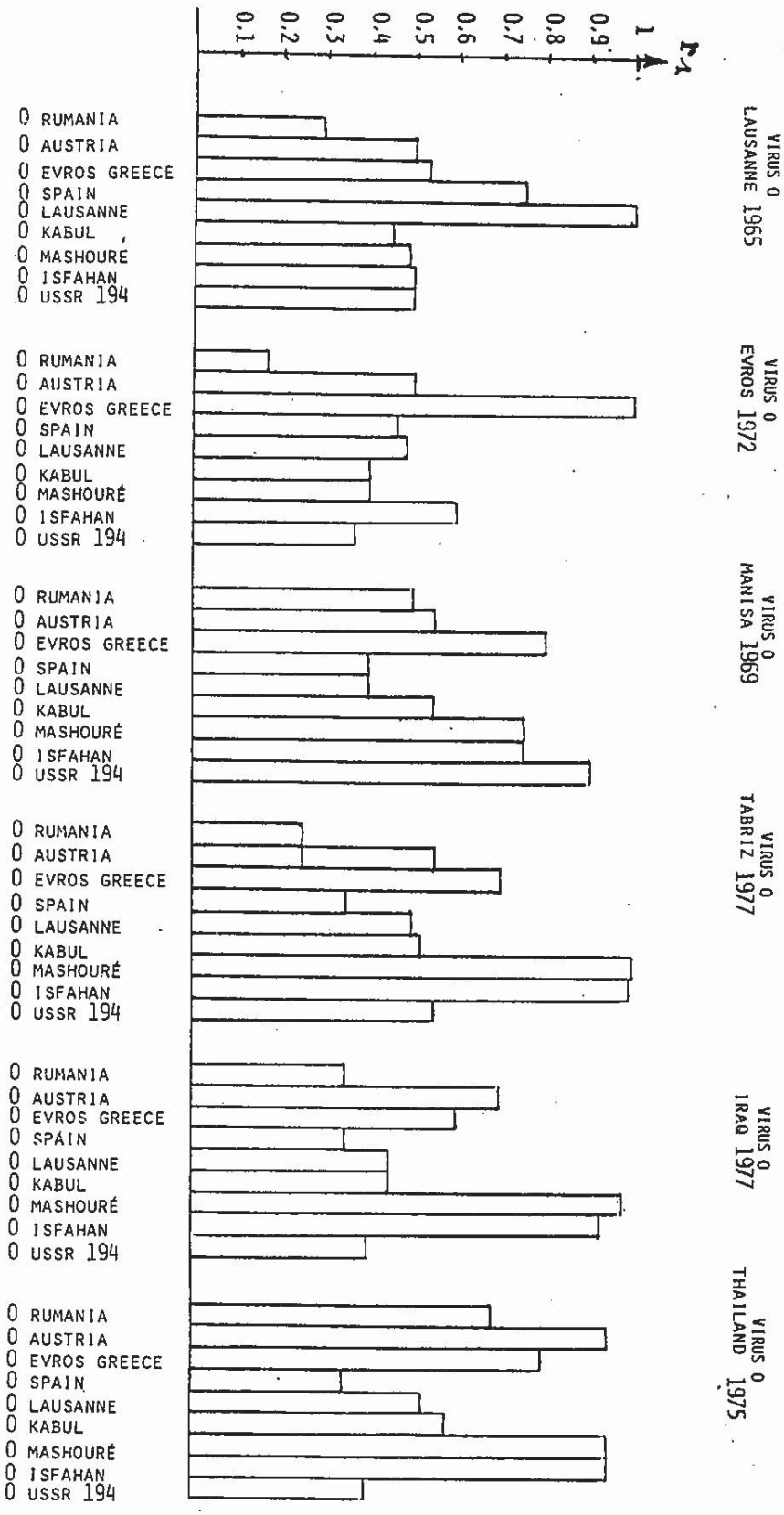


Table no 6

OBSERVED PERCENTAGE OF PROTECTION

Challenge virus / Vaccines	Challenge with 0_1 Lausanne virus (10,000 BID 50)	Challenge with 0 Manisa 1969 virus (10,000 BID 50)
0_1 Lausanne + booster	Not tested	100 %
0_1 Lausanne One vaccination	At least 96 %	At least 64 %

APPENDIX B IX

STATEMENT ON DARIEN GAP

March 1979

In June of 1973, the U.S. Department of Agriculture recommended to the Department of Transportation that further bids for the construction of the Pan American Highway be withheld in the Panama-Colombia border area pending U.S. agreement with those two governments to develop programmes that would reduce the risk associated with the movement of Foot-and-Mouth Disease (FMD) from Colombia northward into Panama and countries of the north. This position was endorsed by the National Security Council and has been retained by the current administration.

