REPORT OF THE

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

held in Rome
7-10 April 1981

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Meeting Report (AGA-701)
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REPORT
of the
Twenty-Fourth Session of the
European Commission for the Control of Foot-and-Mouth Disease
held in
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Food and Agriculture Organization of the United Nations
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SUMMARY

The Twenty-Fourth Session of the European Commission for the Control of Foot-and-Mouth Disease met in Rome during the period 7-10 April 1981. Delegates attended from member countries and there were also present a number of observers from international organizations and from several non-member states. The Session reviewed information available on the incidence of FMD in Europe and elsewhere during the previous biennium and considered the progress of the prophylactic campaigns undertaken by the Commission in association with FAO and EEC.

The main recommendations of the Session are listed below:

RECOMMENDATIONS

R1 Near East Cooperation

The Session agreed that FAO be asked to sound out Near East countries as to whether they would wish to support their own FMD Commission (2.3.2).

R2 Swine Vesicular Disease (SVD) Virus Studies

The Session recommended that countries experiencing SVD outbreaks should send virus to the Animal Virus Research Institute (AVRI), Pirbright, United Kingdom, for serological study (2.4).

R3 Seed Virus Stocks

The Session agreed that the Research Group be asked to consider technical and financial problems should it become necessary to hold new seed stocks at the World Reference Laboratory (WRL), Pirbright, United Kingdom (4).

R4 National Vaccination Policies in Europe

The Session recommended that there should be no substantial alteration of national vaccination programmes over the next 5 years (5).

+ Page. J. Paper on General prophylaxis in Europe

R5 Inactivants for vaccine production

The Session agreed that the Research Group should consider the question of inactivants used in vaccine production and should make recommendations to the Commission (5).

R6 Phase I Vaccine Bank

The Session agreed that FAO should approach the governments of interested countries to seek their formal agreement to participate in the vaccine bank (6).

R7 So-called Exotic Vaccines used in Greece and Bulgaria

The Session agreed that the Research Group should review this matter and report back to the Session (8).

R8 Role of Sheep and Cattle in SVD

The Session agreed that sheep and cattle played no role in the epizootiology of SVD (8).

R9 Future activities

The Session agreed on the programme of future activities (9).

See page 45 Appendix. BM. 46 - 1-23.

R10 Increase in Annual Contributions

The Session agreed that these should be increased with effect from 1 January 1982 and also from 1 January 1983 (10.1).

R11 Finance: Determination of Annual Contributions

The Session agreed that these should be examined by the Executive Committee to determine whether adjustments were necessary (10.2).

R12 Funding of Vaccination Campaigns

The Session recommended that the Director-General of FAO should appeal to EEC and non-EEC countries for financial assistance to ensure completion of campaigns up to 1984 (10.4).

INTRODUCTION

The Twenty-Fourth Session of the European Commission for the Control of Foot-and-Mouth Disease was held in Rome from 7 to 10 April 1981.

The Chairman, Dr. A.C.L. Brown (United Kingdom) welcomed those present and expressed his pleasure at the attendance of observers from USA, USSR,and other non-member states. Before inviting Dr. R.B. Griffiths to open the meeting,he congratulated him on his appointment to the post of Director of the Animal Production and Health Division.

Dr. R.B. Griffiths opened the Session on behalf of Dr. Edouard Saouma, Director-General of FAO.

Referring to the long period of freedom from FMD enjoyed by the majority of European countries, Dr. Griffiths said that the outbreaks in 1981 in Austria, France, Italy, Spain and the United Kingdom (island of Jersey and Isle of Wight) should be taken as a serious warning that, despite optimistic forecasts, the complete eradication of FMD in Europe was still not within our immediate grasp.

As regards the situation in southeastern Europe, it was vitally important not to lose sight of the continuing exposure of livestock to exotic infections from Anatolia in Turkey and from the Near East. For this reason the buffer zone in southeastern Europe must be maintained and the vaccination programme in the area which is supervised by FAO in consultation with the EEC and OIE must continue.

Dr. Griffiths also said that the FMD position in other regions of the world was a matter of serious concern to FAO and to the Commission. There was considerable scope for the Commission to bring its experience and expert advice to bear on regional problems, especially with reference to disease surveillance, vaccine production and prophylaxis.

Finally Dr. Griffiths referred to the proposal made at the Twenty-Third Session to establish a vaccine bank. As a follow-up, a Consultation took place at FAO Headquarters in December 1979. Arising from this, a project proposal was prepared for discussion with all interested parties, including the International Office of Epizootics. The project envisages in its first phase the establishment of a bank for FMD vaccines of the conventional (non-exotic) types and would include in its second phase a bank of exotic vaccines. FAO was anxious to have the Commission's reaction to this project proposal which would not only ensure increased security in the disease-free and non-vaccinating countries (several of which are in Europe) but could assist in locating suitable places for the production of exotic vaccines.

Dr. Brown thanked Dr. Griffiths for his kind remarks and, before proceeding to deal with the agenda, welcomed Dr. Ozawa as Dr. Griffiths' successor as Chief of the Animal Health Service.

He extended a special welcome to the many delegates and observers and particularly to Dr. Blajan, Director-General of OIE, Dr. Casas, Director of the Pan-American Center for Foot-and-Mouth Disease, Dr. Roustai from Iran and Dr. Fadhli Najel representing Iraq.

1. ADOPTION OF AGENDA

The following agenda was adopted:

1. Adoption of Agenda
2. FMD position during the last biennium and related activities of the Secretariat
   - 2.1 FMD position and prophylaxis in Europe
   - 2.2 Position and campaigns in southeastern Europe and Anatolia
   - 2.3 FMD situation in other regions of particular interest to Europe
   - 2.4 Swine vesicular disease in Europe

3. Activities of the Research Group and collaborating laboratories
4. Report of the Executive Committee on the Commission's activities during the biennium
5. FMD routine, ring, and strategic vaccination considerations
6. FMD vaccine bank
7. Introduction into Europe of meat with special reference to game animals and beef (questionnaire)
8. Review of decisions taken at past Sessions
9. Future activities
10. Financial report and approval of budgets
11. Election of Chairman, Vice-Chairman and members of the Executive Committee
12. Amendments to the Constitution
13. Adoption of the report of the Session
14. Any other matters

2. FOOT-AND-MOUTH DISEASE POSITION DURING THE LAST BIENNIUM AND RELATED ACTIVITIES OF THE SECRETARIAT

2.1 Position and prophylaxis in Europe

The Secretary introduced the working paper on this subject (Appendix B1) and the Chairman invited delegates and observers to report the latest information on the current FMD situation in their countries.

Spain In 1979 there were outbreaks of FMD in pigs in Gerona Province caused by type C_1 virus. Strict sanitary measures and an emergency vaccination programme were applied immediately but, due to the dense pig population, the virus spread to neighbouring provinces. Between January and April 1980 further outbreaks were detected in pigs with isolated cases appearing in more provinces in northwest Spain and, as a result of illegal movement of swine, the disease was introduced into Portugal.

No further cases arose until January 1981 when new foci appeared in pig herds in three provinces. In the same month illegal movements of pigs were responsible for outbreaks in a neighbouring department of France. All of these pig cases resulted from type C_1 virus.

Also in Spain, in April 1981, an outbreak involving type A virus occurred in young cattle in a feedlot near Barcelona. These cattle had been vaccinated twice prior to the occurrence of disease and were revaccinated immediately after the case was confirmed. The origin of this outbreak has not yet been determined.

In response to a question from the Chairman, the Spanish delegate confirmed that all outbreaks involving type C_1 virus had been confined to pigs and there had been no spread to cattle. This was contrary to experience in Portugal where disease due to type C_1 spread from pigs to unvaccinated cattle. The delegate went on to report that, in Spain, cattle which had previously received more than one dose of vaccine successfully withstood field challenge.

The Spanish delegate also reported that routine vaccination of cattle was carried out annually using trivalent OAC aluminium hydroxide vaccine and that oil-based vaccine was used for pigs. The oil-vased vaccine had been found to produce a high level of protection and was used to create a buffer zone around outbreaks.

Portugal After 10 years freedom from FMD, the disease reappeared in May 1980 as a result of illegal importations of livestock from Spain. The virus was identified as C_1 (Spain 1979/80) and, as vaccination had not been carried out during the previous nine years, spread rapidly throughout the whole of the country. Sanitary measures were applied and a vaccination campaign initiated. However, sporadic outbreaks involving the same type C_1 virus continued to be recorded in 1981.

Vaccine imported from Spain and France was distributed free of charge: one and a half million doses were purchased for use in cattle and one million doses for pigs. The delegate, replying to the Chairman, said that, at present, vaccination was compulsory for cattle herds and for large pig herds. However, vaccination of small ruminants was not compulsory, although it is hoped soon to introduce such a requirement.

Following the visit of the Secretary of the Commission to Portugal, a tripartite meeting of FAO/OIE/EEC was held in Paris in December 1980 to discuss problems current in the country. The group identified the need for assistance to Portugal and proposed that the veterinary services should receive substantial aid from EEC or other international organizations.

The EEC delegate indicated that while this was agreed in principle, the matter had not as yet been finalized.

The Chairman stressed the urgency of the situation and the need for positive assistance and pointed out that this matter had been discussed at the Forty-Third Session of the Executive Committee in Crete, where difficulties occurring as a result of the concomitant existence of African swine fever and FMD had also been stressed.

Federal Republic of Germany The delegate reported that no further outbreak had occurred since the case, involving type O virus, recorded in April 1980.

Italy After 11 months national freedom from FMD an outbreak involving type A was diagnosed in the Province of Padua in December 1980 (the last outbreak in Padua province was in 1975) and involved cattle imported from another European country three months previously. These animals were certified to have been vaccinated prior to importation and had not been revaccinated in Italy. No origin has been determined for this outbreak.

Dr. Mowat of the World Reference Laboratory for Foot-and-Mouth Disease (WRL) said that the virus from Padua was of type A but full cross-relationship testing had not been carried out. It was stated that "R" values of 53% for A_5 and 73% for A_{27} had been obtained but these differences were insufficient to enable any epidemiological conclusion on the origin of the virus.

Late in March 1981 an outbreak, type C, was disclosed in Assisi, Province of Perugia, involving 15 cattle in a herd of 1,000. The affected animals were slaughtered and the remainder of the herd was revaccinated. To date no further outbreaks have appeared in the vicinity and the origin has not yet been determined.

Austria A primary outbreak occurred on 6 March 1981 at a farm in Thalheim, Lower Austria, in a small herd of five pigs (no cattle). Swill was not fed and the route of introduction of virus into the farm is unknown.

A secondary outbreak occurred in the village of Pönning, 1.5 km from the primary outbreak - susceptible animals 37 cattle (no pigs). The introduction of virus into the farm was through the agency of the farmer who had attended a funeral in Thalheim.

Sanitary measures were applied in both cases and all the animals were slaughtered and destroyed.

In addition, ring vaccination of all ruminants and pigs was carried out within a radius of 30 km around Thalheim and involved about 310,000 pigs and 90,000 cattle.

The Chairman congratulated Austria on the speed and efficiency with which they had carried out their ring vaccination programme.

The Austrian delegate stated that there were two possible means by which the virus could have been introduced into the country: foreign labourers on their way back to Austria carrying animal products contaminated with FMD virus; and illegal importation of frozen meat. He made specific reference to an imported consignment of 93 tons of boneless frozen

buffalo meat from India which had been certified as venison from Scotland. This shipment had reached Austria via the Netherlands, having entered the latter country last autumn. Notification of this illegal importation was received from the Netherlands in March when the veterinary authorities there became aware that buffalo meat was being offered for sale from bonded warehouses.

Dr. Mowat (WRL) informed the Session that the type O virus isolated from the Austrian outbreak differed from the O_1 European strain. This was confirmed by Dr. Fontaine, Institut français de la fièvre aphteuse (IFFA), Lyons.

France, which has been free from FMD since March/April 1979 when the disease was present in Basse Normandie (Lower Normandy), had two series of outbreaks at the beginning of 1981, the first in the Department of "Pyrénées Atlantiques" in January and February, and the second in the Departments of "Côtes du Nord" and "La Manche" in March.

On 15 January 1981 FMD was reported in pigs kept on a farm in the commune of Espelette, close to the Spanish border. Further outbreaks were reported on 26 January and on 3 February on three farms where pigs were kept; these farms were located close to the first outbreak. The virus was type C. Slaughter and destruction of all susceptible animals was carried out immediately and involved a total of 567 pigs, 80 cattle, 289 sheep and 22 goats.

Ring vaccination of pigs was undertaken with oil-based monovalent type C vaccine.

Between 4 and 26 March 1981 in four communes of the Department "Côtes du Nord" 13 outbreaks of FMD, type O_1, were reported. Origin unknown. Slaughter, destruction of carcases and sanitary control measures were applied and involved 8,657 pigs, 625 cattle, and 105 sheep and goats. Ring vaccination covering approximately 700,000 animals was undertaken.

In the Department of "La Manche" one outbreak of FMD type O_1 was reported on 21 March 1981 in young unvaccinated cattle on a farm in Mesnil. The virus was the same as that present in the Department "Côtes du Nord"; 70 cattle were slaughtered and destroyed and sanitary control measures were applied.

United Kingdom A. Jersey. Disease was confirmed on Thursday 19 March 1981, the affected animal being one of a group of six partly dried-off cows which were tethered at pasture. Material sent to the Animal Virus Research Institute (AVRI), Pirbright, showed the virus to be type O_1, The affected groups were slaughtered and destroyed and sanitary control measures were applied. Imports of susceptible animals, meat or milk from the Channel Islands to Great Britain were immediately banned. No further outbreaks have occurred in Jersey.
B. Isle of Wight After more than 12 years freedom from FMD in Great Britain, disease was suspected at a farm on the Isle of Wight on the afternoon of Saturday 21 March 1981. Material was sent by courier to the AVRI and positive results were obtained at 0100 hours on 22.3.81. Type O_1 virus was identified. A group of 19 dry cows and heifers at pasture were involved and 16 showed lesions. All susceptible animals on the premises were immediately slaughtered and destroyed and sanitary control measures were applied. In addition, susceptible animals on 10 other premises were slaughtered and destroyed. Overall, a total of 254 cattle and 364 pigs have been slaughtered and destroyed. There have been no further outbreaks.

A comprehensive investigation into the origin of the outbreaks has been carried out and subtyping of the virus at the AVRI has shown it to be identical to virus causing outbreaks in "Côtes du Nord", Jersey and "La Manche". All possible routes of infection were carefully considered and, on the basis of meteorological evidence, the source of infection has been attributed to airborne carriage of virus from outbreaks in France. At a time when several pig herds in "Côtes du Nord" were affected, weather conditions involved ideal factors (including relative humidity, air stability and wind direction) for survival and carriage of the virus over the sea to the Isle of Wight. Known information concerning the beginning of the outbreaks in Jersey and "La Manche" indicates that herds there were infected by the same route and at the same time as in the Isle of Wight. The Isle of Wight is about 160 miles from the outbreaks in Britanny and this represents the furthest known carriage of virus by airborne means.

USSR The observer reported that, in the USSR, FMD prophylaxis is given priority attention. Strengthening of control measures, improvement of animal husbandry, use of more effective vaccines, and the creation of extensive disease-free zones by means of systematic vaccination, have resulted in a sharp reduction in the incidence of FMD, totals of only 11 outbreaks having been recorded in 1979 and 19 in 1980. The observer from the USSR made brief reference to the improvements in sanitary control measures in the USSR in recent years.

Special measures, namely, compulsory vaccination, sanitary control of routes used for the movement of pasture animals and restriction on the movements or transportation of animals have been imposed in areas where animals are kept at pasture. He acknowledged the role of veterinary laboratories and stated that outbreaks during the period under review were due mainly to O_1 type, although sporadic cases of type C and type A_{22} had also been diagnosed. The epizootiological situation revealed in the USSR during recent years indicated that a scientifically-based comprehensive system of measures for the control of FMD could be successfully applied.

At this stage, the Chairman said how much he appreciated the attendance of observers from USSR and other countries. He was also particularly pleased to welcome Dr. Casas, Director of the Pan-American Center for Foot-and-Mouth Disease, who would be presenting interesting papers relating to South America and he anticipated closer and useful contacts between the Commission and the South American Commission for the Control of FMD (COSALFA).

~~2.1.1~~ General prophylaxis in Europe

The need for general hygiene precautions to avoid the inadvertent spread of disease was emphasised. In particular the possibility of spread by the use of unsterilized syringes or hypodermic needles was discussed and the specific point was made that particular care should be taken during vaccination programmes in any country where African swine fever was present.

P.4.

2.2 Position in southeastern Europe and Anatolia

Turkey.Turkish Thrace No outbreaks have been recorded since 1978. In order to maintain disease freedom in the region, great efforts have been made to keep up to date with vaccination programmes and to ensure control of animal movements. Vaccination (A_{22}/O_1) in the buffer zone is undertaken with locally produced vaccines, supplemented by vaccines provided by FAO. The 1980 spring campaign commenced in March and involved the use of 450,000 doses. The Secretary informed the Commission that 400,000 doses of A_{22}/O_1 vaccine should be provided to complete the 1981 campaigns in Thrace. The Turkish delegation reported that vaccine production at the FMD Institute in Ankara had restarted following resolution of the water supply problems which had previously existed but production capacity was inadequate for national needs and provision of three million dollars worth of equipment requested from EEC was necessary if target production of 40 million doses per annum was to be achieved in future. The Chairman emphasized that problems were likely to be met in progressing towards this target level and suggested that consultations between the Ankara Institute and existing large-scale vaccine producers might help avoid difficulties and increase the speed of release of financial aid from the funding authorities.

Dr. Boldrini, former Secretary of the Commission, summarized the history of outbreaks in Turkey caused by virus types A_{22} and $ASIA_1$. The latter invaded Turkey in 1973 and, as a result, extensive vaccination campaigns were implemented there for several years against both virus types. He said that Europe is now confronted with the menace of new invasions by the $ASIA_1$ virus which is present in the Near East, not far from the southeastern Turkish borders. Assistance is needed, especially from EEC, in order to enable Turkey to expedite the development of industrial production of FMD vaccines at Ankara. Unless Anatolia is covered by regular vaccination schemes, the situation will remain precarious both in Turkey and southeastern Europe.

In Anatolia and other regions where outbreaks occurred, vaccination was carried out mainly in areas where artificial insemination is used and in large cattle breeding units. Both O_1 and A_{22} types are present, O_1 being the commoner.

Greece The Greek delegate reported a very satisfactory situation, the last outbreak of type C having occurred in 1971, types A_{22} and O in 1974 and type A (South America) in 1977. Greece has been free from FMD since then. Annual vaccination of all ruminants is carried out in the buffer zone in the Province of Evros, western Thrace.

Bulgaria The delegate stated that Bulgaria was free from FMD and that vaccination is carried out on the borders with Turkey and Greece, using vaccine provided through FAO. The new FMD Centre for large-scale vaccine production is nearing completion and it is expected that it will become operational soon.

Czechoslovakia The delegate reported that Czechoslovakia remained free from FMD during the biennium and that systematic vaccination of all susceptible animals was carried out using OAC trivalent vaccine.

2.3 FMD situation in other regions of particular interest to Europe

2.3.1 Precautions regarding $ASIA_1$ in the Near East

The Turkish delegate reported that because $ASIA_1$ was thought to be present in neighbouring countries, immediate production of a vaccine for this strain was commenced at the SAP Institute and 700,000 doses of monovalent $ASIA_1$ vaccine were distributed in the southeastern regions. Buffer zones were established at the Syria, Iraq and Iran borders, vaccination being commenced at the frontiers and then moving inwards. The Chairman congratulated Turkey on taking this initiative without seeking international aid and pointed out that production of exotic vaccines was permitted when exotic types were present or were threatening. In reply to a question from the delegate he answered that, as a matter of protocol, OIE and FAO should be advised when such production was to be undertaken.

2.3.2 Near East Cooperation

The Chairman, in welcoming the observers from Iraq and Iran indicated his personal belief that the Commission might be a model for non-participating countries involved in FMD control. This view was endorsed by Italy and by the U.K., and Dr. Mowat of WRL offered the cooperation of the laboratory for relevant examinations and typings. No dissenting opinions were raised and the Chairman suggested that FAO consider sounding out Near Eastern countries as to whether they might support their own FMD Commission, on the understanding that the European Commission would be prepared to offer every cooperation to such a body. He also said that OIE Headquarters and the Regional Commission of OIE for Asia and Oceania should be advised of this initiative.

2.3.3 South America

Dr. Casas, Director of the Pan-American FMD Centre, reported on the FMD situation in South America (Appendix B2). The most significant progress to date in the control of FMD in those regions of South America affected by the disease was the declaration by Chile of freedom from FMD in January 1981. Other regions of the continent affected by the disease had not, from the point of view of eradication, shown significant changes. On the whole during 1980 the total number of outbreaks showed a slight increase over that registered in 1979. Colombia, Ecuador and Venezuela were free from type C. In Peru, following eight years absence, type C was again introduced, through inadequately inactivated vaccine.

It was also stated that in the FMD-free areas of the Americas, i.e. North America, Central America, Panama and the Caribbean region, no outbreaks had occurred during the biennium and that this was a positive achievement deserving recognition.

The tendency observed in recent years to increase monitoring control of FMD vaccines continued in a number of countries, especially Argentina, Brazil, Paraguay, Uruguay and more recently Colombia. In 1980 the production of FMD vaccine in South America amounted to 519 million doses.

All South American countries have official FMD control programmes and in 1980, 187.5 million cattle were scheduled to be vaccinated namely 86% of the total cattle population of the countries affected by FMD. Of this figure, only 66% was covered by systematic vaccination during 1980.

The epidemiological information system coordinated by the Pan American FMD Center continued to improve during 1980 through the dissemination of epidemiological information on vesicular diseases by means of weekly and monthly disease bulletins.

2.3.4 Statement by observers

USA A short statement was presented on the current situation in the Darien Gap (Appendix B3).

Iran It was reported that A, O and ASIA, vaccines were currently being produced in Iran but it was stressed that there was a shortfall and that production could not be increased due to shortages of buildings, equipment and trained personnel. It was stated that Iran required assistance and the Chairman indicated that this should be recorded in the report of the proceedings.

2.4 Swine Vesicular Disease (SVD) in Europe

United Kingdom In 1979 there were 43 outbreaks and in 1980 a further 60 outbreaks were confirmed. Livestock vehicles contaminated with SVD virus were the main route of introduction of disease into herds but waste food constituted the root source of infection. The Chairman informed the Session that the epidemiological and statistical situation of SVD in the U.K. was published in the Report of the Forty-Third Session of the Executive Committee held in Crete in January 1981.

Six outbreaks have been confirmed so far in 1981 (1 April 1981), approximately 1,800 pigs having been slaughtered and destroyed.

Of these six outbreaks, two were detected during routine serum survey of swill fed pigs originating from the Yorkshire/Lancashire region while an additional three were detected during a sow feeder/dealer serum survey in the same area. One outbreak occurred following restocking of premises previously infected.

The extensive ramifications of trade in culled sows and the potential for spread of SVD were recognized. The results of 1981 surveys continued to emphasize the presence of SVD and the failure of owners to report disease, either due to the unclear clinical picture or their failure routinely to inspect pigs. Dr. Rees said that the presence of disease, as revealed by serum surveys, emphasized the need for any country to check by this method before claims of national freedom are made. He also suggested that there was evidence to suggest some antigenic drift in the SVD virus and, in order to check this, asked countries experiencing outbreaks to send virus to AVRI, Pirbright, for checking. This was recommended.

Italy The delegate reported that 9 outbreaks of SVD were recorded in 1979 and that these involved 7,968 pigs, of which 1,191 were affected. In 1980 there were 29 outbreaks in northern Italy involving 35,000 pigs, with 6,000 affected.

The disease had taken a mild clinical form, without causing mortality and was generally recognized a few days after the introduction of new pigs into herds.

Compulsory notification of the disease is required and confirmation leads to the imposition of sanitary measures which run for a period of 30 days. Slaughter and destruction are not carried out and it was stated that the precautions taken were sufficient to prevent the export of pigs or pig meat from infected herds.

The Chairman pointed out that experience elsewhere, verified by serological studies, did not confirm Italian views that SVD quickly disappeared from infected herds.

Federal Republic of Germany A single case was reported in 1980.

3. ACTIVITIES OF THE RESEARCH GROUP AND COLLABORATING LABORATORIES

Dr. van Bekkum, Chairman of the Research Group, reported on the activities of the Group (Appendix B4). Two meetings were held, one in Lindholm, Denmark, 12-14 June 1979, the other in Vienna, Austria, 17-19 June 1980. In both instances the national laboratories acted as hosts. The hospitality received by the Group was gratefully acknowledged. As reports of both meetings have been published only some of the major items in the two agendas were raised at this session.

Methods for the preparation of concentrated purified preparations of FMDV were discussed at both meetings. Techniques for the routine production of such materials, containing up to 400 times the initial virus content, are now available. Virus recovery is in the range of 70 to 90 percent. Such concentrated virus preparations can be inactivated prior to storage over liquid nitrogen or in mechanical freezers at -70°C. They offer great promise for the storage of large quantities of antigens for the preparation of vaccines. It appears that such antigens may have a long shelf life, although further information on the stability of vaccines prepared from them will be needed.

The delegate from Turkey suggested that, when formalin was used to inactivate type $ASIA_1$, difficulties could arise if inactivation did not take place prior to concentration. Dr. van Bekkum said that this matter would be further discussed at a future meeting of the Group.

The existing data on FMD virus in milk were reviewed. A thermal inactivation curve for virus in whole milk and skim milk has been established. This information would be of practical value if importing countries were to insist that milk should be guaranteed to be free of FMD virus.

The Group felt that in general milk played only a restricted role in the spread of FMD virus. In countries where cattle are routinely vaccinated the high level of immunity in dairy cows as well as the presence of antibodies in pooled milk would tend to reduce the risk further.

The opinion was expressed that dairy products prepared from milk submitted to the routine heat treatment applied throughout the European dairy industries would be unlikely to contain any FMD virus.

The collaborative laboratory study in which, in different phases, more than 16 laboratories have partaken, is still continuing. The first phases have shown that results of virus titrations and serological tests varied widely between laboratories. However, if as many elements of the test as possible are standardized results become highly comparable. The data will be published.

Further studies dealt with the complement fixation tests and with biophysical methods for the measurement of antigenic mass. Materials for further standardization of tests and, in part, of equipment have been distributed recently and it is hoped that the data will be available for analysis prior to the next meeting of the Research Group.

Discussions of new laboratory assays, such as radioimmunoassays (RIA) and enzyme-linked immunosorbent assays (ELISA) brought to light that RIA should be regarded as being of limited usefulness because of restrictions on work with radioactivity.

ELISA was considered useful for further investigations on the nature of the virus, as a basic research tool and to replace or qualify existing immunological tests, i.e. to measure antigen or antibodies, for rapid diagnostic tests etc.

Special attention was paid to the question of the selection of vaccine strains for use in European countries. The O and C strains presently used would probably give adequate cover against field viruses of these types from other parts of the world, but for type A the story might be different.

European production laboratories use A_5 virus for production purposes, or other subtypes that are closely related to A_5. However, A_5 virus has virtually disappeared from the field in Europe and the major threat at present is probably strains of the A_{24} family. The discussions showed that the information on cross protection between different subtypes of A, especially A_5, A_{24} and A_{27} is inadequate. Results of further experiments in progress at the Plum Island Animal Disease Center should be awaited before valid conclusions can be drawn.

Plans for next meeting The Research Group will hold its next meeting in the second half of September 1981, at the German Federal Virus Research Institute of Tübingen. A draft agenda, including a number of items proposed by the Commission has been prepared.

4. REPORT OF THE EXECUTIVE COMMITTEE ON THE COMMISSION'S ACTIVITIES DURING THE BIENNIUM

In introducing the Item, the Secretary referred to the relevant working paper and its appendices (Appendix B5). The Chairman indicated that many of the matters arising from the previous meetings of the Executive Committee in Edinburgh, March 1980, in Crete in January 1981, which were reported in the working paper constituted major items on the Agenda for this meeting. He suggested, however, that the question of seed stocks held at AVRI for vaccine production should be considered during the meeting and asked if the Research Group should be invited to comment on the possible need to change stocks to take account of new subtypes appearing. Dr. Mowat (WRL) said that virus stocks were laid down several years ago and he would be apprehensive if some of these had now to be used. There was a need to consider replacing stocks on the basis of strains recovered more recently He also pointed out that it should not be assumed that vaccines prepared from new strains would necessarily be antigenically potent and that checking this would be costly, in time and money. Dr. Pay (Wellcome, UK) pointed out that it could cost at least £50,000 to develop a vaccine for a new strain of virus.

Dr. van Bekkum felt that it was necessary to hold comprehensive seed stocks of culture-adapted virus in order to be prepared for new outbreaks. It was agreed that the Research Group should be asked to consider the technical and financial problems which might be anticipated if new seed stocks were to be held and to make appropriate recommendations to the next session.

5. FMD ROUTINE, RING AND STRATEGIC VACCINATION CONSIDERATIONS

Prior to introducing the working document (Appendix B6), the Chairman raised the subject of large-livestock units which continued to be established in many countries, often without reference to the veterinary authorities for advice on the problems they might pose for disease control.

Dr. Griffiths referred to an FAO/ECE Symposium on "Managerial and economic aspects of large livestock farms, and technical, economic and sanitary aspects of their buildings and equipment" to be held in October this year in Spain, and said that arrangements had been made for the presentation there by FAO of a paper on animal health implications in intensive livestock units.

The Chairman referred to the massive output of virus which could be anticipated from a large unit of pigs affected by FMD and went on to mention the difficulties which would arise in achieving rapid, humane slaughter of large numbers of animals if FMD occurred in very large units. Several delegates confirmed that similar problems and difficulties existed with large units in their countries and the Italian delegate referred also to public health problems which intensive units could create. There was general agreement that such units should be identified and located and it was also pointed out that, in some countries, legislative powers already existed to control the maximum number of stock permitted to be kept in these establishments.

In moving on to consideration of vaccination policies in Europe, it was mentioned that, in some countries, agriculture interests were questioning the need to maintain present high levels of vaccine coverage. The German delegate said that a cost-benefit exercise carried out in his country indicated that their vaccination programme should be continued.

It was pointed out that Table 3 of the working document indicated that, over the last few years, introduction of virus from overseas was no longer the main source of outbreaks and that many had been due to inadequately inactivated vaccines or to escape of virus from laboratories. Such episodes had been reported by Spain, Belgium, Switzerland and the Federal Republic of Germany. The delegate from WRL raised the question of inactivants used in FMD vaccine production and expressed surprise that many manufacturers continued to use formalin in spite of the availability of reagents, with predictable inactivation curves, which could provide a safer product.

It was recommended that in general the current FMD situation in Europe was such that there should be no substantial alteration of national vaccination programmes over the next 5 years. It was also agreed that the Research Group should be asked to consider the question of inactivants for vaccine production and to make appropriate recommendations.

The delegate from Italy made an official request that a statement which he had presented should be included in its entirety in the proceedings of the meeting. This was agreed and the relevant document is at Appendix B7.

6. FMD VACCINE BANK

Details of the proposal for setting up an FMD vaccine bank are contained in the relevant working document which was presented by the Secretary (Appendix B8). It was felt that it was now opportune to proceed with Phase I i.e. a bank to set up a reserve of conventional (non-exotic) vaccines to be available to subscribing countries which are currently free of FMD and which do not practice routine vaccination.

The question of funding this proposal was discussed and it was agreed that charging on a per caput basis, as proposed in the working document, was the simplest and probably most generally acceptable method.

All operations of the bank would be under the control of a Technical Advisory Committee on which the major international organizations (FAO/OIE/WHO) involved in FMD control would be represented. The Advisory Committee would be made up of representatives from North America, Oceania and the FAO European Commission for the Control of FMD. The Chairman would preside on a rotation basis and would be selected from member countries; FAO would provide the necessary administrative support. This Committee should make decisions regarding all technical details for the most economical ways for keeping vaccines, selection of appropriate vaccine strains and for the general conduct of the bank.

Dr. Griffiths endorsed the view which had been emphasized by Dr. Boldrini, namely, that the purpose of the bank was to assist participating disease-free countries in emergency situations. Dr. Griffiths also felt that the time was ripe for FAO to make an approach to the governments of interested countries in order to obtain their formal agreement to participate in the bank. The meeting agreed. Prior to this, however, he suggested that it would be useful to seek OIE views at their meeting which is to be held in Paris in May of this year and this has been agreed with the Director-General of OIE.

In conclusion, the Chairman said he felt that there was a substantial measure of agreement on the desirability of proceeding with Phase I and that this would be a model when subsequently Phase II (covering exotic strains) was to be introduced. He added that it was his opinion that EEC would wish to contribute, on behalf of its member countries, to a proportionate part of the cost of Phase II.

7. INTRODUCTION INTO EUROPE OF MEAT WITH SPECIAL REFERENCE TO GAME ANIMALS AND BEEF (QUESTIONNAIRE)

There was considerable discussion of this item and of the information submitted by member countries in response to a questionnaire circulated to obtain details of this trade (Appendix B9).

General agreement was expressed regarding the need for countries to exchange information concerning cases or suspect cases of illegal importations or false certification. The importance was stressed of ensuring that veterinary staff carried out frequent checks of certificates for imported meat in free ports and bonded warehouses.

Referring to a previous suggestion that the Commission should seek to produce standard health certificates for the importation of game meat, the Chairman pointed out that this was a matter appropriate for action by OIE and not by FAO.

The resolution adopted at the XIX Session (1972) was confirmed unanimously and regret was expressed that the problem still existed (Appendix B10 - Item 3.3.5).

8. REVIEW OF DECISIONS TAKEN AT PAST SESSIONS

The Chairman referring to the working document (Appendix B10) suggested that this would be a document of record for future reference and could be updated as changes occurred.

The Secretary in introducing this document acknowledged the assistance he had received from Dr. Boldrini in compiling it.

Dr. Boldrini drew particular attention to policy statements (1) - (4) in the preamble to the Review.

Each item in the document was considered separately and it was agreed that attention was now necessary with regard to the following:

B.3.1 The Greek delegate pointed out that, on entry into EEC, Greece had been penalised as a result of having undertaken, for the common good, buffer zone vaccination against A_{22} virus, the consequence being that cattle from this area were banned from intracommunity trade. Dr. van Bekkum, on behalf of the Research Group agreed to review the local situation in Greece and Bulgaria in the context of so-called exotic vaccines and possibly make suggestions to the Commission for further deliberation.

B.7, recommendation 4. The U.K. delegate, replying to a question from the chair, confirmed that the U.K. experience had been that cattle and sheep played no significant role in the persistence or transmission of SVD and that this recommendation could now be deleted. This was agreed unanimously.

9. FUTURE ACTIVITIES

At the request of the Chairman, the relevant working document was introduced by the Secretary. The Chairman said that one additional future activity discussed during the last session was the 'emergency task force' concept. The Chairman believed that the Commission had a role to play in providing teams to be available at short notice, for assistance with disease emergency situations in countries where there was no adequate veterinary infrastructure or where member nations required help in dealing with exotic disease. Dr. Griffiths supporting the Chairman drew attention to the achievements of FAO, through the Technical Cooperation Programme, in providing assistance to countries faced with disease emergencies and referred particularly to assistance given in connection with African swine fever in Latin America. The delegates agreed to the proposal for future activities as outlined in the working document and took note of the further suggestions which had emerged from the discussion (Appendix B11).

10. FINANCIAL REPORT AND APPROVAL OF BUDGETS (Appendix B12)

10.1 Proposal for increase in scale of contributions

The Chairman referred to the Report of the Forty-Third Session of the Executive Committee held in Crete from 27 to 30 January 1981, at which the Committee recommended that a request for a 30 percent increase in contributions to apply from 1 January 1982 and to be followed by an increase of 8 percent on 1 January 1983, be submitted for consideration to the Twenty-Fourth Session of the Commission. As requested by the Executive Committee, all member countries of the Commission had been informed of this proposal through their Chief Veterinary Officers 60 days prior to the Twenty-Fourth Session, as prescribed under the Financial Regulations of the Constitution of the Commission. The Chairman reminded delegates that the last increase in the scale of contributions had been in January 1978 and that by the end of 1981 the reserve under the Special Account will have been exhausted.

The proposal to increase the scale of contributions by 30 percent with effect from 1 January 1982, and by a further 8 percent with effect from 1 January 1983, was put to the vote. Of the 22 member countries present 21 voted in favour and 1 (Federal Republic of Germany) against. The motion was carried by a two-thirds majority of the total membership of the Commission as prescribed for in Article XIII, paragraph I, of the Commission's Constitution.

10.2 Level of annual contributions

Replying to the U.K. delegate, the Secretariat confirmed that the criteria for determining the level of annual contributions by member countries was in accordance with the Constitution of the Commission which had been formulated when the Commission commenced in 1954. The meeting agreed that the criteria might not now be realistic and that the Executive Committee be requested to examine them and make a proposal to the Twenty-Fifth General Session in 1983 for any adjustments necessary to meet the present situation.

10.3 Financial report

The Chairman then asked the Administrative Assistant to introduce the financial report. In presenting the breakdown of accounts for 1979/1980, the Administrative Assistant informed delegates that in future the accounts of the Commission would be included in the Organization's Regular Programme Statement of Trust Funds and not presented separately for certification by the External Auditor as has been the practice to date. She informed the delegates that as far as possible detailed accounts would continue to be furnished in order to keep the member countries of the Commission informed.

The Administrative Assistant in referring to the 1981 budget drew delegates' attention to the very limited allocation under 'travel' for the secretariat and the Research Group. This was due to the fact that the present level of contributions was no longer sufficient and fell far below the steep upward trend in inflation.

The breakdown of accounts for 1979/1980 and the administrative budget for 1981 were approved as presented.

10.4 Funding of vaccination campaigns

Following discussion of the administrative budget and accounts under the Commission's Trust Fund 9042, the Chairman requested the Secretary to summarize the future of the vaccination campaigns in southeastern Europe which are funded from Trust Funds 9111 (EEC) and 9097 (non-EEC). The Secretary stated that the funds received in response to the Director-General's appeal of September 1978 would not be sufficient to complete, as anticipated, the five-year (1979-1983) vaccination campaign for which they had been intended.

Following the recommendation made by the Executive Committee at its Forty-Third Session that the campaigns be continued beyond 1983, the Commission recommended that a new appeal be sent by the Director-General of FAO to the EEC and non-EEC countries for financial assistance to assure the continuation of the campaigns up to 1984.

11. ELECTION OF CHAIRMAN, VICE-CHAIRMEN AND MEMBERS OF THE EXECUTIVE COMMITTEE

(a) Elected as Chairman of the Commission - Dr. H.A. van den Berg, Netherlands

Proposed by Dr. R. Vollan, Norway
Seconded by Dr. N.T. Belev, Bulgaria

(b) Elected as Vice-Chairmen:

1. Dr. R. Vollan, Norway

Proposed by Dr. E. Stougaard, Denmark
Seconded by Dr. K. Tapani, Finland

2. Dr. A. Rojahn, Federal Republic of Germany

Proposed by Dr. H.A. van den Berg, Netherlands
Seconded by Dr. P. Dragonas, Greece

(c) Election of Executive Committee Members

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

Dr. F. Walla, Austria
Dr. P. Dragonas, Greece
Dr. N. Belev, Bulgaria
Dr. A.M. de Andrade Fontes, Portugal
Dr. H. Ertan, Turkey

The Chairman paid tribute to the valuable work of the outgoing members of the Executive Committee, Professor Eckerskorn and Professor Bellani.

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

12. AMENDMENTS TO THE CONSTITUTION

The Chairman referred to the question of amending Article XII.1 of the Commission's Constitution relating to the procedure for the appointment of the staff of the Commission's Secretariat; but since no formal decision could be taken at the Session, discussion was deferred until the Twenty-Fifth Session in 1983.

13. ADOPTION OF THE DRAFT REPORT OF THE TWENTY-FOURTH SESSION

At the request of Dr. van den Berg, the newly elected Chairman of the Commission, this item was also conducted by the retiring Chairman Dr. Brown who, on completion of discussion of the report called for its adoption, subject to incorporation of amendments made at the final day's meeting and to any necessary editorial changes. This was unanimously agreed.

14. ANY OTHER MATTERS

No other matters were raised for discussion.

15. CLOSING REMARKS

The Chairman, on this occasion of his retirement from the Commission, expressed the privelege he felt to have been both member and Chairman and also his appreciation of the many personal and, henceforth, lifelong friends he had made. He believed that the achievements of the Commission represented one of the most significant cost-benefit exercises ever mounted in

the field of animal production and that they provided an example in cooperation for the other continents.

He also expressed his gratitude for the support and assistance he had received during his period as Chairman, both from the Executive Committee and from the Research Group under Dr. van Bekkum. Excellent support from Dr. Griffiths and his colleagues was also gratefully acknowledged.