In order to reduce this risk, international agreements were entered into with the countries of Colombia and Panama to establish FMD programmes. Panama, in 1966, had initiated its own program in cooperation with an organization of Central American and Mexican Animal and Plant Health officials to stem this threat at its southeastern-most boundaries. To do this, a 25-mile wide cattle-free zone, stretching from the Atlantic to the Pacific, was established immediately adjacent to the Colombian border. In this zone, all development was halted and most of the susceptible livestock was removed. The area has been allowed to remain in a natural state with only a few indigenous inhabitants being permitted to keep a few head of swine so that animal protein can remain a part of their diet. A series of inspection posts were established in this area. These are manned by representatives of the Panamanian National Guard and inspectors from the Ministry of Agriculture. Frequent patrols are made through this inspection zone to ascertain that there is no unauthorized livestock in the area and to inspect the few head of swine that are kept under close confinement to make certain that they are not infected with the disease. Should any of the animals in the area be detected with FMD, all susceptible infected and exposed animals in this inspection zone will be slaughtered.

Immediately to the northwest in Panama, also from coast-to-coast, is a control zone that is from 25 to 50 miles wide. In this control zone, cattle production is allowed but it is limited to the level that it was in 1966. All susceptible animals in the zone are subjected to frequent periodical inspection for symptoms of FMD. All cattle and swine in this zone are permanently identified and they cannot leave this zone unless going directly to a Federally-inspected slaughter establishment in Panama City.

In order to supplement this system, nogotiations with the Government of Panama resulted in the establishment of the Panama-U.S. Joint Commission for the Prevention of Foot-and-Mouth Disease. This Commission has taken over the work in the control zone and the inspection zone that was being carried out by Panama. In addition, a part of the import quarantine activity is being monitored by the Commission and three posts have been established in the rest of the isthmus for investigation of diseases suspected of being FMD or rinderpest.

A cooperative agreement was developed with the Ministry of Agriculture in Colombia in August 1973. The Agreement consists of the establishment of three zones: (1) a livestock-free zone adjacent to the border; (2) an eradication zone where the livestock population is not vaccinated and consequently is highly susceptible to FMD and which is currently free from the disease; (3) a control zone between the eradication zone and the rest of Colombia for intensive vaccination to provide a highly FMD-resistant cattle population but where the disease is currently found.

The objectives of the program in Panama are wholeheartedly endorsed by that government, as well as the regional organization of the Ministers of Agriculture. As a direct consequence,

the program in Panama is operating effectively and is oriented toward the detection of FMD and the control and eradication of FMD in Panama should the disease enter the country.

In contrast, the program in Colombia has not yet met all of its objectives for eradicating and controlling FMD within the existing program areas of Colombia. This is essential so that FMD may no longer pose a threat for transmission northward during construction and upon completion of the Pan American Highway System. The apparent lack of political support in the first 4-1/2 years of the program for highway construction in Colombia was reflected in the lack of commitment to effectively carry out the FMD program on which further U.S. involvement in highway construction is predicated. The new administration in Colombia, however, appears to be fully committed to construction and completion of their portion of the highway.

As a result, on February 15, 1979, discussions were held between representatives of USDA, APHIS, and their Colombian colleagues to revise the U.S.-Colombian FMD agreement and technical work plans. At the present time, a draft of the revised agreement and technical work plans is being reviewed for legal and technical sufficiency. It is expected that the revised agreement will be agreed upon in the near future. A period of time will then be allowed in order to evaluate effective operation of the new jointly financed program to determine its effectiveness.

APPENDIX B X

RESIDUAL VIRUSES IN FOOD PRODUCTS *

Animals can become infected with a variety of viruses which may be found in food products prepared from such animals. Viruses, such as those of foot-and-mouth disease (FMD), swine vesicular disease (SVD), hog cholera (HC), and African swine fever (ASF) are of great economic importance and pose a serious threat to the livestock industry. Investigations of outbreaks of SVD have incriminated feeding of garbage contaminated with SVD virus (SVDV) - infected meat scraps. FMD virus (FMDV), however, will survive only if the pH remains above 6.2. Production of lactic acid during the ripening of meat inactivates FMDV in muscle tissue but does not necessarily affect the viruses in lymph nodes, blood clots or bone marrow.