He thanked the secretariat for the provision of documents for the meeting and for the general assistance given to him throughout his tenure of office. He expressed his gratitude for the efforts of the interpreters, the rapporteur and those other officers of FAO who had assisted during the meeting.

In closing, the Chairman expressed his best wishes for the future of the Commission in the safe hands of Dr. van den Berg.

Dr. van den Berg said he would do his best to follow his predecessor successfully and he paid tribute to the depth of expertise and patience displayed by Dr. Brown in his capacity of Chairman. He thanked him for all he had done for the Commission and his remarks were applauded by the meeting. The new Chairman also took the opportunity to thank two absent retiring members, Professors Bellani and Eckerskorn, for their efforts on behalf of the Commission and he expressed his gratitude for the attendance and contributions of all those present.

16. DATE OF TWENTY-FIFTH SESSION

It was agreed that the next session should be held from 12 to 15 April 1983.

APPENDIX B1

FOOT-AND-MOUTH DISEASE POSITION AND RELATED ACTIVITIES OF THE SECRETARIAT DURING 1979/1980

FMD position and prophylaxis in Europe

As in previous years, the foot-and-mouth disease situation in Europe remained generally favourable. With the exception of Spain and Portugal which suffered serious outbreaks during 1979 and 1980, only isolated foci have been reported in the rest of Europe. Detailed information on the disease situation in 1979 is given in the Report of the Forty-Second Session of the Executive Committee held in Edinburgh in March 1980.

Table 1 shows the number of outbreaks of FMD and virus types recorded in Europe, the Near East and northern Africa during 1979/1980. Although the FMD situation is shown to be further consolidated in Europe, in the Iberian peninsula it has deteriorated during 1980 with widespread outbreaks reported in Portugal after almost ten years' freedom from the disease.

Spain As reported at the Forty-Second Session of the Executive Committee in 1980, Spain after one year's freedom from FMD was faced again in March 1979 with a new outbreak in pigs in the Province of Gerona. The virus identified was type C and strict sanitary measures and a wide vaccination programme were applied immediately. Due to the high concentration of the pig population in Gerona, the disease spread to the neighbouring provinces of Terruel and Zaragoza and late in July and December 1979 outbreaks were also detected in the Badajoz and Huesca Provinces.

In 1980 the disease occurred from January to April with isolated outbreaks in pigs in the Provinces of Leon, Valladolid, Zamora, Salamanca and Navarra. The last outbreaks occurred in April 1980. (Table 2).

It is presumed that the outbreaks which occurred after the first case in Gerona were due mainly to vaccine failure. The vaccinated animals were infected 20 days after vaccination. The vaccine responsible for this failure was discarded and the vaccination campaign was continued with new local and imported vaccine.

The number of animals vaccinated during 1979 and up to July 1980 was:

	1979	First semester 1980
Cattle	2 521 141	1 880 939
Sheep	222 692	852 985
Goats	119 420	106 497
Pigs	6 613 983	3 068 337
	9 477 236	5 908 758

Since April 1980 no further FMD outbreaks have been reported in Spain.

Portugal After almost ten years' freedom from the disease, since May 1980 Portugal has suffered a severe and widespread epizootic of FMD caused by virus type C. The first outbreak occurred on 20 May in a cattle herd located in Tomar, Santarem Province. Samples from infected animals sent to the World Reference Laboratory (WRL) Pirbright were identified as FMD virus type C similar to C Spain 1979 strain (see Table 3). The disease spread

throughout the whole country and since the first outbreak (20 May) up to 31 October 1980, 576 outbreaks have been reported in cattle, pigs, sheep and goats with 10,310 animals infected. Mortality was high in piglets (33.86%). (Table 4).

The disease probably originated from animals imported illegally from Spain and as vaccination of the pig population had not been carried out for the last nine years the virus spread rapidly throughout the whole country.

Strict sanitary measures were imposed and an intensive vaccination campaign programme was carried out with vaccine imported from Spain and France and supplied free of charge by the Government. Up to 31 October, 1,000,000 cattle, 1,000,000 pigs and 50,000 small ruminants have been vaccinated. Unfortunately large numbers of animals and especially ruminants, remain unprotected and constitute a permanent source of infection.

Following proposals made by the Veterinary Services, the Government has approved a national FMD Eradication Programme with compulsory vaccination of all susceptible animals twice a year as stipulated in the scheme prepared by the Veterinary Services.

The Secretary has followed closely the events in Portugal and in consultation with the Chairman of the Commission, Dr. Brown, has visited Portugal where the evolution of the disease and the vaccination programme were examined and discussed. A document showing the FMD situation since the first outbreaks (May to end October 1980) and sanitary measures applied and vaccination programme was prepared. A copy of this document has been sent to EEC for information and consideration with a view to assisting Portugal through the provision of vaccine to complete the FMD control and eradication programme. Considering the efforts made by Portugal to eradicate African Swine Fever, it should be recognized that foreign assistance in the form of vaccine is urgently required either from international organizations or individual donors to help the Government to completely eradicate the disease and re-establish freedom from FMD.

Federal Republic of Germany Two outbreaks of foot-and-mouth disease, type O, were reported on 30 March 1980 on a farm in Giebelstadt, Wuerzburg district. The herd consisting of 56 cattle and 70 pigs has been slaughtered. The cattle of this herd had been vaccinated against FMD on 8 March 1980. The disease spread to a second farm with 13 pigs in the village of Eisiangen (Wuerzburg district) through the delivery of piglets from the infected farm. Slaughter of all animals took place on the farm and strict sanitary measures were applied.

Switzerland One outbreak was reported on 22 May 1980 in cattle from the canton of Berne which had been vaccinated for the first time with trivalent vaccine on 8 May 1980. All animals present on the farm have been slaughtered and destroyed. Type C virus was identified.

The cases of FMD reported both in the Federal Republic of Germany and in Switzerland were considered as post-vaccination accidents.

German Democratic Republic One outbreak of FMD type O in cattle was reported on 27 March 1980 in Dettmannsdorf commune, Ribnitzolangarten district, 22 cattle being affected. Sanitary measures were applied and 320,000 animals around the outbreak area were vaccinated. No information is available as to the origin of this outbreak.

Italy One outbreak of FMD type A close to A5 was reported on 3 December 1980 in imported unvaccinated cattle in the Province of Padua.

Apart from the outbreaks reported, the rest of the European countries have remained free from FMD.

Type A virus strain of non-European origin (A Sicily 1977, Netherlands 1977) close to A24, has not been reported in Europe during 1980. It is interesting to note that the United States authorities will shortly be carrying out comparative trials of A5, A24 and A27 vaccine. European FMD laboratories such as Wellcome and IFFA have proposed undertaking similar investigations. (Report of Session of Research Group, Vienna, 1980).

Malta applied strict prophylactic measures against the introduction of infectious disease into the country. For this purpose a modern incinerator is being installed at the airport and another at the docks. Aircraft refuse is accepted only from Air Malta and British Airways; other airlines return their refuse to the country of origin.

Vaccination of all susceptible animals with vaccine provided from Italy at cost price has been carried out.

The review of FMD incidence in Europe during 1980 has particular significance since it shows that while the continent has succeeded in avoiding the introduction of exotic FMD virus, indigenous sources of infection still persist in Europe. The fact that at least some outbreaks were connected with vaccine manufacture (virus escapes, insufficient inactivation and illegal movement of animals) confirm the need for strict disease security measures in the areas of manufacturing plants including control of animal movement and vaccine safety and potency control before the vaccine is used in the field.

Prophylactic schemes

There have been no changes in the programme carried out in 1980, with the exception of those countries where FMD has been reported.

The application of the 'stamping out' policy occasionally combined with ring or area vaccination, has in western Europe, rapidly restored a favourable situation each time sporadic outbreaks have occurred. General vaccination has been carried out in Spain under pressure of the disease (C type) and extended to cover the whole country; Portugal had to re-establish compulsory vaccination of the total animal population twice per year while vaccination in frontier areas was carried out in Greece, Bulgaria, Turkey, Romania and Hungary. Appendix 1 shows the prophylactic situation in Europe during the past biennium and vaccination coverage during 1980.

Position and campaigns in southeastern Europe and Anatolia

Epizootiology

Turkish Thrace: Since November 1978 no outbreaks have been reported in Thrace (European Turkey). A vaccination programme is carried out regularly using local vaccine and vaccine provided by FAO for the campaigns in the buffer zone. In the remaining part of Turkey, including Anatolia, 856 outbreaks were reported between January and the end of September 1980. Outbreaks were sporadic at the beginning of the year tending to increase in number between June and September. Of the 856 outbreaks confirmed in the laboratory 75 were type A22 and 781 type O.

Diagnostic activities were undertaken at the SAP Institute in Ankara including specimens periodically being sent to the WRL, Pirbright, for comparison with typing results at the SAP Institute.

Vaccine production at the SAP Institute in Ankara Water problems which date back to 1974 have now been solved by simply using another source of water located in the area of the Middle East Technical University. This water is suitable for cells grown in suspension and is now fully available to meet the needs of the FMD Institute. By using this source of water the SAP Institute has been able to start vaccine production again after a long period of complete inactivity. More than 4,000,000 doses of A22 and O Manisa monovalent vaccine has been produced during 1980. This vaccine will be used for the vaccination campaign in the Thrace buffer zone and for FMD emergencies especially in Anatolia. At present FMD vaccine production is continuing successfully at the SAP Institute, at the maximum quantity permitted by existing

laboratory facilities. However, the amount of vaccine produced does not meet the needs of the country for the implementation of emergency vaccination and prophylactic programmes for FMD control.

Vaccination campaigns Vaccination in the Thrace buffer zone was carried out in spring 1980 with A22/0 vaccine produced at the Ankara Institute plus 450,000 doses of $A22/0_1$ provided by FAO through EEC funds allocated for the FMD campaign in southeastern Europe. In the whole of Thrace there are 1.9 m. livestock (400,000 cattle and 1,5 m sheep and goats). A second vaccination programme was carried out in the autumn on young stock in the Thrace buffer zone with locally produced vaccine A22/0 type in conformity with the agreement reached at the Forty-Second Session of the Executive Committee.

In Anatolia, and in other regions where outbreaks occurred, vaccination campaigns were carried out mainly in areas where artificial insemination is applied and in large cattle breeding units.

In 1980, 720,000 doses of bivalent FMD type $A22/0_1$ vaccine were provided through FAO for the maintenance of the buffer zone in southeastern Europe, being distributed as follows: Turkey 450,000 doses, Bulgaria 200,000 doses and Greece 70,000 doses. Cost US$ 302,400.

Provision for the maintenance of the buffer zone 1981 The maintenance of the buffer zone in southeastern Europe since it was established in 1962 is being continued with funds provided from EEC and non-EEC countries in response to the appeals of the Director-General of FAO. For the period 1979-1983, EEC contributed US$ 962,171. Of the non-EEC countries Austria, Bulgaria, Finland, Norway, Switzerland and Yugoslavia responded with a total contribution of US$104,880.29. A statement of accounts relative to EEC and non-EEC contributions for the campaigns is given in Appendix 2.

On the basis of the request made by the Directors of Veterinary Services of Turkey, Bulgaria and Greece concerning the maintenance of the buffer zone in Thrace, and in view of the epizootiological situation in the region and the funds available at present for the provision of vaccine, the secretary has estimated that 650,000 doses of $A22/0_1$ bivalent FMD vaccine will be needed for the 1981 vaccination campaign in the Thrace buffer zone; distribution would be as follows: Turkey 400,000 doses, Bulgaria 200,000 doses and Greece 50,000 doses. The cost of this amount of vaccine is estimated at approximately US$300,000.

Infrastructure and assistance to FMD laboratories in southeastern Europe

Turkey The construction of the building for the large-scale vaccine production unit is continuing with funds allocated from the Turkish Government (65,000,000 T. Lire in 1979 and 100,000,000 T. Lire in 1981). It is expected that it will be completed by 1983.

The major issue in the development of the new FMD unit is the lack of funds for the provision of new equipment required to reach the vaccine production target. This cannot be implemented without foreign aid. The matter has been discussed repeatedly at previous meetings of the European Commission and suggestions have been made that Turkey should consider forming a link with national or commercial vaccine producers in western Europe in order to shorten the running-in period thus following the example of IFFA/Iran, IFFA/Iraq, IFFA/Botswana and Roger Bellon/Czechoslovalia. Poland is planning to follow this example.

Turkey has forwarded a formal request to EEC for financial assistance for a total of US$ 4 million in addition to US$ 1 million received from EEC in 1978 and which has already been spent on equipment. EEC's reaction to the Turkish request was to send a mission of FMD experts to review the situation in the FMD laboratory in Ankara and advise on the need for equipment for the completion of the large-scale vaccine production unit.

The mission was composed of FMD experts from the Federal Republic of Germany, France, Netherlands and EEC. FAO was represented by the Secretary of the European Commission. At the meeting it was agreed that: 1) the target established for vaccine production in the new

FMD unit should be reduced from 90,000,000 doses to 40,000,000 doses of monovalent vaccine; 2) the list of equipment prepared by the Turkish authorities to enable the unit to reach the production target proposed (40,000,000 doses) at an estimated cost of US$ 3.6 million will be submitted to EEC by the Turkish Government; 3) Turkey should consider forming links with qualified national or commercial FMD vaccine producers in order to shorten the running-in period and make the laboratory operational as quickly as possible.

The UNDP project (TUR 549) under which technical assistance is provided to the Ankara Institute has been extended until the end of 1981. Further assistance to the project is under consideration by UNDP/FAO.

In Greece which has been free from FMD since 1977, the FMD laboratory continues vaccine production with conventional types of virus stocked and stored for emergency needs. Vaccination in the Evros buffer zone is carried out with vaccine provided through FAO.

Bulgaria In view of the difficulties encountered and the long time required for the construction of the new foot-and-mouth disease centre near Sofia, the Government decided to transfer the project from Sofia to the town of Sliven where a new complex for a regional veterinary center had just been completed. This decision facilitates the achievement of the development objectives of the project. Through UNDP/FAO project funds additional equipment for large-scale vaccine production has been provided and is now installed at the new FMD Center. The new facilities will enable the FMD Center to develop industrial production of vaccine in full to meet the needs of the country. The annual production of FMD vaccine at the Center could reach 10,000,000 doses of monovalent vaccine when the Center is fully operational. Additional funds are expected from UNDP for the installation at the FMD Center of an adequate security system in order to avoid escapes of virus from the laboratory. For this purpose technical assistance has been provided by the Secretary, Professor Panina from Italy and Dr. Bruce from Pirbright.

FMD situation in the Near East

The FMD situation has deteriorated in this region with the spread of ASIA-1 to Iran (one outbreak reported in May 1980), S. Arabia (3 outbreaks), Republic of Oman (12 outbreaks), and Yemen Arab Republic (2 outbreaks) (Tables 1/5). Furthermore, information available from the WRL and OIE shows that type O was also present in 1980 in Jordan, Lebanon, Syria, Iran and Iraq. In view of the spread of ASIA-1 virus over practically the whole area and the present political situation in the Near East, this region deserves special attention. Indiscriminate importation of live animals from Asian countries (Thailand) where ASIA-1 is endemic has continued to endanger the Near East region, posing in turn threats to Turkey and to southeastern Europe. Under present disease conditions it would be wise to take appropriate prophylactic measures in order to avoid repetition of the 1973 ASIA-1 experience.

North Africa

The disease is constantly present in Egypt (type O). In Tunisia type A which is connected with the outbreaks which occurred in Malta in 1978 is still present with sporadic foci. In Morocco and Algeria no outbreaks of the disease were reported in 1979-1980.

South America

With the exception of Chile, all South American countries are on record as having had outbreaks in 1980 including outbreaks from types A and O while type C was present only in Argentina, Brazil, Bolivia and Peru. Type C has now been introduced into Peru after an absence of more than 5 years. Progress has been made in the official testing of FMD vaccine especially in the Argentine and in Uruguay. However, in other countries the official control of FMD vaccine is the responsibility of the producer and the application of the vaccine in the field has been left to private initiative.

Swine vesicular disease in Europe

A total of 60 outbreaks were recorded in the United Kingdom in 1980, mainly in the Yorks/Lancs region of the country. All affected and in-contact pigs have been slaughtered. Strict sanitary measures and eradication policy continued to be applied.

Italy During 1979 only 9 outbreaks of SVD were recorded while in 1980 high incidence of the disease was recorded between January and July in Lombardy and Emilia districts where a total of 29 outbreaks were reported. The last outbreaks reported were in Mantova in November 1980. In Italy only sanitary measures are applied in the case of SVD outbreaks and the disease is considered of minor importance no "stamping out" measures being applied. It it forbidden to slaughter infected or suspected pigs in slaughterhouses or factories with permission to export meat products.

Federal Republic of Germany One outbreak was reported in Landkreis, Emsland Province (Lower Saxony) on a farm of 366 pigs. All pigs on the farm were slaughtered. The last recorded outbreak was in October 1978.

No other outbreaks were reported in Europe during 1980

Travel and special activities of the Secretary

The activities of the Secretary during 1980 have been along the lines decided upon for the period 1979-1980 by the Twenty-Third Session of the Commission. Continuing efforts have been made to attract new members. France has applied to join the Commission and as soon as the Government formalities are finalized it will become a full member bringing present membership up to 24.

Poland, Czechoslovakia, Romania and Albania are the only European FAO member nations not yet members of the Commission. It is hoped that the difficulties which have so far prevented these countries from joining the Commission will soon be overcome.

FMD prophylaxis in Europe during 1979-1980

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle dose Cost	Potency required and results
Netherlands	All cattle above four months OAC vaccines 1979 C: 4,100,000 1980 C: 4,220,000	From 15 Nov. to 1st March	the entire country since 1953	Triv. $O_1/A_{10}/C$ (Frenkel) 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 2 consecutive vaccinations is 13 months. 1979 C: 2,800,000 1980 C: 1,800,000	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.

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

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle dose Cost	Potency required and results
Luxembourg	All cattle above two months of age 1979 Bov. 192,000 1980 Bov. 195,000	From 1 Dec to 31 Jan	the entire country since 1966	Trivalent OAC (O_1 A_5 C_2) Cattle 5 cc Price 12.34 B. Fr. (1)	More than 5 cattle PD50 the challenge being 10,000 ID_{50} intradermolingually.
France	A. All cattle above 6 months B. All sheep & goats above 3 months. 1980 C: 19,210,000 Sh & G: 586,000 P: 23,500	All year round but mainly from Nov. to May Before transhumance	A. The entire country since 1962 B. The frontier departments of the Pyrennees	Trivalent OAC (A Allier 1960 O Lausanne 1965 C Vosges 1960) cattle: 5 cc sheep: 1.7 cc Price: 2.18 F. Fr. (triv. dose) (2)	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 Vaccine produced in France controlled by the L.N.P.

Note: (1) vaccine free of charge; vaccination cost 97.8 Fr. shared by the state (7 B. Fr.) and the owner (10 B. Fr.)
(2) vaccination of cattle: all expenditure borne by the owner

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle dose Cost	Potency required and results
Switzerland	All cattle born before 1 Jan. 1979 C: 1,800,000 1980 C: 1,800,000	From 15 Feb. to 15 May	The entire country since 1966	Trivalent OAC cost of vaccine SF. 1.6 (1) 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.- (2)	Three cattle per type are challenged by rubbing a virus suspension on the tongue. No generalization admitted.

Note: (1) vaccine and injection (total cost: S.Fr. 3.30) free of charge to owner
(2) in some "Länder" vaccination is free of charge, in others the owner is charged 50% of cost.

Country	VACCINATION PROGRAMMES			VACCINES	
	Speices vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
Democratic Republic of Germany	All cattle above 5 months: March 1980 C: 300,000 vaccine type O (2)	From 1 Oct. to 31 Dec.	The entire country since 1950	Trivalent OAC Dose: 5 ml (1)	
Portugal	Cattle and sheep above 3 months. Goats above 2 months, pigs above 2 months. 1980 C: 262,440 P: 421,523 Sh: 16,336 G: 5,461	May-Dec 1980. 1st outbreak occurred in May 1980 after 10 yrs freedom from FMD	The entire country	Trivalent OAC and monovalent C imported. 45 ecus/dose.	PD_{50} according suitable international codes. Good results.

Note: (1) cost of vaccine and injection free of charge to owner.
(2) ring vaccinations in few outbreak areas. (March 1980)

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
Italy	A. All cattle above 3 months B. Cattle, sheep and goats sent to alpine pastures. 1979 C: 6,000,000 Sh & G: 1,250,000 1980 C: 8,500,000 Sh & G: 2,500,000	A. From 15 Sept. to 15 Dec. B. From 1/4 to 30 June	The entire country since 1968 Sheep and goats: The entire territory of Sicily	Trivalent OAC (O_1 A_7 C) (1) 5 cc. 1979 Lit. 180 per dose, total cost: 4,000,000,000 1980 Lit. 350 per dose, total cost: 9,023,000,000	8 PD_{50} measured on cattle (3 groups of 5 cattle per valence - Dilution 1:1; 1:4, 1:16 in buffer)

Note: (1) vaccine and vaccination programme paid by Government.

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
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. 1979 C: 2,597,120 S: 3,266,065 Sh: 820,440 G: 122,809 1980 C: 2,479,441 S: 3,056,400 Sh & G: 1,585,510	A. Spring (& autumn) in border provinces. B. Twice yearly for breeding animals.	The entire country	A. Trivalent OAC. 16 Pst. per dose (1). B. 2 types in use: DEAE & oil vaccines 40 Pst. per dose. C. Monovalent C oil vaccine 16 Pst.	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.

Note: (1) 50% of the cost of vaccine free of charge; vaccination paid by owner (in case of compulsory vaccination only.).

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
U.S.S.R.	Cattle above 4 months. Sheep & goats above 1 month, pigs above 2 months. 1979 C: 90,129,300 Sh: 54,924,100 P: 5,200,000 1980 C: 79,473,400 Sh: 53,578,900 P: 941,600	Early spring and autumn	Rep. of Transcancasus Kazakhstan, Middle Asia with bordering regions of RSFSR and Ukraine.	Mainly Mono-valent and trivalent vaccines. Cattle dose: 5 cc mono-valent: 9 Kopecks trivalent: 27 Kopecks.	Required duration of immunity: 6 months.
Hungary	Cattle & sheep above 2 months of age. Pigs not vaccinated. 1979 C: 393,420 Sh: 840,420 1980 C: 387,619 Sh: 843,723	Two programs: Spring and Autumn.	Eastern border provinces.	Trivalent OAC (1) cattle dose: 5 cc sheep dose: 3 cc	Vaccination free of charge.

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

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
Czecho-slovakia	A. All cattle above 3 months Adult sheep, goats and pigs. 1980 C: 5,436,000 Sh & G: 54,000 B: 6,000 P: 900,000	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 ID50 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.

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. 1979 C: 1,514,652 Sh: 1,932,044 1980 C: 1,654,307 Sh: 2,372,463	March-May in buffer zones. Ring vaccination all year round. Autumn - young stock in Thrace buffer zones.	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.	O_1/A_{22} in 1979	9 cattle per batch (3 cattle per type are challenged intradermolingually; 6 controls).
Greece	Cattle, sheep and goats above 3 months of age 1979 C: 50,000 (approx.) Sh & G: 100,000 " 1980 C: 25,000 Sh & G: 65,000	Spring campaigns	Frontier areas in Greek Thrace	Bivalent O_1/A_{22} provided through FAO	Potency evaluated on Guinea Pigs, the protective dose being above 0.3 ml. (monovalent cattle dose: 3 ml.) Conventional European strains. Stock reserve.

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
Bulgaria	Cattle and sheep above three months 1979 C: 240,000 1980 C: 240,000	Spring Autumn	30 km buffer zone along frontiers with Turkey and Greece and at frontier posts.	Biv. O_1/A_{22} (FAO vacc.) of border areas with Turkey. Triv. OA_5C elsewhere (1)	100% protection against generalization in 4 cattle intradermolingual challenge with 10,000 ID_{50}. Seroneutralization index above 3.
Romania	Cattle and sheep above 6 months. 1980 Cattle: 946,100 Sheep: 1,145,200	Twice a year (6 months interval) young cattle are revacc-inated 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 per dose: 4.32 lei.	The ordinary monovalent dose must contain 8 cattle PD_{50} Satisfactory results.

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

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated	Period of vaccination	Territory covered by vaccination	Valencies Cattle Dose Cost	Potency required and results
Yugoslavia	Cattle for export above 7 months. 1979 C: 141,392 1980 C: 189,560	All the year round.		Trivalent OAC 5 ml Doses	
Cyprus	Only cattle above 3 months 1979 C: 16,008 Sh: 211,451 G: 113,716	Early spring and autumn	Entire country in South with O_1/A_{22} and near North with ASIA 1.		
Malta	Cattle, sheep and goats. 1980 same scheme.	Winter and Spring	Double vaccination in the entire country in 1978/79. Entire country since 1980.	OAC vaccine (Italy)	

ANIMALS SUSCEPTIBLE TO FOOT-AND-MOUTH DISEASE IN EUROPE AND LEVEL OF VACCINATION COVERAGE DURING 1980 1/
(expressed in thousands)

Country	Cattle	Vaccinated	%covered	Sheep	Vaccinated	%covered	Goats	Vaccinated	%covered	Pigs	Vaccinated	%covered
United Kingdom	14,740			30,000						7,873		
Ireland	7,178			3,376			31			8,500		
Denmark	7,178			55			6			9,357		
Norway	971			1,919			72			711		
Sweden	1,911			384			7			2,711		
Finland	1,736			113			2			1,332		
Netherlands	5,149	4,220	81.9	895			20			9,722		
Belgium	3,085	1,800	58.3	99			9			5,083		
Luxembourg	207	195	94.2	3						90		
France*	24,510	19,210	55.6	11,671	586*	0.05	1,048*			11,702	23,5	00.2
Germany, Fed.Rep.*	15,007			1,136			36			22,641		
Switzerland*	2,038	1,800	88.3	380			81			2,062		
Austria	2,594			192			36			4,007		
Italy*	8,556	8,500	99.3	8,736*	2,500*	28.6	960*			9,790		
Malta	15	127	84.6	5	2.3	46	9	6		27?		
Spain **	4,650	2,479	53.3	14,500*	1,585*	10.9	2,300*			9,943	3,056	30.7
Portugal**	1,050	262	24.9	4,200	16	0.003	745	6		2,500	421	16.8
USSR**	114,086	79,473	69.6	142,600	53,578	37.5	5,504			73,484	941	0.012
Poland	13,036			4,221			50			21,224		
German Dem.Rep.*	5,572			1,965			29			11,734		
Czechoslovakia	4,887	5,436	?	865	654	75	72	6	0.8	7,601	900	11.8
Hungary	1,966	387.5	19.7	2,863	843	29.4	11			8,011		
Romania	6,285	845	13.4	15,617	804	0.5	412			10,899		
Bulgaria	1,763	240	13.6	10,105			374			3,772		
Yugoslavia	5,491	189	0.34	7,339			125			7,742		
Albania	474			1,163			665			120		
Greece	973	28	0.28	8,024	65	00.8	4,473			830		
Turkey**	14,941	1,654	11	43,942	2,372	0.5	18,447			10		
Cyprus	38			495			459			108		

* countries with isolated outbreaks of FMD
** countries with frequent outbreaks of FMD

_/ FAO Production Yearbook 1979

Appendix 2

VACCINATION CAMPAIGNS IN SOUTHEASTERN EUROPE

Trust Funds 9111 (EEC)/9097 (non-EEC) - position as of 1 February 1981

The income and expenditure under the above-mentioned Trust Funds since the Director-General's appeal in September 1978 is given hereunder:

Income	US$	Expenditure	US$
Balance 31/12/1978 (TF 9111)	72,583.97	1979-700,000 doses biv.A22/0$_1$	294,220.50
EEC Contribution 1979/1980	962,171.98	(Turkey 400,000	
Interest 1979/1980	36,201.12	(Bulgaria 250,000	
	1,070,957.07	(Greece 50,000	
Balance 31/12/1978 (TF 9097)	161,854.42	Centrifuge for Athens FMD Institute	7,769.08
Contribution from Austria	30,566.00		
" Norway	3,926.57		
" Bulgaria	19,872.00	1980-720,000 doses biv.A22/0$_1$	302,000.57
" Yugoslavia	16,621.72	(Turkey 450,000	
" Switzerland	24,180.00	(Bulgaria 200,000	
" Finland	9,714.00	(Greece 70,000	
Interest 1979/1980	14,000.00		
	280,734.71	1981-650,000 doses biv.A22/0$_1$	292,500.00
		(Turkey 400,000	
		(Bulgaria 200,000	
		(Greece 50,000	
GRAND TOTAL	1,351,691.78		896,490.15

	US$
Balance in Trust Funds 9111/9097	1,351,691.78
towards 1982/1983 vaccination	896,490.15
campaigns	455,201.63

The Executive Committee at its Forty-Third Session bearing in mind that the objective of the Commission was to have no further clinical disease in Thrace recommended that the campaigns be continued beyond 1983.

It is estimated that for 1982/1983 1,400,000 doses of bivalent vaccine would be required for the campaigns at an approximate cost of US$ 600,000. The balance available under the relevant Trust Funds is not sufficient to meet this.

TABLE I

Outbreaks of foot-and-mouth disease and virus types recorded in Europe, the Near East and Northern Africa during 1979/1980
(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 (1976)													
Netherlands (Jan. 1977)													
Luxembourg (1963)													
France (April 1979)				23-O	2-O								
Fed. Republic of Germany	1980			1-O									
Italy (Feb. 1979)			4-O 2-A**										
Switzerland	1980					1-C							
Austria (March 1975)													
Spain	1979			2-C	1-C	3-C			1-C			1-C	2-C
	1980	1-C	1-C	1-C	1-C								
Portugal	1980					1-C	282-C	164-C	84-C	27-C	18-C		

See notes overleaf

TABLE I (contd.)

EUROPE (contd.)		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Czechoslovakia (May 1975)													
German Democratic Republic	1980			1-0									
Poland (1971)													
Yugoslavia (1978)													
Hungary (November 1972)													
Romania (January 1973)													
Bulgaria (February 1973)													
Albania (1959)													
Malta (1978)													
Cyprus (1964)													
Greece (Sept. 1977)													
Turkey (1)	1979	32 0A*	21 0A*	31 0A*	59 0A*	1310A*	120 0A*	87 0A*	86 0A*	74 0A*	52 0A*	31 0A*	27 0A*
	1980	15 0A*	14 0A*	47 0A*	42 0A*	78 0A*	116 0A*	99 0A*	65 0A*	111 0A*	120 0A*	103 0A*	46 0A*
U.S.S.R.	1979	1-C	1-0	...	...	...	...	1-0	2-0	2-0	1-0	1-0	1-0
	1980	5-0	3-0	1-0	1-C	...	2-C0	...	...	2-0A	1-0	1-0	...
NEAR EAST													
Jordan	1979			3-0	1-0	1-0							
	1980							2-0					
Lebanon	1980	...	...	...	2-0	...	...	...	...	...	...	...	...
Syria	1979	2-0	...	...	...	4-0	...	...	...	...	...	...	...
Iraq*	1979/1980	72	175	271	1 431	3 198	4 160	2 941	...	...	...	...	...
Iran	1979	2-0	1-0	...	...		...	3-0	6-0	12-0	...	...	...
	1980	...	...			ASIA 1		...	...	...			
Israel	1979				1-A**	1-A**							
	1980												

See notes overleaf

TABLE I (contd.)

NORTHERN AFRICA		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Arab Republic of Egypt	1979 1980	4-0	12-0	8-0	12-0 2-0	9-0 3-0	4-0	 2-0	6-0 3-0		1-0		
Tunisia	1979 1980	 1-A	 3-A	2-A	2-A 1-A	3-A 2-A	2-A 1-A	5-A	4-A 1-A	4-A 1-A			
Algeria													
Morocco													
Libya	1979			4-A									

Notes: A blank indicates no outbreak; ... = no information received

A* = A_{22}; A** = South American/European/North African group of inter-related strains (WRL Dec.1977); A=$A_5(A_7)$; 0=0_1

(1) Turkey - last $ASIA_1$ outbreak reported in September 1973

Types of virus: The WRL carried out typing on samples from the following countries: Iraq (0); Kuwait (3-$Asia_1$, 34-0); S. Arabia (0); Oman (17-0); Yemen Arab Republic (6-$ASIA_1$, 5-0); Bahrain (1-0). Typing was carried out locally in Israel, Iran and Egypt and also in the WRL, Pirbright.

1979

1980 S. Arabia (3-$ASIA_1$, 1-0); Oman (12-$ASIA_1$,10-0); Yemen Arab Republic (2-$ASIA_1$, 13-0).

TABLE I (contd.) FMD statistics for Europe from 1970 to 1980

Country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Sweden											
U.K. (incl.Channel Islands)					1						
Denmark	2										
Netherlands		21	7		3	2					
Belgium	2	1			60	21	1				
France	4	8	2	1	89	2			1	25	
Germany Fed. Rep. of	8	12	21	7	14	13	5	3	4		2
Switzerland				1					1		1
Austria				1 651	7	1					
Italy	147	14	9	13	5	31	61	18	43	4	1
Malta						24			10		
Spain	473	508	361	353	244	90	29	26		7	4
Portugal	103	1 055									576*
German Dem. Republic	2	3					9	1	1		1
Poland	1	1									
Czechoslovakia			11	17		1					
Hungary			18								
Romania			12	1							
Bulgaria				3							
Yugoslavia			12	9	4				1		
Greece	24	18	284	356	13		1	2			
Turkey	650	359	1 351	1 118	465	351	864	735	830	751	856
U.S.S.R.	573	349	569	705	194	120	196	101	30	9	1 8
TOTAL	1 989	2 349	2 657	4 235	1 099	656	1 166	886	923	796	1 459

TABLE 2

Evolution of FMD in Spain during 1979 and first six months 1980

Month and Year	Province		Number of foci	Outbreaks					Type of virus
				Cattle	Sheep	Goats	Pigs		
				Inf./Sus.	Inf./Sus.	Inf./Sus.	Inf./Sus.		
03-79	Gerona	Tortellá	1				70	12	C 1/
04-79	Gerona	Esponella	1				25	35	C
04-79	Lérida	Golmes	1				20	480	C
05-79	Barcelona	La Atmella	1				50	26	C
05-79	Zaragoza	Figueruelas	1				600	1800	
05-79	Teruel	Caminreal	1				7	4	
07-79	Badajoz	Puebla de Al.	1				5	20	C
12-79	Huesca	Albelda	1				40	300	C
12-79	Huesca	Binaced	1				4	26	C
12-79	Huesca	La Fueva	1				30	80	C
01-79	León	Cuadros	1				10	100	C
01-80	Valladolid	Villabrágina	1				12	75	C
01-80	Salamanca	Arcendiano	1				4	6	C
04-80	Navarra	Valcarlos	1				2	10	
			15				896	3374	

1/ close to C_1 Vosges 1960

TABLE 3

THE ANIMAL VIRUS RESEARCH INSTITUTE

W.R.L. INFORMATION SHEET No. 29

FMD TYPE 'C' STRAIN FROM PORTUGAL 1980

FMD type C was reported in cattle and pigs in May of this year in the districts of Santarem, Braga, Leiria and Lisbon initially (O.I.E. Information Note No. 401 (a)), and later in the Algarve Region of the country (O.I.E. Information Note No. 401 (c)). Low mortality was reported.

POR 2/80 was received as bovine epithelium in WRL in May 1980, and subsequently examined in unilateral complement fixation tests, comparing it with several reference strains; details of these were previously given in Information Sheet No. 28.

TABLE OF 'r' VALUES

Viruses / Sera	CGC	C997	C.Resende	C.Noville	C.Spa 2/79	C.Spa 7/79	Por 2/80
CGC	1.00	0.69	0.70	0.81	0.56	0.69	0.75
C997	0.89	1.00	0.58	0.64	0.83	0.72	0.89
C.Resende	0.57	0.71	1.00	0.86	0.43	0.38	0.62
C.Noville	0.53	0.44	0.52	1.00	0.50	0.64	0.67
C.Spa 2/79	0.48	0.57	0.75	0.76	1.00	0.54	0.71
C.Spa 7/79	0.53	0.67	0.92	0.81	0.75	1.00	1.00

RESULTS

The field strain Por 2/80 appears identical to the Spanish vaccine strain Spa 7/79 (C.Santa Pau) on one-way tests, and to be related to the widely used C.Noville vaccine virus.

16th July, 1980

Ann E.M. Arrowsmith

Table 4

EVOLUTION OF FMD EPIZOOTIC IN PORTUGAL

DURING THE PERIOD 20 MAY - 31 OCTOBER 1980

SPECIES	NUMBER OF ANIMALS ON INFECTED FARMS	NUMBER OF ANIMALS			INDICES	
		INFECTED	DIED	RECOVERED	DISEASE INCIDENCE	MORTALITY
CATTLE	9,570	2,395	10	2,385	25,0%	0,41%
GOATS	2,159	395	-	395	18,2%	-
SHEEP	2,869	211	4	207	7,3%	1,89%
PIGS	32,052	7 309	2,475	4,834	22,8%	33,86% (a)

Total number of farms infected..... 576

Total number of animals on infected farms..... 46,650

Total number of animals affected by the disease..... 10,310

Total number of deaths 2,489

(a) The high mortality in pigs concerned above all young animals of less than 2 months.

Table 5

WORLD REFERENCE LABORATORY FOR FOOT AND MOUTH DISEASE

THE ANIMAL VIRUS RESEARCH INSTITUTE
PIRBRIGHT, WOKING, SURREY

CUMULATIVE REPORT FOR 1980

During 1980 319 samples from 29 countries have been examined for type of virus. Virus was demonstrated in 233 of these samples and the types of virus recovered are tabulated below.

COUNTRY	No. of samples	O	A	C	SAT 1	SAT 2	SAT 3	Asia 1	No virus isolated
ANGOLA	1								1
BANGLADESH	44	27	6						11
BOTSWANA	6				2	4			
BURUNDI	3	1	2						
CAMBODIA	9							5	4
GAMBIA	1					1			
HONG KONG	23	17						2	2 + 1 SVD
INDIA	42	11		4				20	7
JORDAN	2	2							
LEBANON	4	2							2
MALAYSIA	18	16							2
MALAWI	2								2
MOZAMBIQUE	8	1				5			2
NIGERIA	4				1				3
OMAN	35	10						12	13
PAKISTAN	9	2	1						6
PORTUGAL	2			1					1
SAUDI ARABIA	4	1						3	
SENEGAL	4					1			3
SOMALIA	2	2							
SOUTH AFRICA	17				1		13		3
S.WEST AFRICA	5				4				1
SUDAN	4	3							1
TANZANIA	7	4	2		1				1
THAILAND	3	3							
TURKEY	3	2	1						
YEMEN	18	13						2	3
ZAMBIA	29				13				16
ZIMBABWE	10				4	4			2
TOTALS	319	117	12	5	26	15	13	44	86 + 1 SVD

APPENDIX B2

SITUATION OF THE FOOT-AND-MOUTH DISEASE CONTROL PROGRAMS, SOUTH AMERICA 1980

Report of the Eighth Regular Meeting of the South American Commission for the Control of Foot-and-Mouth Disease (COSALFA-VIII) held in Rio de Janeiro, Brazil, 12/13 March 1981

Overall situation

No significant qualitative changes occurred during 1980 in the geographic area affected by foot-and-mouth disease in the Hemisphere. Nevertheless, some facts related both to the programs and to livestock raising activities in the Hemisphere indicate that the geographic behaviour of foot-and-mouth disease could be significantly affected if energetic measures are not taken in the immediate future.

One fact meriting special attention and affecting the majority of the South American countries is the tendency for the cattle-raising areas to expand toward the Amazon or sub-Amazon regions, as well as into areas with only slight livestock raising development. This expansion is under way to a greater or lesser degree in Bolivia, Peru, Ecuador, Colombia, Venezuela, Brazil and Paraguay.

The new endemic foci generated in such areas, and mainly in the Amazon region, will be difficult to control or eliminate because of the ecological aspects, livestock handling characteristics and the present infrastructure found in those areas. On the other hand, the modifications in livestock movements due to the circumstances in the new breeding areas will act to transform the present distributive pattern of foot-and-mouth disease.