Products that might be potential hazards for the spread of such diseases include partly cooked canned hams, dry salami sausage, dry pepperoni sausage and processed intestinal casings. Investigators at the Plum Island Animal Disease Center have shown that SVDV can survive in dried salami and pepperoni sausages for at least 400 days and in processed intestinal casings for 780 days. However, when hams were heated to 69°C, neither SVDV, FMDV, HC nor ASF could be recovered. Although FMDV was not recovered from the processed products, the possibility remains that there could be residual virus in bone marrow or lymph nodes. Residual FMDV, however, remained in processed intestinal casings for as long as 250 days. ASF virus was recovered from brined ham and salami and pepperoni sausages; however, virus could not be detected after 30 days and HC virus was not recovered from such products beyond 15 days of the curing period. Intestinal casings from animals infected with ASF or HC have not been examined but the processing of such casings and their examination for residual virus is contemplated in the near future.

In 1962, Dr. Sanchez Botija presented findings on the survival of ASF in hams and bones of infected pigs during the viremia phase. The hams and bones were submerged in brine for 15 days at temperatures of 4 - 10°C and these air dried for variable periods of time. Extracts of the chopped hams and bones were inoculated into swine. Under the conditions of the experiments, ASFV was found in the muscle of all processed hams after 3 months. After 5 months, the virus was present in only a few of the hams. After 6 months, the virus could not be detected in any of the hams.

The virus was present in bone marrow of all hams at 5 months, in some of the hams at 6 months, and at 7 months, was not detectable in any of the bones of the hams.

The amount of these different viruses in such products would be small unless the products were prepared from meat from animals undergoing active infection. The cumulative effect of the interactions of food components, temperature, time of exposure, and type may or may not aid in virus survival. However, such products may be potential hazards for the spread of disease.

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*Review Abstract - P.D. McKercher
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APPENDIX B XI

MEETING OF THE FAO/OIE/EEC TRIPARTITE COMMITTEE

Rome, 9 February 1979

The participants in the meeting were Dr. H.J. Bendixen and Mr. Contardo (EEC), Drs. A. L.C. Brown, L. Bellani and P. Stouraitis (European Commission), Dr. J.B. Brooksby (A.V.R.I.), and Dr. R.B. Griffiths (FAO).

After examining the present epizootiological situation of FMD in the countries of southeastern Europe (Turkey, Greece, Bulgaria) the Committee expressed the opinion that in order to protect Europe against exotic FMD viruses, vaccination campaigns must be pursued against FMD in buffer zones on the Turkish-Greek and Turkish-Bulgarian borders.

Since 1977 Turkish Thrace has been affected by the O type FMD strain, which showed some antigen difference compared to traditional O_1 strains used for preparation of traditional European vaccines. The difference was observed, in particular, during studies conducted in specialized FMD laboratories.

These studies are being conducted to determine the exact immunological properties of this Turkish O strain compared to the traditional O_1 European strain, with a view to its use for the manufacture of vaccine to be employed in anti-FMD campaigns in southeastern Europe. While waiting for the results of these studies the Committee, on the basis of the views of experts in the field, recommended that the coming springtime campaigns in Thrace should practise double vaccination which should be applied as follows:

1) A first vaccination should be given with a monovalent vaccine containing Manisa 69 O local strains which will be prepared by the Foot-and-Mouth Disease Institute of Ankara;

2) a second intervention should be carried out with A_{22}/O bivalent vaccine which will be supplied by FAO as soon as it obtains the funds for which it has launched an appeal. This system follows the lines agreed upon at the meeting of the Executive Committee of the European Commission held in Torremolinos between January 23 and 26 1979;

3) the Committee took note of the information on which the Commission of the European Community, following the appeal launched by FAO, submitted to the Ministerial Council a proposal for granting FAO a financial contribution of 700 000 E.C.U. (approximately U.S.$ 900 000) for maintaining buffer zones in Thrace over the next four years;

4) the Committee also engaged in an exchange of information on the present situation concerning the production of anti-FMD vaccine by the Foot-and-Mouth Disease Institute of Ankara, and the difficulties encountered in this field.

The development and construction of the new institute for industrial production of anti-FMD vaccine was also discussed.

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