In relation to 1979 statistics, the total number of foci recorded in 1980 slightly increased by about 10% in the region as a whole; higher rates were particularly evident in Argentina, Brazil, Peru and Uruguay. The floods that affected part of the Humid Pampa brought about intense mobilization of herds and consequently raised the risk of spreading the disease. Epidemic outbreaks occurred in Brazil's southern states but the more intensive incorporation of foot-and-mouth disease epidemiological surveillance in the States of Mato Grosso and Mato Grosso do Sul also helped to contribute to higher recorded rates of foot-and-mouth disease. The extensive epidemic caused by virus O in Rio Grande do Sul spread into Uruguay where, despite being quickly controlled, the disease spread throughout the entire eastern half of that country. In Peru, after an absence of 8 years, virus C was reintroduced on ranches in the northwestern part of the country and later spread to Lima; the application of a not fully inactivated vaccine was the cause of the outbreaks. The appearance of foot-and-mouth disease along the Peru-Bolivia border toward the year's end endangered the Puno region where no disease had been reported for several years. The residual effects of the previous year's epidemic of virus O were recorded in Colombia.

The area affected by foot-and-mouth disease on the American Continent has not been significantly reduced in recent years. Nevertheless, full achievement of the goals of the foot-and-mouth disease eradication plan in Chile culminated with preparations to declare that country officially disease-free in early 1981. This fact is undoubtedly the most significant progress attained in the struggle against foot-and-mouth disease in South America.

The trend observed in recent years of raising the foot-and-mouth disease vaccine efficacy control requirements was maintained during 1980 in several of the countries. Consequently, despite the greater exposure to the disease virus in Argentina and Uruguay, the number of bovine cases did not undergo a parallel increase with respect to 1979.

Foot-and-Mouth Disease Virus Identified by Country, South America 1980

(Sources: Diagnostic and Reference Laboratory of the PAFMDC and Monthly Country Reports)

Argentina	O_1	A_{24}	C_3
Bolivia	O_1	A_{24}	C_3
Brazil	O_1	A_{24}	C_3
		A (Venceslau)	
Colombia	O_1	A_{27}	-
Chile	-	-	-
Ecuador	O_1	A_{27}	-
Paraguay	O_1	-	-
Peru	-	A_{24}	C_3
Uruguay	O_1	A_{24}	-
Venezuela	O_1	A_{32}	-

Foot-and-Mouth Disease Control Programs and Vaccination Coverage, South America, 1980

Country	Cattle population (in miles)	Coverage				
		Program		Vaccination		
		Nº	%	Nº	% (total country)	% (in program)
Argentina	59,474	59,474	100	47,032	78	78
Bolivia	4,000	549	14	306	8	56
Brazil	95,001	67,250	71	51,770	54	77
Colombia	24,275	24,275	100	12,992	54	54
Chile	3,468	3,468	100	437	13	13[b]
Ecuador	2,505	2,505	100	779	32	32
Paraguay	5,307	5,307	100	4,065[a]	77	77
Peru	3,649	3,649	100	1,518	42	42
Uruguay	10,235	10,235	100	...	...	...
Venezuela	10,832	10,832	100	5,246[c]	48	48
T o t a l	218,746	187,544	86	124,145	57	66

Sources: Report of the countries to COSALFA-VIII
a) Average of three vaccinations; b) Equivalent to 63% of cattle population under vaccination program; c) Number of doses applied in 1980 divided by 2.
.... No data available

APPENDIX B3

STATEMENT ON DARIEN GAP, MARCH 1981

The history of the U.S. Department of Agriculture's (USDA's) involvement in the construction of the Darien Gap part of the Pan American Highway is in a previous report (23rd Session of the Commission Report, March 1979). In view of a direct threat of foot-and-mouth disease (FMD) to the countries north of Colombia, the United States entered into international agreements with Colombia and Panama to establish FMD control. As the result of the agreements, some initial progress on FMD eradication was made in Colombia, although some problems occurred. These included the quality of vaccine, administration and management of the project, as well as relocation of settlers from a proposed livestock-free zone immediately adjacent to Panama and through which the highway would pass. In order to strengthen the program, the U.S.-Colombian agreement, including technical work plans, were revised in 1979 to provide additional safety factors to minimize the spread of FMD into Panama. The revised agreement provides for very strict measures to maintain Area I where there are approximately 47,000 cattle free of FMD. This is the area adjacent to Panama. No vaccine is used in this area and there have been no outbreaks of FMD since 1974. All animals are examined every 30 days.

In Area II, at least 95 percent of all cattle are examined and vaccinated three times annually. There are approximately 430,000 cattle in this area. In addition, movement of animals are controlled and in case of an outbreak, strict quarantine measures are enforced. Owners in Area III are being encouraged by educational programs to participate in the vaccination program. Recent indications are that vaccines are being used more extensively. In large part, this is due to a better vaccine as well as publicity. Efforts in Area III should increase if funds become available.

The present Government of Colombia intends to complete construction of the highway or a modified version of it to the Panamanian border. A deterrent has been deep boggy regions in the vicinity of Rio Atrata. This spans about 22 kilometers of the proposed highway. As of this time, the Colombians plan to dig a canal through this part and move vehicles by ferry boat. Therefore, the countries north of the Darien Gap are confronted with the possibility that some type of road connection between Colombia and the Panamanian border will become a reality during the next 2-3 years. When this occurs, the possibility of FMD spreading from Colombia to Panama and Central America will greatly increase. This necessitates re-evaluation of the threat of FMD to the livestock industries of all countries involved (Panama, Central America, Mexico, United States, and Canada). Good cooperation between the Governments of Colombia and Panama are essential in order to reach and maintain the goals specified in the agreement, which are aimed at preventing the spread of FMD into Panama and countries to the north.

The objectives of the Panamanian-U.S. cooperative program are endorsed fully by both Governments. As a direct consequence, the program in Panama is operating effectively and is oriented toward the detection of vesicular diseases including FMD and their eradication.

Through a Cooperative Agreement between the Ministry of Agriculture of the Republic of Panama and USDA, a new laboratory for the diagnosis of vesicular diseases has been constructed in Panama. The new laboratory will provide diagnostic services for vesicular diseases for the Central American countries and Panama. Because of problems, primarily due to lack of air transport and thus the delay in receipt of diagnostic results from the Panaftosa Center, the establishment of a Vesicular Disease Diagnostic Laboratory for Central American countries and Panama is essential.

APPENDIX B4

ACTIVITIES OF THE RESEARCH GROUP AND COLLABORATING LABORATORIES

A session of the Research Group of the European Commission for the Control of Foot- and Mouth Disease was held at the Federal Institute for Animal Virus Diseases, Vienna, Austria, from 17 to 19 June 1980.

The meeting was chaired by Dr. J.G. van Bekkum, Netherlands, Chairman of the Research Group. The members of the Research Group present were: Dr. G. Kubin, Austria; Dr. M. Mussgay, Federal Republic of Germany, Dr. J. Leunen, Belgium; Dr. G. Panina, Italy; Dr. M. Eskildsen, Denmark and Dr. R.F. Sellers, United Kingdom.

The following observers attended: Dr. P.D. McKercher, Plum Island Animal Disease Center, USA; Dr. J. Fontaine and Dr. H. Favre IFFA-Mérieux, Lyons; Dr. T.W.F. Pay and Dr. M.M. Rweyemamu, Wellcome FMD Laboratory, Pirbright; Dr. U. Khim, Federal Vaccine Institute, Basel; Dr. R.P. Strobee, Veterinary Research Institute, Uccle; Dr. J.C. Lei, State Veterinary Research Institute, Lindholm; Dr. K. Strohmaier, Federal Research Institute for Animal Virus Diseases, Tübingen; Dr. S.J. Barteling, Central Veterinary Institute, Lelystad; Dr. J.R. Crowther, Animal Virus Research Institute, Pirbright and Drs. Silber, Bücher and Al-Nuktah of the Federal Institute for Animal Virus Diseases, Vienna

Dr. P. Stouraitis and Miss J. Raftery from the European Commission, FAO, provided the secretariat and the rapporteur for the Session was Dr. G.N. Mowat, Animal Virus Research Institute, Pirbright. Interpretation facilities were kindly made available by the Austrian Government.

Dr. Pindur, on behalf of the Federal Minister of Agriculture, welcoming the participants expressed his gratitude for the contribution which FAO and the members of the Research Group have made in the past to the control of FMD in Europe.

The following agenda was presented and adopted:

1. Advances in the production methods for concentrated FMDV antigen including the evaluation, in vivo and in vitro, of antigens during long-term storage.
2. FAO Collaborative International Study for the Standardization of Laboratory Methods in FMD Research. Discussion of the provisional results of Phase IV and proposals for the introduction of international reference preparations for FMD work.
3. Progress in the application of the newer laboratory techniques such as Radio-immuno Assay and Enzyme-Labelled Immunosorbent Assay in FMD research.
4. Review of the international situation with regard to SVD, including current research

5. Demonstration of the facilities, current work and disease security measures at the Austrian Institute.

6. Topics raised by the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease.

7. Other business.

Final Conclusions and Recommendations

Item 1: Advances in the production of concentrated antigen

The reports presented have shown that a range of different methods may be successfully used for the concentration of viral antigen. These included precipitation with polyethylene glycol, 2-phase polymer separation and ultrafiltration. The level of concentration achieved and the degree of purification varied according to the method employed. Preparations in which the antigen was concentrated by a factor of up to 400 times were reported and efficiency of product recovery was in the region of 70% - 90%.

One of the most important steps in the procedure is inactivation. Various inactivants were used either before or after concentration. At present inactivation before concentration appears to be preferable since problems of incomplete inactivation with concentrated antigen were reported. It was also thought that a filtration step prior to inactivation might be advantageous but further investigations of this part of the process are needed.

Antigen preparations were stored either in mechanical freezers or in liquid nitrogen containers. In comparison to control preparations, stored materials showed no loss of infectivity or, when stored as inactivated antigen, no loss of immunogenicity. This was true for some preparations stored for up to seven years. In one study, polyacrylamide gel electrophoresis of stored concentrated antigens showed that the polypeptide responsible for immunogenicity had, for undetermined reasons, been cleaved. These materials were as immunogenic as comparable control preparations. These findings emphasize the need to continue to investigate the properties of stored concentrated antigens both at the biochemical level and by immunisation experiments in animals.

It is recommended that

(1) further research be devoted to developing and improving methods for the concentration and purification of FMD antigens for use in vaccines;

(2) concentrated antigen should be stored as inactivated material, since at present inactivation of concentrated live virus has given variable results and there is the additional advantage of increased safety in storing inactivated material;

(3) studies on the immunising properties of a more extensive range of concentrated antigens after storage at ultra low temperatures, be made;

(4) potency tests of vaccines made from concentrated antigens should be made in the animal species in which the vaccine will normally be used. Expiry dates of such vaccines should be defined;

(5) the use of stocks of concentrated antigen is considered of special interest for countries that have no systematic vaccination programme for cattle, and for those wishing to hold stocks against certain types or subtypes of the virus or for the protection of pigs in emergency situations.

Item 2 - The Results of Phase IV of the Collaborative International Study on Laboratory Methods in FMD Research

The investigations jointly undertaken in Phase IV consisted of two parts:

1. Assays of virus infectivity by the agar-cell suspension method, and
2. Estimations of viral mass by bio-physical methods.

The data presented have shown that with the infectivity assays the variation in results from different laboratories has significantly decreased following the distribution of materials for the performance of the test in addition to the virus samples and also a detailed description of the method. The conclusion to be drawn is that the results demonstrate the benefit of standardizing as many elements of the test as possible. This is amply confirmed when the results are compared to those of Phases I and II.

A similar trend was also shown in the results obtained from the estimates of viral mass. Compared with the results of Phase III the extent of variation was considerably reduced as was shown when the variation in each series was expressed as the standard deviation of the range of means of results from all the laboratories participating. It was noted that although the true difference in concentration of viral mass between the virus preparations that were compared was known to be 3-fold the difference observed in many of the participating laboratories was 4-fold or greater. This raised the question as to whether the laboratory systems in use were capable of giving a linear response over the range of antigen concentrations in the materials as distributed. Nevertheless this method was thought to have considerable promise as a means of measuring the amount of antigen to be incorporated into vaccines in the future.

It was concluded that Phase IV had in fact been successful in that it had demonstrated that attention to detail could result in better agreement in results from different laboratories and it was agreed that the collaborative study should be continued.

It was therefore recommended that Phase V should be concerned with further study of the measurement of viral mass:

1. Bearing in mind the wide range of equipment and methods used to measure the weight of virus in different laboratories, it was agreed that an early essential step was to calibrate all these methods by means of a distributed standard. It was suggested that a suitable stable material capable of precise formulation might be provided by a suspension of ferritin and that following preliminary investigations to confirm this (to be carried out between the Lelystad and AVRI laboratories), the latter would send out to all participants a range of preparations for this purpose.

2. It was also recommended that an investigation of the linearity of the measuring systems with virus material should be pursued with the type O virus used in Phase IV. To this end AVRI will prepare a series of virus suspensions in which the 146S is diluted in known steps in homologous 12S material and these preparations will be distributed for assessment.

3. Further, it was recommended that the investigations be extended to include another virus type to observe whether the inter-laboratory variation would be of the same order as that found in the type O virus. It was recommended that type C inactivated antigen be used for this purpose and it was agreed that the AVRI laboratory would prepare a series of materials in the manner of that provided for the type O virus and would distribute them as before.

Item 3 - Application of radio immunoassay and enzyme labelled assay to FMD virus research

Radioimmuno assays (RIA) and enzyme linked immunosorbent assays (ELISA) have been successfully exploited for FMD virus studies by several research laboratories. A general

conclusion may be made that the RIA is of limited use due to the facilities needed for the handling and counting of radioactivity. The ELISA is therefore recommended as a sensitive and convenient method for further development; although the RIA will continue to be used by research laboratories to investigate some aspects of FMD virus. The ELISA should be workable by a wide number of laboratories with differing facilities.

Both FMD viruses and antibodies against virus have been found suitable for use in the solid phase systems mainly using passive adsorption onto various plastic microtitre plates, although one laboratory has successfully attached FMD inactivated virus to paper discs by chemical methods - which might be exploited in future to obtain more stable pre-coated antigen plates.

The general methods used for the ELISA tests reported were similar to those described in the bulk of the literature concerning virus/antibody systems. No great difficulties were reported, although research is needed to investigate further any effects on virus interaction with antibody after it has been adsorbed to plastic.

Two types of development are recommended:

1. Use of the ELISA test with its inherent sensitivity and convenience of solid phase microplate systems, to investigate the nature of the FMD virion, e.g. the antigenic characterization of 12S subunits and peptide fragments, and the comparison of virion structure at various stages during vaccine manufacture.

   The use of the ELISA tests as a basic research tool should continue to be promoted and may be of most use when monoclonal antibodies against FMD viruses are available.

2. Use of ELISA tests to replace or qualify existing immunoassays where the latter prove inconvenient or irreproducible e.g. to measure 146S directly from tissue culture fluids or measure antibodies against FMDV from a range of animal sera. These types of assays should be adapted for wide application. Research into the suitability of using stored inactivated antigen or antibody coated microplates should now be made with the aim of eventually supplying "standardized" reagents to smaller laboratories.

   Particular emphasis on the following research areas using ELISA techniques should be made;

   1. application to the measurement of anti-FMD virus antibodies with the aim of correlating the relationship of ELISA results with SNT protection studies by screening large numbers of animal sera;

   2. development of rapid diagnostic methods for antigen discrimination;

   3. development and standardization of methods to measure the 146S virus from culture samples e.g. during vaccine manufacture;

   4. the establishment of simple methods for the serological comparison of viruses from the field, and at various stages during the manufacture of vaccine.

   It is also recommended that some liaison be set up between laboratories interested in, or who are using, ELISA techniques in FMD research so that current results may be exchanged or help given.

2

Item 6 - Selection of Vaccine Strains

In relation to the choice of vaccine strains considered to be appropriate for use in European countries, it was concluded that there was no need to change the O and C strains currently in use. Existing vaccine strains would probably give adequate serological cover. The situation was less clear with the type A strains. Prophylactic vaccination in Europe is carried out with vaccines prepared with A_5, A_7 or A_{10} strains. The small number of recent outbreaks in Europe due to type A virus have been caused by strains which appear to have a closer affinity to A_{24} than the vaccine strains in use. A_5 virus has not been recovered from the field during the last five years and the main threat to European livestock could come from the importation of meat products from South America where, at present, the majority of the type A strains in the field form a group characterised by the A_{24} subtype.

Before making recommendations on the need or otherwise to change the type A strains to be used for vaccine production, further investigations are required into the serological relationships of the various strains involved and in particular into the levels of protection that A_5 and A_{24} vaccines will give in cross protection tests. Trials investigating this point are shortly to be made with A_5, A_{24} and A_{27} vaccines at the Plum Island Laboratory.

It was therefore recommended that:

1. The results of these trials plus those from any further investigations in the European laboratories, should be awaited before any pronouncements on the need to change vaccine strains are made.

2. This topic should be placed on the agenda for further discussion at the next Session of the Research Group.

Item 7 - Standardization of cells for FMD vaccine production

At the International Symposium on Foot-and-Mouth Disease organised by the International Association of Biological Standardization (Lyons, France 5-8 October 1976) Drs. Nardelli and Panina were asked to prepare a draft document on testing of cells to be used in the production of inactivated FMD vaccines. Subsequently this preliminary draft was circulated for comments.

The Research Group of the European Commission for the Control of FMD recognized the importance of cell testing and considered that the draft was of interest. It recommends that after Dr. Panina has received comments and amendments from interested parties, a Working Group is set up to correlate the information for onward transmission to I.A.B.S. It is suggested that the Working Group consist of Dr. G.F. Panina, Dr. R.F. Sellers, Dr. J. Fontaine and Dr. T.W.F. Pay.

Arrangements for the next session of the Research Group

The Chairman announced that Professor Mussgay had very kindly invited the Research Group to hold its next meeting at the Federal Research Institute for Animal Virus Diseases, Tübingen, Federal Republic of Germany, and it was hoped that the meeting could be held in late September, 1981.

In discussing the arrangements for the next meeting Dr. van Bekkum emphasized the advantage of distributing the texts of papers to be given well in advance. He requested that contributors should send copies of their papers to Professor Mussgay at least four weeks before the meeting, who would, in turn, ensure that they were distributed to all those intending to be present.

The following provisional agenda for the Session was proposed:

1. Further investigations of the production and evaluation of concentrated foot-and-mouth disease vaccine antigens for long-term storage.

2. Elution of viral antigens from vaccines and their application to the retrospective safety testing of fully fomulated products.

3. Current developments in the application of ELISA methods to foot-and-mouth disease research.

4. Monoclonal antibodies - developments and progress in the application of this new technique to foot-and-mouth disease research.

5. FAO International Collaborative Study for the standardization of laboratory methods in FMD research. Discussion of the results of Phase V.

6. Results of investigations on type A strains which might be considered appropriate for the production of vaccines relevant to the current European field situation.

7. Topics raised by the Executive Committee of European Commission for the Control of Foot-and-Mouth Disease.

8. Demonstration of the facilities and some of the current research at the Federal Institute.

9. Any other business.

10. Final conclusions and recommendations.

At the closing Session Dr. van Bekkum thanked the speakers and contributors to the discussions, the FAO Secretariat, Dr. P. Stouraitis and Miss J. Raftery, the rapporteur Dr. G.N. Mowat, and the interpreters.

In closing the Session, Dr. van Bekkum paid especial tribute to Professor Kubin and his staff for the excellent arrangements which they had made to receive members of the Research Group in Vienna and for their most generous hospitality. In all the Session had been a very pleasant and successful event.

APPENDIX B5

REPORT OF THE EXECUTIVE COMMITTEE ON THE COMMISSION'S ACTIVITIES DURING THE BIENNIUM 1979-1980

Introduction

This report covers the period which has elapsed since the Twenty-Third Session of the European Commission (27-30 March 1979). Since then the Executive Committee has held two sessions, the Forty-Second in Edinburgh, Scotland, in March 1980 and the Forty-Third in Crete, Greece, in January 1981.

The report of the Forty-Second Session contains full information on the activities and missions carried out in 1979 and has been distributed to all member countries.

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

The general activities of the European Commission and its Secretariat have followed much the same pattern as in previous years. However, in view of the deterioration observed in the disease situation in southwestern Europe (Spain and Portugal) particular attention was paid to problems and programmes related to disease control and prophylaxis in that area where the presence of African Swine Fever made the implementation of the control programme for FMD in pigs difficult. In Spain type C virus was responsible between March 1979 and April 1980, when the last outbreaks were reported, for a number of outbreaks in pigs. More than 15 million animals were vaccinated during 1979 and in the first semester of 1980. While the disease has been kept under control in Spain, the neighbouring country, Portugal, suffered a severe and widespread epizootic of FMD caused by C type virus similar to C Spain 1979-1980 strain. The disease spread throughout the whole country and since the first outbreak (20 May) up to 31 December 1980 more than 600 outbreaks have been reported (see Agenda Item 2). The disease probably originated from animals imported illegally from Spain and as vaccination against FMD had not been carried out for the last ten years the virus spread rapidly throughout the whole country.

The Secretary in consultation with the Chairman of the Commission has followed closely the events in the Iberian peninsula and has visited Portugal where the evolution of the disease and the control programme were examined and discussed. During the discussion it was agreed that despite the apparent decrease in the number of outbreaks, the situation still remained very serious and great efforts would be necessary to eradicate the disease and re-establish freedom from it. To achieve this the Government has re-established compulsory vaccination of all susceptible animals twice a year as stipulated in the scheme prepared by the Veterinary Services (see Agenda Item 2, Appendix 2).

Outbreaks due mainly to indigenous sources of infection still persist in Europe as is shown by the number of cases of the disease caused by virus 0 and C which occurred in 1979-1980: France had a flare-up of the disease (type 0) in 1979 in Normandy after five years of freedom from it. Italy, by far the biggest importer of live animals in Europe has maintained a very favourable situation with outbreaks on record of type 0_1 and A atypical strain (A Sicily 1977) in February 1979. This favourable disease situation in Italy has been interrupted by the presence of an outbreak of type A close to A5 in December 1980. While the infection was rapidly brought under control the origin of the disease remained unknown (last reported cases of A5 were in Yugoslavia and Malta in 1978).

Apart from three outbreaks recorded in 1980, in Switzerland (type C), the Federal Republic of Germany (type 0) and the German Democratic Republic (type 0) due to post-vaccination accidents, Europe had no other cases on record during the last biennium. The fact that at least some of the outbreaks appear to have been connected with vaccine manufacture due to virus escapes, insufficient inactivation and illegal movement of animals, has particular significance since it shows that while Europe has succeeded in avoiding the introduction of exotic FMD virus, indigenous sources of infection still constitute a threat on the continent and confirm the need for strict disease security measures in those areas where there are vaccine production plants, including control of animal movements and vaccine safety, before it is used in the field.

External sources of infection have been numerous as was clearly demonstrated by the detection of atypical A strain on a number of occasions in Europe (A Netherlands 77, A Sicily 77 etc). During the last biennium, however, with the exception of the outbreaks which occurred in Italy in February 1979, there was no evidence of foreign infection being introduced into Europe. This is largely due to the implementation of the recommendation made in 1972 by the European Commission concerning the importation of meat from countries infected by non-exotic FMD (XIX Session, 1972). Not only has the total amount of imported meat from overseas markedly decreased, but meat on the bone has been almost entirely excluded from such importations. This improvement in the situation is undoubtedly the most tangible result of the concerted efforts made in Europe to prevent FMD. The demand for imported boneless meat especially frozen meat for industrial purposes, will however certainly continue as will the risk of infection but to a lesser degree than in the past.

In view of the fact that the FMD situation could have suddenly deteriorated in south-eastern Europe during the last biennium because of the spread of ASIA-1 virus in the Near East and the political situation in that area, the region deserves special attention. Indiscriminate importation of live animals and meat from Asian countries where ASIA-1 is endemic has continued to endanger the Near East region, posing in turn threats to Turkey and to southeastern Europe. The possibility of a repetition of the 1973 ASIA-1 experience must constantly be borne in mind.

It is gratifying to note that Turkish Thrace has remained free from FMD since November 1978.

The Government authorities have always been very cooperative in supplying all the necessary information required related to FMD and this applies also to the authorities of non-member countries.

Contacts were frequent with members of the Research Group and the staff of Pirbright and various other national and private FMD Institutes.

The disease position in other countries of the world from which the infection might be introduced into Europe, especially through meat continued to be kept under constant review (see Agenda Item 2).

In conformity with Article IV of the Constitution, implementation was assured of the programme of work approved by the Twenty-Third Session of the Commission with emphasis being placed on the evolution and control of FMD on the continent. The recommendations made at the Twenty-Third Session were considered and are included in the Agenda for the Twenty-Fourth Session.

The participation of the Commission's Secretariat in the activities of the Animal Production and Health Division of FAO has been substantial especially in connection with studies, consultations and projects dealing withe the establishment and expansion of FMD laboratory facilities and strengthening of field services for FMD control in various countries. In particular technical advice has been provided to UNDP-supported projects for which FAO acts as executive agency and to FAO emergency assistance through the Technical Cooperation Programme.

1.2 Strategic vaccine reserve By implementing the recommendations of the Twenty-Third Session of the European Commission concerning the vaccine production of both government and private FMD laboratories in Europe and other continents, the Secretariat collected information on vaccine production and in particular on monthly production. All available information on FMD vaccine production in the world is presented in Appendix I . The proposal for the establishment of an FMD vaccine bank is covered under Item 6 of the Provisional Agenda.

1.3 Seed virus stock 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. Pirbright would enable mass virus production to be started immediately, the Commission recommended at its Twenty-Third Session that the policy of keeping seed virus stocks should be continued. The position of the stocks at the W.R.L. as of December 1980 is given in Appendix II to this report.

1.4 Other vesicular diseases Action by the Secretariat consisted in collecting information from the countries affected by SVD.

The U.K. and Italy were the countries most affected in Europe during the last biennium (see Item 2). Unfortunately it has not been possible to improve the knowledge on the disease situation in those other parts of the world where the agent of ASF is likely to be present.

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

2.1 Campaigns in southeastern Europe The maintenance of the buffer zone in southeastern Europe since it was established in 1962 is being continued with funds provided from EEC and non-EEC countries in response to the appeals of the Director-General of FAO. For the present period (1979-1983) EEC has contributed US$962,171. Of the non-EEC countries, Austria, Bulgaria, Finland, Norway, Switzerland and Yugoslavia responded with a total contribution of US$ 104,880.

The vaccination campaign in Thrace during the biennium was carried out in conformity with the proposals of the Executive Committee at its Forty-First (1979) and Forty-Second (1980) Sessions and of the EEC/FAO/OIE Tripartite meeting held in Rome in February 1979.

On the basis of the request made by the countries involved in the maintenance of the buffer zone in Thrace, FMD type A22/01 vaccine was provided through FAO and distributed as follows: 1979, 700,000 doses (Turkey 400,000 doses , Bulgaria 250,000 doses and Greece 50,000 doses) at a cost of US$ 300,000; 1980 720,000 doses (Turkey 450,000 doses, Bulgaria 200,000 doses and Greece 70,000 doses) at a cost of US$320,000. (See Agenda Item 2).

It is gratifying to note that there have been no outbreaks in Thrace (European Turkey) since November 1978. The disease position and campaigns in southeastern Europe are dealt with in a separate paper (Item 2 of the Provisional Agenda and the Report of the Forty-Second Session of the Executive Committee refer). The activities developed by FAO and

in particular by the Secretary of the Commission consisted mainly of (a) frequent contacts with the veterinary 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 549), advising on vaccine production and assisting in the setting up of the new unit for large-scale FMD vaccine production at Ankara; (c) participation in the Tripartite Review Meeting for the project TUR 549; (d) participation in the meeting of the EEC mission of FMD experts held in Ankara with the objective of reviewing the situation in the FMD laboratory and advising on the need for equipment for the completion of the industrial vaccine production unit.

2.2 Assistance to Turkey As stated in the previous reports of the Executive Committee, UNDP project (TUR 549) has been extended until the end of 1981. Further assistance to the project is under consideration by UNDP/FAO. The water problem at the SAP Institute which dates back to 1974 has now been solved and the vaccine production has been started again after a long period of inactivity. The Commission contributed to this development in the form of technical assistance. However, the amount of vaccine produced does not meet the needs of the country for the implementation of emergency vaccination and prophylactic programmes for FMD control. The construction of the building for large-scale vaccine production units is continuing but the major difficulty is the lack of funds for the provision of the equipment required to reach the vaccine production target. This cannot be implemented without foreign aid. The importance of further substantial assistance to Turkey in meeting the need for general vaccination over the country was emphasized by the Secretary at the Forty-Second Session of the Executive Committee (March 1980) in order to enable Turkey to reach self-sufficiency in vaccine production as quickly as possible.

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 FMD vaccine production at the Ankara Institute.

2.3 Assistance to Bulgaria In view of the difficulties encountered and the long time required for the construction of the new FMD centre near Sofia, the Government decided to transfer the project from Sofia to the town of Sliven where a new complex for a regional veterinary center had just been completed. This decision facilitates the achievement of the development objectives of the project. With UNDP/FAO project funds additional equipment for large-scale vaccine production has been provided and is now installed at the new FMD Center. The new facilities will enable the FMD Center to develop industrial production of vaccine in full to meet the needs of the country. The annual production of FMD vaccine at the Center could reach 10,000,000 doses of monovalent vaccine when the Center is fully operational. Additional funds are expected from UNDP for the installation at the FMD Center of an adequate security system in order to avoid escapes of virus from the laboratory. For this purpose technical assistance has been provided by the Secretary, Professor Panina from Italy and Dr. Bruce from Pirbright. The Secretary who acts as Chief Technical Adviser to the project in collaboration with the national project Director, Dr. Ourouchev, has followed closely the implementation of the project. It is expected that the new FMD laboratory at Sliven will become operational by the middle of 1982.

2.4 Assistance to Portugal As a follow-up to the visit of the Secretary to Portugal for review and discussion of the FMD situation in that country an FAO/EEC/OIE meeting was held at OIE in Paris on 5 December 1980. The objective of the meeting was to discuss ways and means of assisting Portugal to face the emergency situation which had been created by the widespread outbreak of FMD in the country. The conclusions of the meeting have been included in a document which will be submitted to the EEC Permanent Veterinary Committee for further consideration and approval. (Appendix III).

2.5 Activities concerning FMD position in South America With the exception of Chile, all South American countries are on record as having had outbreaks of type A, 0 and C. (Appendix IV refers). Progress has been made in the official testing of FMD vaccine especially in the Argentine and in Uruguay. However, in other countries the quality control of FMD vaccine is the responsibility of the producer and the application of the vaccine in the field has been left to private initiative.

The evolution of FMD in South America remained under scrutiny by the Commission's Secretary during the biennium as well as the importation policies adopted by European countries to prevent new introduction of disease from overseas. It is gratifying to note that since February 1979 no atypical strain of A type virus has been detected in Europe. This is evidence of the adherence of 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". It is also proof that great efforts to improve FMD control are being made by the South American countries. Argentina has initiated a national plan for the control and eradication of the disease (PLACEFA) with bilateral assistance from the Federal Republic of Germany. FAO will provide TCP consultancies. Uruguay now plans to extend the FMD vaccination to the small ruminants in order to cover the whole animal population and to direct its programme towards eradication combined with control measures coordinated with those of Argentina and Brasil.

2.6 Activities concerning the FMD situation in other areas of the world

Africa In Egypt FMD vaccine is produced in a pilot production plant established at Abbassia in Cairo with UNDP/FAO assistance. In Botswana through French assistance the pre-fabricated pilot unit has started vaccine production and the new plant for large-scale vaccine production is now under construction. In the South African region vaccine production is being organized at Onderstepoort. The development of these laboratories is a great achievement and it is expected that it will contribute to a better control of the disease in a large reserve of animals serving both local and international markets.

Asia The new FMD Institute in Bangkok which has been established through Japanese assistance (seven million dollars invested) has now become operational but the FMD vaccine production is not sufficient to meet national requirements. The flare-up of FMD, type O, in Malaysia in 1978 and in 1980, after a long period of freedom from the disease calls for more extensive, efficient and coordinated control of the disease on a national and regional basis.

The political situation in the Near East has seriously affected the development of the FMD laboratories in this region. The FMD Institute in Iran has considerably reduced its activities; Iran is the main source of vaccine (A22, ASIA-1) for the maintenance of buffer zones outside Turkey and for prophylactic campaigns in the Near East in general. It is clear therefore that much remains to be done in the regionalization of FMD vaccine production within the concept approved by FAO and the Commission. In case of emergency, Europe must seriously take into consideration the possible need to provide exotic types of FMD vaccine.

2.7 Other activities

Membership of the Commission Contacts were maintained with countries which had expressed willingness to join the European Commission. Other than Spain which joined the Commission in 1978, France has applied to join and as soon as the Government formalities are finalized it will become a full member bringing present membership up to 24. Albania, Czechoslovakia, Poland and Romania are the European countries not yet members of the Commission. It is hoped that USSR will also consider applying for membership and above all it is hoped that the difficulties which have so far prevented Albania, Czechoslovakia, Poland and Romania from becoming members will soon be overcome.

Attendance at OIE Sessions The Secretary attended the annual sessions of OIE held in Paris and the IXth Conference of the OIE Regional Commission for Europe at which the FAO proposal for setting up a strategic FMD vaccine reserve was presented and discussed (see Item 6).

3. Conclusions and recommendations of meetings of the Research Group

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 AVRI, Pirbright, studies and activities directed towards reaching the highest possible uniformity both in the use and interpretation of the laboratory techniques currently applied in FMD laboratories.

Two regular meetings of the Research Group were held during the biennium.

3.1 Meeting held at Lindholm, Denmark, 12-14 June 1979

The full report containing the original papers presented at the above meeting has been distributed to member countries and interested laboratories. At this meeting a matter of special interest was the development of methods to produce vaccines from virus or antigen stored in concentrated form at very low temperatures. Data had been produced showing that vaccines prepared from antigen that had been stored as infective virus for four years were still effective. The use of antigens stored as concentrated inactivated virus was however considered more attractive as the time needed for the preparation of a vaccine from such material would be much reduced. The collection of sufficient data on such vaccines will, however, take some time, as long term storage and animal tests are necessary.

The Laboratory Group considered that dairy products prepared from milk of vaccinated cattle and submitted to the routine heat treatment applied by the European dairy industry would be unlikely to contain FMD virus.

In answer to a question byDr. Eckerskorn regarding the survival of FMD virus in cheese, Dr. van Bekkum indicated that there are few reports available dealing with different kinds of cheese.

Workers in the Plum Island laboratory, using pasteurized milk from a small number of cows infected by intramammary route, detected no virus in cheddar cheese after curing. If raw milk was used virus was still present after one month, but not after two.

In Switzerland Emmentaler cheese, made from milk of contact-infected cows, was found to contain no virus two days after manufacture. In general it is difficult to generalize these data for different types of cheese, since composition, pH and fermentation processes vary from type to type.

The Chairman confirmed that the work reported from Plum Island was on various cheeses made from milk of only two cows infected experimentally. He welcomed Phase III of the International Joint Study and thanked the Austrian Government for the offer to host the next meeting of the Research Group in Vienna in June 1980. The Committee agreed the proposed agenda for that meeting.

On Dr. van Bekkum's proposal the Committee agreed on the appointment of Dr. Sellers, Director, AVRI, as successor to Dr. Brooksby in the Research Group since the latter had recently retired. The Committee noted that members of the Research Group have to be appointed by the full Commission.

3.2 Meeting held in Vienna, Austria, 17-19 June 1980

The Session of the Research Group convened in Vienna in June 1980 was attended by all members of the Group and by observers from Plum Island Animal Disease Center, U.S.A., IFFA-Mérieux, Lyons, France, Wellcome FMD Laboratory, Pirbright, U.K., and the Federal Vaccine Institute, Basel, Switzerland.

The full report of this Session of the Research Group contains summaries or where deemed appropriate the complete version of all papers presented at the Session. It was published and distributed in 1980.

Further advances in techniques for the production of concentrated antigens for vaccine production were reported. So far such antigen preparations have shown no significant loss of immunogenicity upon storage at 70°C or lower temperatures. However, more information on the behaviour of a larger number of virus strains is needed.

The collaborative laboratory study had been continued. In Phase IV results of measurements of viral mass using ultra-centrifuge techniques were compared. It was concluded that for further calibration of instruments and techniques a stable material capable of precise formulation, should be distributed to participating laboratories.

Advances have been made in the application of new laboratory techniques for the study of FMD virus. Amongst these are radio-immunoassays and enzyme-linked immunoassays (ELISA). Especially ELISA appears suitable for further development and practical application in both virus and serological studies.

The question of the selection of vaccine strains especially of the A type received attention. Most European laboratories produce vaccines against A5 virus in Europe and elsewhere. The A viruses causing problems belong to the subtypes A24-27. It was apparent that more information on cross protection between these various viruses is needed before conclusions can be drawn on a possible change of production strains.

Some discussion took place on a draft submitted by Dr. Panina on the testing of cells used for production of virus in suspension cultures and recommendations for its further elaboration were made.

The next meeting of the Research Group has been planned in September 1981 and the Tubingen Laboratory, Federal Republic of Germany, has accepted to host it.

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

4.1 Forty-Second Session of the Executive Committee

At the invitation of the Government of the United Kingdom a Session of the Executive Committee was held in Edinburgh from 25 to 28 March 1980. In opening the Forty-Second Session, the Chairman informed the Committee that France had made formal application for membership of the Commission. The Committee then reviewed activities since the XXIII General Session and the main points discussed are summarised hereafter.

Position of FMD in Europe Attention was drawn to the presence in Europe of FMD of non-European origin (A type virus close to A24) which was probably associated wither with the introduction of animals or of meat on-the-bone and offals from South America. Professor Bellani informed the Committee that from 1980 Italy would import only boneless meat from South America and that would probably solve the problem of the introduction of A strain into Italy (last outbreak reported in February 1979).

The Committee noted that in 1979 the FMD situation had further improved in Europe the disease having occurred in sporadic foci in only a few countries with the exception of Spain where Type C was present in a number of outbreaks.

Routine, ring and strategic vaccination considerations Routine vaccination carried out under national programmes and the increasing pressure to reduce or discontinue it altogether was examined. The Committee agreed that this should be a main item on the agenda for the Twenty-Fourth General Session of the Commission since an authoritative statement on this issue would help veterinary authorities to withstand pressures at national level.

Position and campaigns in southeastern Europe The Committee after reviewing the FMD situation in Turkey noted the satisfactory situation maintained in Thrace. Provision for the maintenance of the buffer zone in 1980 was approved by the Committee.

The efforts made by the Turkish Government to establish the new FMD vaccine production plant with the assistance of FAO and EEC were noted with satisfaction. Turkey had requested additional assistance from EEC to complete the equipment of the new FMD laboratory (3.6 million US dollars).

Near East The Committee noted that the FMD situation had deteriorated in the region due to the presence of virus Type ASIA-1 in Yemen Arab Republic. The need for collaborative action in the region to control disease and coordinate importation policies for live animals and animal products was stressed.

Swine vesicular disease The SVD situation in Europe during 1980 was reviewed. The Chairman informed the Committee on the incidence of the disease in the U.K. where during 1979/1980 58,100 pigs had been slaughtered at a cost in compensation of £2,900,000. He gave the Committee interesting information on surveys undertaken in the U.K. on waste feed and the origin of SVD outbreaks.

It was reported that SVD had been detected for the first time in Greece in August 1979.

Introduction into Europe of meat with special reference to game animals and beef The Committee was of the opinion that there is no evidence that beef of unknown origin is currently entering Europe. It was considered that the importation of game meat (primarily from Africa) could be regarded as legitimate provided all countries were aware of the risk involved. The Committee agreed that this matter would be discussed at the Twenty-Fourth Session of the Commission in 1981.

Research Group activities - see Section 3.

Vaccine bank The proposal for the establishment of a vaccine reserve bank which had already been discussed at the Twenty-Third Session of the Commission was examined. Dr. Griffiths presented a ummary of the report of the Ad hoc Discussion which had taken place on this subject in Rome in December 1979. The Committee expressed its satisfaction with this report noting in particular the emphasis which had been placed on the storage of only vaccine of very high potency and the importance of periodic quality control. It was recommended that the report on the vaccine bank be submitted to the OIE Regional Group during the OIE Session in May 1980.

Financial position: provisional accounts for 1979, budget for 1980 and proposed increase in scale of contributions The provisional accounts for 1979 and the administrative budget for 1980 were reviewed and approved by the Committee. The Committee agreed that the proposal to increase the scale of contributions by 30% should be submitted to the Twenty-Fourth Session of the Commission on condition that the Secretary send to all member countries of the Commission at least 60 days before the next Session a document showing a detailed breakdown of the expenses over the last biennium. This document should be accompanied by clear justification for the request for an increase so that Governments will have time to give this proposal due consideration and be prepared to take a decision when the matter comes up for discussion at the Twenty-Fourth Session. The Secretary informed the Committee that he would undertake to send out this documentation in time for national governments to review it before the next Session.

4.2 Forty-Third Session of the Executive Committee

At the invitation of the Government of Greece a Session of the Executive Committee was held in Heraklion, Crete, from 27 to 30 January 1981.

Position of FMD in Europe The favourable FMD position in Europe was acknowledged and the conclusions of the Tripartite Committee regarding EEC assistance to Portugal were endorsed by the Executive Committee. It was recommended that Portugal consider coordinating its FMD vzccination programme with that of Spain.

Provision for the maintenance of the buffer zone The Committee recommended that the vaccination campaigns in southeastern Europe be continued with vaccine provided through FAO.

Near East The Committee agreed that the time was opportune for a Regional Commission to be set up in the Near East with similar objectives to those of the European Commission for the Control of FMD. The Committee agreed that representatives from Syria, Israel and Iraq be invited to attend the Twenty-Fourth Session of the Commission.

Swine vesicular disease It was again recorded that before declaring country freedom from SVD there was a need for substantial serological surveys.

Activities of the Research Group - see Section 3.

FMD control policy in Europe Changes in the present vaccination policy in Europe were not recommended.

FMD vaccine bank It was pointed out that an FMD vaccine bank would be the responsibility of FAO and not of the Commission.

Importation into Europe of meat with special reference to game animals and beef It was considered that it would be advisable to have one type of certificate for game meat imported into Europe.

Accounts, approval of budgets and proposed increase in scale of contributions The Committee approved the presentation of the breakdown of the budget and accounts for 1979 and 1980 and the proposed budget for 1981. The Committee recommended that a request for a 30% increase in the scale of contributions as of 1 January 1982 followed by an 8 percent increase on 1 January 1983 be submitted for consideration to the Twenty-Fourth Session of the Commission.

Appendix I

PRODUCTION OF FMD VACCINE IN THE WORLD

In conformity with the deliberations of the Twenty-Third Session of the European Commission, a questionnaire was circulated in 1979 to both government and private FMD laboratories in Europe and other continents with a view to updating the information on vaccine production and in particular on the output capacity expressed by monovalent doses that a country can produce in one month when making full use of all available installations.

The attached table gives the most up-to-date information available on the vaccine production capacity of the European FMD laboratories and of those supervised by Wellcome and IFFA in other continents.

No information is available on the production capacity of other national or private producers in South America or in other parts of the world. However, a number of FMD laboratories for large-scale vaccine production are now being set up in Africa and Asia (Botswana, India, Thailand, Indonesia etc) with the financial or technical assistance of individual countries or private producers.

Foot-and-mouth disease vaccine production plants have been established and developed high technological standards mainly in Europe and South America and with the exception of the Razi Institute in Teheran and Wellcome laboratories in Nairobi, there are no other units with an acceptable standard in vaccine production and quality control in Africa, the Near East or Asia.

PRODUCTION OF FMD VACCINE IN THE WORLD
(excluding FMD laboratories with small vaccine production capacity)

Country and/or Producer	Annual production (average of last biennium and % for exportation)	Production capacity per month	Method of production (and average potency)	Cost	Number of doses per annum required for systematic prophylactic scheme
WELLCOME GROUP - Production plants in U.K. Spain & Fed. Rep. Germany	Trivalent OAC 14×10^6 doses - 10% exported Bivalent) (various Monovalent) types) 2,000,000 (100% exported)	30×10^6 (mono)	BHK suspended cells $\geqslant 6PD_{50}$ or $\geqslant 3DP_{50}$	Tri. £0.25 Mono £0.1	12×10^6 (tri)
ARGENTINA	Trivalent 20×10^6 OAC	2×10^6 (tri)	$\geqslant 3DP_{50}$	Tri. £0.20	20×10^6 (tri)
BRAZIL	Trivalent OAC $50\text{–}70 \times 10^6$	6×10^6 (tri)	Modified C Index $\geqslant 2$	Tri. £0.14	$50\text{–}70 \times 10^6$ (tri or quad)
KENYA	OAC, Sat 1, Sat 2 Mono, bi, tr and quadrivalent Equivalent to 25 x 10 mono	2×10^6 (mono)	$\geqslant 6PD_{50}$	£0.05 – £0.10 per mono	20×10^6 (mono-equivalent)
PARAGUAY	Trivalent 10×10^6	1.5×10^6 (tri)	C Index $\geqslant 2$ S Index $\geqslant 1.5$	Tri £0.12 – £0.20	9×10^6 (tri)
URUGUAY	Trivalent 20×10^6	2×10^6 (tri)	C Index $\geqslant 2$	Tri £0.08 – £0.15	20×10^6 (tri)
			Cell suspension 100% purification: Al(OH)3, adsorption Inactivation A.E.I. Adjuvants: Al(OH)3, saponins Potency: 6PD50 (dilution of adjuvants)		

Country and/or Producer	Annual production (average of last biennium and % for exportation)	Production capacity per month	Method of production (and average potency)	Cost	Number of doses per annum required for systematic prophylactic scheme
FRANCE					
IFFA (Lyons)	Trivalent OAC 25,000,000	10/12 million doses monovalent	Frenkel and cell suspension	I.F.F. the mono. dose	20,000,000 doses trivalent
Iran	30,000,000 O, A_{22}, C, $ASIA_1$				
Argentina	175,000,000 OAC				
Brazil	300,000,000 OAC				
Uruguay	45,000,000 OAC				
ROGER BELLON	10 million trivalent	4 million doses monovalent	Note: R. Bellon's method of virus purification covered by patent Frenkel 100%	I.F.F. the mono. dose	
ITALY Zooprophylactic Institutes					
- Bresoia	Trivalent OAC 7,000,000 doses	Trivalent OAC -Monolayer roller system: 1,300,000 - Suspension 400,000	-BHK monolayer roller system -BHK suspension -Potency: 15 Pb_{50}		
- Padova	Trivalent OAC doses 3,250,000 8% exported	- Trivalent 500,000 doses	Cell suspension: potency between 8 and 23	Sold to the State at Lit.180 trivalent	According to the decision of the Ministry of Health
- Perugia	1,500,000 trivalent	-Monovalent 750,000 -Trivalent 250,000	BHK 21 cells in suspension	£. 180 x dose trivalent	1,500,000
- Turin	Trivalent OAC 1,500,000 doses	-200,000 doses trivalent	Cell suspension Potency: between 8 and 15 PD_{50}		1,200,000

Country and/or Producer	Annual production (average of last biennium and % for exportation)	Production capacity per month	Method of production (and average potency)	Cost	Number of doses per annum required for systematic prophylactic scheme
HUNGARY Phylaxia	x 200,000 doses trivalent and 1 million doses monovalent Exportation: 0% (x reconstruction of FMD workshop has just been finished)	125,000 doses tri. or 375,000 doses mono.	Frenkel International standard quality	24,30 Ft	2,240,000 doses trivalent vaccine
ROUMANIA Pasteur Institute	- 8 million monovalent doses A,O,C -no export up to now -available for export about 40 million monovalent doses	5 million monovalent doses	Cell monolayers (on rollers) and Cell Suspension. The vaccine has been delivered with an average potency of 16 PD_{50} for cattle. On demand the vaccine can be delivered at a higher potency.	For export the price is negotiable, depending on the international prices, amount, type and potency required.	8 million monovalent doses
CZECHO-SLOVAKIA	5.5 million doses trivalent A,O,C Export 0	500,000 doses	Cell suspension BHK 21 Antigen concentration Inact A.E.I.	-	5.5 million doses
BULGARIA	600,000 doses New FMD Lab. of 40,000,000 doses mono. under construction	50,000 doses	BHK 1. Suspension and monolayer cultures	0.42 per dose	10 million monovalent doses
GREECE FMD Institute	Bivalent OA 160,000 doses Monovalent 160,000 doses	100,000 doses	Cell monolayers (on rollers) Inactivation: formalin adjuvant: $Al(OH)_3$ saponin		200,000 doses bivalent

Country and/or Producer	Annual production (average of last biennium and % for exportation)	Production capacity per month	Method of production (and average potency)	Cost	Number of doses per annum required for systematic prophylactic scheme
TURKEY	Bivalent 2,500,000 doses Monovalent 3,600,000 doses Valencies $A_{22}O_1$	750,000 doses	Cell suspension 65% Frenkel 17.5% Monolayers 17.5%	0.20 US$ per monovalent dose	15 million doses bivalent
BOTSWANA	21,000,000 SAT_1 & 2 O.A.C. monovalent				
USSR	150,000,000 monovalent O, A_{22} and C				
DENMARK State Veterinary Institute for Virus Research, Lindholm	900,000 doses monovalent, i.e. 300,000 doses of the types O, A and C	500,000 doses monovalent	Virus production in BHK cells in suspension cultures. Purification: Chloroform treatment and Kieselguhr-filtration. When stock virus is used: PEG-precipitation prior to above processing. Inactivation: 0.05% formalin pH 8.7 Adjuvant: Aluminium hydroxide. Purified quillaja saponin (to be added immediately before distribution). The vaccines pass a challenge test in guinea pigs and a serological test in cattle.	1.70 Danish kr. per dose. A revised market price is in preparation	A systematic prophylactic scheme is not used routinely. The Danish cattle population is about 3 million.

Country and/or Producer	Annual production (average of last biennium and % for exportation)	Production capacity per month	Method of production (and average potency)	Cost	Number of doses per annum required for systematic prophylactic scheme
BELGIUM National Institute of Uccle	Trivalent OAC 2,400,000 doses No export	200,000 doses	Frenkel - Potency Potency 4.8 PD_{50}	25 FB the trivalent dose	2,300,000 doses trivalent
NETHERLANDS Ministry of Agriculture Central Vet. Institute, Lelystad	Trivalent A,O,C. 4,500,000 doses + monovalent 1,000,000 doses none exported	2 million doses May be doubled by increasing the supply of bovine tongue epithelium	Frenkel Potency: 10 PD_{50}/type x dose	D.fl.0,90+ V.A.T. per mono. dose for cattle D.fl. 1,73+ V.A.T. per mono. dose for pigs	4,500,000 trivalent doses
AUSTRIA	1,200,000 mono. doses	400,000 mono. doses	BHK cell suspension Al $(OH)_3$ adsorption inactivation: Formalin adjuvants: Al$(OH)_3$ Quil A potency: A,C 34 PD50		Vaccination at borders 9,000 trivalent doses Prophylactic vaccination around the Institute 3,500 doses trivalent
GERMANY FED. REP. Beringwerk & Bayer	Trivalent OAC 10,000,000 doses 3% export	3.2 million doses	Cell suspension Antigen concentration		

Appendix II

THE ANIMAL VIRUS RESEARCH INSTITUTE

FAO vaccine virus stocks at December 1980

Type	Strain	Passage designation	Infectivity at 18.7.79 (BHK pfu/ml)	Infectivity at time of storage (1971)	Amounts stored
Asia I	Israel 3/63	BTY1 BHK7 susp.1 (5.3.71.)	5.8	6.1	
SAT 1	Rho 5/66	BTY1 BHK12 susp.1 (22.3.71.)	7.1	6.8	3 x 500 ml 12 x 30 ml 14 x 5 ml
SAT 2	Uganda 6/70	BTY1 BHK 5 susp.1 (26.3.71.)	6.4	6.1	for each of the five
SAT 3	Bec 1/65	BHK3 susp.1, BHK2 susp.1 (16.12.71).	6.9	6.8	
A_{22}	USSR 1/66	BTY1 BHK8 susp.1 (5.2.71)	7.1	7.0	

Appendix III

Conclusions of the Meeting on the FMD Situation in Portugal held in Paris on 5 December 1980

On 5 December 1980 a meeting was held at OIE Headquarters, Paris, to examine the present FMD situation in Portugal and the sanitary measures adopted for its control and eradication,

The following were present:-

- Dr. Blajan, Director-General of OIE
- Dr. Brown, Chairman of the European Commission for the Control of Foot-and-Mouth Disease
- Dr. Stouraitis, Secretary of the European Commission for the Control of Foot-and-Mouth Disease, represented FAO
- Dr. Contardo represented EEC in an observer capacity

The participants noted the information contained in a document prepared by the Portuguese Veterinary Authorities (copy attached) as well as that presented by Dr. Stouraitis who had recently visited Portugal.

The participants agreed on the following considerations and proposals:

Since May 1980 Portugal has suffered a serious epizootic of FMD, virus type C, having previously been free from the disease for about 10 years. Progressively the disease spread over the whole country.

Detailed information on the evolution of the disease is given in the attachment.

The FMD epizootic in Portugal represents a big risk for other European FMD-free countries in which the pig population is generally not vaccinated against FMD.

For Portugal itself the present situation compromises the realisation of a plan for the eradication of ASF for which EEC had agreed, in principle, to give financial assistance up to an amount of five million ECU.

Portugal has had in fact for several months to make an all out effort to combat FMD. However, the Government does not have sufficient means at its disposal to completely eradicate the disease.

External assistance would, therefore, seem indispensable to complete the efforts made by the Government.

Such assistance should comprise:-

1) the supply of type C monovalent FMD vaccine

   - 1,500,000 cattle doses in 1981 which represents less than a third of the quantity required for the first phase of the campaign;

   - 1,000,000 cattle doses in 1982, and

   - 1,000,000 cattle doses in 1983, final year of the programme

2) placing a high-level expert with broad experience in the control of FMD at the disposition of the Government to cooperate with the national authorities.

The participants considered that to achieve the desired results the vaccination campaign could be carried out as follows:-

First phase (1981)

Two obligatory vaccinations of all susceptible livestock with type C monovalent vaccine of the same strain as that which caused the epizootic.

Second phase (1982)

One obligatory vaccination of all cattle.

Third phase (1983)

Same as the second phase.

In the case of new outbreaks revaccination of all susceptible livestock within a radius of 10 to 15 km from the outbreaks.

The meeting drew attention to the necessity to plan the FMD vaccination programme for pigs bearing in mind the sanitary situation as regards AFS and the control plan for this disease.

The meeting also recalled:-

- the importance of police sanitary measures for the success of the programme
- the necessity to use only those vaccines conforming to the standards established by international organizations (OIE, FAO, Pharmacopoeia).

APPENDIX B6

FMD ROUTINE, RING, AND STRATEGIC VACCINATION CONSIDERATIONS

Introductory Note by the Secretary

Ever since 1953 when the Netherlands took the lead in carrying out mass vaccination of cattle in the spring of each year, similar programmes have been adopted by other countries both in western and eastern Europe. Such programmes of vaccination were applied in most of the remaining countries of the continent during the sixties involving the use of vaccines against three classical FMD virus types 0, A and C. In 1971 the need to continue annual vaccination campaigns was confirmed by the European Commission at its XVIII Session and in 1975 was reconfirmed at its XXIst Session.

The role played by annual vaccination campaigns in reducing FMD incidence in Europe has been discussed many times at Commission meetings. The conclusions reached and recommendations made are given in the sessional and technical reports of the Commission. The value of vaccination cannot be over-emphasized. However, there is a risk, especially among administrators, that they may consider the excellent results so far achieved represent a final result and may ignore the vital need to maintain continued vigilance against the disease.

The question is often raised as to whether systematic vaccination is still the right choice especially in those countries which have been benefitting from long disease-free periods. Such a favourable situation may provide a strong temptation to change the system and this has been the case in a number of countries. The fact should not however be lost sight of that the continental area of Europe is not an FMD epizootiological and control unit area. Individual country plans and expressions of opinion should therefore take into consideration the interests of the continent as a whole as has been the case in southeastern Europe where exotic FMD has been involved.

Looking at Europe as a whole, it is necessary to consider the situation as it was in 1975, the major events which occurred in that year and the recommended course of action which was followed then, before deciding that changes in vaccination might be justified and in assessing what the implications of such changes might be.

1. Disease position and sources of infection

Since 1975 there has been a slight decrease in the incidence of the disease on the continent. In the case of the eastern European sector, with the exception of the Democratic Republic of Germany, no outbreaks have been recorded. It should however be noted that the three types of virus (0, A and C) have been isolated every year in western Europe. (see Table 1).

It will also be observed that in both 1975 and 1976, Europe suffered from a number of outbreaks caused by C and 0 viruses, it taking 9 months to re-establish freedom from the disease in 1975 and 10 months in 1976. In 1975 Malta was also involved. In 1977 and 1978 sporadic cases only were reported. A flare-up of the disease was reported in 1979 in Normandy (France) after five years of freedom from the disease. The causal agent in this case was not virus 0 the type being similar to that which occurred in Italy in the same year.

Italy, by far the biggest importer of live animals in Europe, was frequently infected between 1975 and 1979 by disease clearly resulting from long distance movement of live animals, most of which were imported from other countries.

Except in 1978, Spain has had outbreaks every year of FMD almost exclusively of C type and in spite of national FMD vaccination schemes of animals which included part of the pig population.

In 1980, after almost a decade of freedom from the disease, Portugal suffered a severe and widespread epizootic of foot-and-mouth disease caused by C type virus. More than 500 foci of infection distributed over the whole country were notified between May and December of that year.

Apart from the isolated outbreaks in Switzerland (type C), the Federal Republic of Germany (type O) (post-vaccination accidents), the Democratic Republic of Germany (type O) and Italy (type A), Europe had no other cases on record in 1980 (see Table 2). In addition to these, between 1975 and 1978 a number of outbreaks were caused by atypical type A virus strains of non-European origin which appeared to be serologically and epidemiologically related to new variants of A type initially isolated in S. America. The countries involved were: Italy, Greece, the Federal Republic of Germany, the Netherlands and, in northern Africa, Morocco and Algeria (see Table 2). Outbreaks due mainly to indigenous sources of infection still persist in Europe (see Table 3). The fact that at least some of them appear to be connected with vaccine manufacture due to virus escapes, insufficient inactivation etc. provides a strong argument to those who in principle are against any handling of virus, except for diagnostic purposes. Such an argument, however, neglects the other sources of virus still existing both in and near to Europe. Furthermore, no one could have foreseen what would have happened had the disease occurred in non-vaccinated populations. The recent experience of Portugal is a good indication of what could be expected in other countries.

External sources of infection have been numerous as was clearly demonstrated by the detection of atypical A strain on a number of occasions. However, an improving situation still exists and this is largely due to the more favourable situation in the countries of origin and even more to the implementation of the recommendation passed in 1972 by the European Commission concerning the importation of meat from countries infected by non-exotic FMD. (See Report of the Twenty-First Session, 1972, Appendix VI). Not only has the total amount of imported meat from overseas markedly decreased, but meat with bone has been almost entirely excluded from such importations. This improvement in the situation is undoubtedly the most tangible result of the concerted efforts made in Europe to prevent FMD.

The demand for imported boneless meat, especially frozen meat for industrial purposes, will certainly continue as will the risk of infection but to a lesser degree than in the past.

2. Increased importance of prophylaxis

From the foregoing it is clear that Europe will continue to be exposed to FMD infection both of indigenous origin and from outside the continent. Modern systems of livestock production and new socio-economic situations and exigencies are likely to add to the already difficult problem of disease control in general.

More specifically should be mentioned the increasing movement of animals in western Europe, outside normal systems of husbandry, resulting from secondary activities undertaken in suburban and industrial areas by industrial workers maintaining livestock at their homes as a means of supplementing their incomes. These enterprises raise problems which make prophylactic and disease control measures increasingly more difficult to apply.

Such developments and the difficulties of adequate surveillance by governments makes efficient prophylactic measures increasingly more important and in fact an indispensable factor in the general control of animal disease. This is particularly true in the case of FMD in spite of the progress so far achieved in its eradication.

The situation may look somewhat different in eastern Europe where large livestock units are common, small holdings are very few, and governments are in a position effectively to enforce animal health regulations.

3. Value of the present policy

The maintenance of the present policy offers important advantages. Governments are able first to maintain FMD under control at a very low cost per vaccinated animal, secondly to maintain at a high state of efficiency the facilities and organization employed in the control of the disease and easily to supplement in case of need local resources with imported vaccines and fourthly, it enables them to be reasonably flexible in controlling import-export activities in the case of foreign countries.

Under the present system there is little need, on the continent at least, for strategic reserves of conventional vaccines. The west European vaccine industry, both national and private has demonstrated, on many occasions, that it can meet any FMD emergency situations arising in Europe. The accumulated experience in vaccine production, which is still expanding, would enable producers, if necessary, quickly to switch over to industrial production of the appropriate vaccines should invasions by exotic strains occur. But everything would change should the present system be weakened. However, the present system of prophylaxis can and should be improved. The vaccine production strains, especially of the A type, do not reflect the position in the field and research is necessary to identify which substitutes for A subtype virus vaccines could be considered in order to bring the European vaccine up to date.

Disease security in and around vaccine production plants needs to be further improved. Foot-and-mouth disease virus is handled in 25 or more laboratories in Europe and a number of them may not yet have established fully satisfactory security levels.

The safety of vaccines needs further improvement in order to eliminate residual accidents which, though harmless in general, have very adverse effects on the acceptance of vaccination by the animal owners.

The improvements mentioned would certainly serve to overcome the remaining difficulties in controlling FMD in Europe and so provide a sound basis for the possible modification of the present vaccination policy.

4. Alternatives

In trying to evaluate the degree of protection now existing in Europe based on vaccination, the Commission should consider the following points: a) the countries of the Scandinavian peninsula, U.K. and Ireland, three other countries in western Europe and, in addition those countries in eastern and southeastern Europe extending from Yugoslavia to Romania and from Greece to Poland are totally unprotected by vaccination and most of them would have to depend in case of emergency on foreign supplies of vaccine; b) in the vaccinating countries the entire pig populations and large numbers of small ruminants are not covered by vaccination; c) among vaccinated populations a large percentage of cattle (young cattle, feedlot animals etc.) is insufficiently protected to withstand infection; only plurivaccinated animals being expected to show good levels of immunity the whole year round;

and d) southeastern Europe, from a practical point of view, is open to those infections permanently affecting the Near East and Anatolia (Turkey).

The dangerous situation which could arise from the present system, especially during winter, is evident: there are enough susceptible animals in Europe to lead to true epizootics should new invasive viruses appear on the European scene as has frequently happened in the past.

Any change of policy which resulted in a reduction of vaccination schemes would further weaken the system and could have unpredictable consequences, especially if vaccination were to be discontinued in those countries where vaccine plants are located and which are note secure.

It should be noted that industrial vaccine manufacture is unlikely to be permitted, once vaccination schemes have been suspended. Europe, however, cannot run the risk of the emergencies which would arise in the absence of those production centres which now enable it to meet not only national but also international vaccine needs. Nor could an alternative be provided by the presence of strategic vaccine reserve because, in any case, behind any such reserve there must be a solid vaccine production industry.

The partial suspension of animal vaccination (e.g. in the countries which do not import meat from overseas) could imply changes of policy regarding disease prevention. As a result of this any FMD would have to be dealt with as an exotic disease, and importations from overseas would require a more rigid discipline and trade barriers between countries might have to be set up.

Area or ring vaccination, instead of general vaccination, would also raise many problems such as the need to identify the areas to serve as buffer zones; the storage of supplies of vaccine needed to cover the rest of the country; and some kind of penalization of those who are considered at risk and so must vaccinate. Such problems would lead to a tremendous weakening of an already precarious system.

In other words, more problems and risks than benefits would result from weakening or relaxation of the present prophylactic system which, after a decade of effort and investment is now giving those results which in other continents still seem to lie beyond their reach.

Table 1

FMD virus types recorded in Europe for the period 1969–1980
(Dates in brackets relate to the last outbreak recorded)

EUROPE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Iceland never had FMD												
Norway (1952) Sweden (1966) Finland (1959) Ireland (1941)												
Denmark (1970)	A	A										
U.K. Great Britain (1968) North. Ireland (1941) Jersey (1974)						C						
Belgium	–C	O	A*	O		O	O	O				
Netherlands (Jan. 1977)			C–O			O	O		A**			
Luxembourg (1963)												
France (May 1979)	C–O	O	C–O	O		C	O			C	O	
Fed. Republic of Germany	O–C	OC	OAC	OAC	AC	C	O	CA**	A**C	C		O
Italy	OAC	OC	OC	O	ACO	CO	OCA**	C	OCA**	OCA**	OA**	
Switzerland	C				O					C		C
Austria (March 1975)					CO	O	O					
Spain	OCA	OC	OC	OCA	OAC	C	C	C	C		C	C
Portugal (1971)	O	O	O									C

See notes overleaf.

EUROPE (contd.)	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Czechoslovakia (May 1975)	OAC			C	CO		A					
German Democratic Republic		C	C					C	O	1-C		O
Poland	O	C	O									
Yugoslavia				C	OC	C				1-A		
Hungary (November 1972)				C								
Romania (January 1973)	C			O C	O							
Bulgaria (February 1973)					A							
Albania (1959)												
Malta							O			A		
Cyprus (1964)												
Greece (September 1977)	OCA*	A*$\dot{C}$O	A*OC		O*A*O	O A*		A**	A**			
Turkey	O A*	O A*	O A*	O A*	O A* Asia	O A*	O A*	O A*	O A*	O A*	O A*	O A*
U.S.S.R.	O A*	OA*A	O A*	OA*C	O A*	O A*	O A*	O A*	O A*	OCA*	O C	O C

Subtypes: O=O_1; O* = O Greece (O Peplos) Immunological relationship between O Peplos and O_1 Netherlands is of the order of 24%.
European A = A_5 (A_7); $\ddot{A}$= South American (A24); $A^* = A_{22}$; $\dot{A}$ = A Santander 1972 (A_{24}- A_{26}?)
C = C_1; $\dot{C}$= (Arg. 69); ASIA = $ASIA_1$ (last $ASIA_1$ in Turkey reported 1973).

Table 2

Type 'A' Foot-and-mouth disease in Europe 1969 - 1980

Type 'A' Europe	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
W.Germany			A	A	A			A Aachen	Related to A Aachen Mor 77, Alg 77 Hol 77, A24 Diff. to A5 & A22			
E.Germany												
Austria												
Belgium			A A69 Gre									
Bulgaria					A5							
Denmark	A	A										
Spain	A			A related A5, A24								
France												
Greece	A	A Gre 1969	A diff. Europ. strains	A22	A22	A22		Closest A24(50%) Diff. A5 & A22	Related to Gre 76. Closest A24 Diff. A5, A22			
Holland									Related Mor 77, Alg. 77, W.Germ.77, A24, Arg.25230* Diff. A5, A22			

* Hol 77 vs Arg. 25230 - this result received from CPFA. Argentina 25230 not held in WRL

Type 'A' Europe	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Hungary												
Italy	A				A		A		A Sicily 77 Closest to Venceslao Basé. Diff. Europ. & M.E	A/Italy/1/1978 Virus isolated from pig bone marrow imported from Brasil.	A close to Sicily77	
Malta										A related to A5, A24. Diff. A22		
Poland												
Portugal												
Rumania												
Switzerland												
Czecho-slovakia							A					
Turkey	A	A22	A22	A22	A22	A22	A	A22	A22	A22	A22	A22
U.S.S.R	A	A22	A22	A22	A22	A22	A	A22	A22	A22		
Yugoslavia										A related to A5, A24. Diff.to A22		

Table 3

EUROPE - New isolations of FMD virus from foci related either to disease introduced from outside the continent or obviously connected with vaccine use and manufacture.

Year	Type	Country	Way of introduction	Post-vaccination cases	Virus escape from plants
1968	-A (A Valais) (A 26?)	Switzerland piggery in Valais followed by 20 foci	Frozen meat from South America (garbage fed to pigs)		
	-A5	Denmark			2 foci near Lindholm
1969	-C Thorout = -C5 = (C Arg. 1969)	Belgium pigs and cattle involved	Frozen meat from South America (suspected)		
	-A Spain 1969	Cadiz Huelva	Foci coincided with importation of young cattle from South America		
	-A Greece	Crete and Macedonia	Frozen meat imported - garbage fed to pigs(many foci)		
	-A5	Czechoslovakia (Bohemia) single focus			escape from vaccine plant suspected

Year	Type	Country	Way of introduction	Post-vaccination case	Virus escape from plants
	- C	Switzerland Neuchatel Single focus	Garbage fed to pigs; imported frozen meat strongly suspected		
1970	C Greece 1970 identical with C Thorout - C5	Greece (Attica) started in garbage fed pigs	Frozen meat imported from South America		
	O 1970	Greece (Lamia) one focus in cattle	Coincided with importation of young cattle from eastern Mediterranean		
	A (Dutch prod. strain)	Denmark (Jutland)		nine post-vaccination foci	
1971	- A (similar to A. Gr. 1969)	Belgium one focus in garbage fed pigs	Frozen meat imported from South America by an international agency		
	C (product. strain)	Germ. (Fed. Rep. of) (Baden-Würtenberg) 2 foci		post-vaccination cases	
	A (similar to A Gr. 1969)	Greece (Crete)	Imported frozen meat (same situation as in 1969)		

Year	Type	Country	Way of introduction	Post-vaccination cases	Virus escape from plants
1972	A Santander (A24-A26?)	Spain Port of Santander where disease started	Coincided with importation of cattle from South America		
	A 22 second invasion	Greece, Thrace and Thessaloniki	Meat and lambs introduced from Turkey		
	C (prod. strain)	Hungary and neighbouring countries			escape from a Waldmann plant
	A5 (prod. strain)	Germ. Fed. Rep of (sporadic foci)		Post-vaccination cases	
	O Peplos	Greece - north eastern Greece and Attica	Garbage fed pigs in Attica; eastern origin		
1973	ASIA	Turkish Thrace (Istanbul)	Arrival of slaughter animals from eastern Anatolia		
1974	O(Prod. strain)	Belgium 50 foci		Post-vaccination mechanical failure in an inactivator	
	C (Prod. strain)	Germ. Fed. Rep.of 14 foci			disease started near a vaccine plant

Year	Type	Country	Way of introduction	Post-vaccination cases	Virus escape from plants
1975	A5 (Prod. strain)	Czechoslovakia single focus			Disease found near the vaccine plant of Terezin
	A Italy 1975	Italy - six foci at Alessandria including garbage fed piggeries	Frozen meat imported from South America and distributed in the area		
1976	C (Prod. strain)	German Democratic Republic - 9 foci			Disease started at Rostock and Greifswald i.e. near the vaccine plant
	C (Prod. strain)	German Fed. Rep. one focus		Post-vaccination cases	
	A Aachen Dec. 1976	German Fed. Rep. 4 foci	Garbage fed pigs; containing frozen meat from South America		
1977	A Netherlands Jan. '77	Netherlands (Limburg) one focus	Extension of the German outbreak		
	A Sicily '77 June and December	Italy Two foci in different places	Garbage fed pigs and use of frozen meat from South America		
	A Greece '77	Geece three foci	Garbage fed pigs and use of frozen meat from South America		
	A Morocco and Alger.	Epizootic in both countries	Suspected origin: imported meat and sheep from South America		

Year	Type	Country	Way of introduction	Post-vaccination cases	Virus escape from plants
	C (Prod. strain)	German Fed. Rep. of 2 foci			Disease found near vaccine production plant
	O (Prod. strain)	German Dem. Rep. of one focus			Disease at Greifswald i.e. near production plant (Riems)
1978	A Italy 1978	Italy (no outbreaks)	Virus isolated from hams of South American origin - tested at entry		
	A Italy similar to Sicily '77	Italy one focus	Supposed to be related to imported frozen meat		
	C (Prod. strain)	Switzerland one focus		Post-vaccination cases	
1979	A similar to A Sicily '77	Northern Italy	Supposed to be related to imported frozen meat (pigs involved)		
	C (Prod. strain)	Spain, Gerona and other provinces			Escape of virus from a vaccine plant near Gerona suspected
	O Calvados	France Normandy	Unknown origin		

Year	Type	Country	Way of introduction	Post-vaccination cases	Virus escape from plant
1980	C (Prod. strain)	Switzerland		Post-vaccination cases	
	O (Prod. strain) Similar to C	Fed. Rep. Germany		Post-vaccination cases	
	C (Prod. strain) Spain 1979	Portugal	Illegal importation of animals from Spain		
	A Padua not yet subtyped	Italy	Unknown		

NOTE: The isolations of virus from outbreaks related to infection spread from endemic areas within Europe has not been considered in this table.

APPENDIX B7

STATEMENT BY THE ITALIAN DELEGATE
(Item 5 of the Agenda refers)

Although widespread annual vaccination programmes have succeeded in markedly reducing FMD incidence, disease control remains a problem due to the occurrence of new virus strains. Furthermore, a tendency has been noted, in Europe, to reduce systematic vaccination programmes in some areas which, though free from FMD, have a high concentration of susceptible livestock. In addition, trade continues in animal products from areas where the disease is still active.

The FMD situation, during the last biennium and in the first months of this year, indicates that the Commission should review its objectives and strategy for control of the disease in Europe. The Commission should consider the following:

1) extension of vaccination in Europe in order to produce protected populations over large territorial areas;

2) the possibility of establishing a European FMD Reference Centre, capable of rapidly providing information on the occurrence of new virus strains and their implications for vaccination strategy;

3) the standardisation - relative to strains of virus used and vaccine potency - of FMD vaccine produced for annual vaccination campaigns;

4) the preparation of a plan to meet FMD emergency situations and also to provide and channel assistance in countries where exotic strains of FMD virus are endemic.

APPENDIX B8

FMD VACCINE BANK

Financial implications for countries participating in FMD Vaccine Bank

P H A S E I

Introduction - Background

At the Twenty-Third Session of the European Commission for the Control of Foot-and-Mouth Disease (March 1979) a proposal for the establishment of a strategic vaccine bank was discussed and the session agreed to request FAO to undertake a feasibility study of the proposal and to determine the degree of interest of countries wishing to participate in the establishment of the bank.

In line with the above decision, FAO held an "Ad hoc discussion on FMD vaccine bank" in Rome on 10/11 December 1979 . The deliberations of this discussion were then reviewed at the Forty-Second Session of the Executive Committee of the European Commission for the Control of FMD (March 1980), by the OIE Regional Commission for Europe at the 48th General Session of the OIE (May 1980), and at the IXth Conference of the OIE Regional Commission for Europe held in Budapest (September 1980), where the bank concept was accepted in principle.

The establishment of a vaccine reserve, conceived as a strategic multinational operation has as its objective the furthering of the global control of FMD.

The project operations have been scheduled in two phases:

Phase I — will comprise the setting up of a reserve for conventional (non-exotic) O, A and C vaccines and will be open to countries which are currently free from FMD and do not practice vaccination at present.

Phase II — will provide vaccines against "exotic" strains and would be open to any countries wishing to be prepared in the event of an outbreak caused by an exotic virus. In making arrangements for Phase II, the position of countries opposed to the handling of exotic virus strains outside the regions where such strains are present will have to be taken into account.

Financial implications

The financial support needed for establishing and administering such a bank should be provided through special Trust Funds, one for each Phase. Such Trust Funds would be under the aegis of FAO who would be responsible for the administration of the bank. All operations of the bank would be under the control of a Technical Advisory Committee on which the major international organizations (FAO/OIE/WHO) involved in FMD control would be represented. The Advisory Committee would be made up of representatives from North America, Oceania and the FAO European Commission for the Control of FMD. The Chairman would preside on a rotation basis and would be selected from member countries; FAO would provide the Executive Secretary.

FAO, following the request made by the countries interested in becoming members of the bank, has prepared an estimate of the financial implications for its management. Initially, however, the cost of a strategic vaccine reserve, including vaccine control operations, has been considered only for the implementation of Phase I (provision of conventional European-American vaccines). Meanwhile the problems concerning the procurement of exotic vaccines (Phase II) could be investigated.

Phase I - Procurement of Monovalent O, A and C vaccines

Selection of vaccine strains O_1 - A_5 - C_1 used in the standard industrial production in Europe. A_5 virus could be replaced by a strain of the A24 (South American strain) group subject to favourable results of cross-immunity trials in cattle.

Type of vaccine Conventional Frenkel or tissue culture (monolayer or cell suspension) adsorbed on aluminium hydroxide and inactivated by methods recommended by the FAO Technical Advisory Committee.

Vaccine dose 1 or 2 ml monovalent cattle doses.

Suppliers To be selected from European laboratories on the basis of present technical level, long experience in the production of vaccines, production capacity and possibility to comply with all requirements set by the bank concerning production and testing facilities and quality. To avoid a monopoly position, the FAO rules concerning the selection of suppliers will be strictly observed.

Stock of vaccine - proposed amount : Considering the number of countries exposed to FMD and the numbers of susceptible cattle, it is estimated that a reserve of at least 5 000 000 doses of each type of monovalent vaccine would serve the purpose of Phase I.

5,000,000	doses of type O monovalent vaccine
5,000,000	doses of type A monovalent vaccine
5,000,000	doses of type C monovalent vaccine

The existence of a bank of 5,000,000 monovalent vaccine doses of each type would in turn give sufficient time to begin production of extra vaccine for use in any area where the disease situation appears to be deteriorating. Extreme situations can be envisaged in which more than one outbreak occurs in different member countries of the bank simultaneously but this situation is unlikely.

Form of vaccine or antigen to be stored Three alternatives are envisaged:

a) Finished vaccine in bottles of 100 or 500 doses packed for immediate delivery (ready for immediate use).

b) Concentrated and tested vaccine in containers. Bottling and delivery within one week, or more if retesting is requested.

c) Concentrated inactivated antigen to be reconstituted into vaccine; modalities concerning storage and testing are to be established.

Quality control of the vaccine

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 established and rigorously applied and controlled:

- Sterility As recommended in the European Pharmacopoeia, Vol.II, page 53 and any additional control requested by the FAO Technical Committee.

- Safety The recommendations for safety testing as laid down by the European Pharmacopoeia (Vol.II, n.53) and the European Commission (Research Group Report, October 1974, Appendix VI).

The innocuity of the vaccine will be tested in both cell cultures and cattle after elution and concentration of the antigen. The safety test for the concentrate antigen will be determined by the FAO Technical Committee.

Potency

The potency will be expressed by the number of cattle PD50 (protection dose 50%) content resulting from challenge of three groups of cattle aged 18 months with virulent virus homologous to that included in the vaccine under control.

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

" For each vaccine valency, three fourfold 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 intradermo-lingual inoculation 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% protection dose (PB) (Puissance bovine) per full dose together with its minimum values is estimated with a P = 0.95.

A vaccine will conform to the Recommendation of the OIE, the European Pharmacopoeia and the FAO European Commission for the Control of FMD, when the minimum potency is at least 3 PD50 for each of the vaccine valencies, which corresponds to a minimum protection of 87% with a P = 0.95.

With 3 PD50 as the lower fiducial limit in the cattle test, the average number of PD50 per dose of vaccine should be 6 to 8.

For the bank the minimum potency required should be at least 5 PD50 AS THE LOWER FIDUCIAL LIMIT IN CATTLE TEST PER FULL DOSE WITH A P = 0.95

For acceptance in the bank, the protocols will be subject to approval by the FAO Technical Committee. If necessary supplementary tests will be carried out by an authorized laboratory: for example, AVRI, Pirbright, U.K. or Plum Island, U.S.A.

Period of validity of the vaccine: The shelf life of the vaccine will be two years from the date of manufacture, but stocks will be run down from the 18th month after manufacture with phased replacement to ensure that no vaccine will be retained beyond a two-year period.

Storage arrangements: The vaccine should be bottled outside the production area and stored at a temperature of 2 to 6°C in a specially identified compartment of the storage facilities. The access to this compartment should be strictly restricted to the persons responsible for the storage of the stock. The containers should be sealed by the bank and the label of each container should indicate the producer and the place of production; date of preparation and testing, vaccine strain or subtype, series number of the batch, expiry date, dosage and any other indication suggested by the bank.

Delivery of vaccine

Vaccine will not be transferred to the contributing country before the disease has been officially notified and both causal virus and the corresponding vaccine have been determined by the World Reference Laboratory, Pirbright.

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

The bank may release up to 50 percent of the stocks to meet an emergency situation in a member country. The remaining stock can only be released after careful consideration of the epizootiological situation of the country concerned and of other countries possibly exposed to the same threat.

Administrative aspects

Cost of the bank Monovalent vaccine of type O, A and C produced in European FMD laboratories could be purchased at the present price of approximately US$ 0.25 per dose including quality controls. The price could be varied according to the amount of vaccine committed and the quality test requested as shown in the table below:

Unit price for one dose of type O, A or C monovalent vaccine (average cost)

		Vaccine in bulk	Packaged vaccine
For an order of	500,000 doses	US$ 0,24	US$ 0,26
"	1,000,000 doses	US$ 0,20	US$ 0,22
"	2,500,000 doses	US$ 0,17	US$ 0,19
"	5,000,000 doses	US$ 0,16	US$ 0,18

Concentrate antigen vaccine reconstituted and tested in cattle.

For an order of 3 million to 5 million doses US$ 0,45

Cost of each additional vaccine-potency control in cattle (18 cattle: 15 vaccinated + 3 controls): US$ 22,000

Total cost of foot-and-mouth disease vaccine for an amount of 5 million doses each of O,A or C vaccine (i.e. a total of 15 million doses)

			Vaccine bulk	Vaccine packaged in 100 dose bottles
By batches of	1,500,000 doses	US$	3,600,000	3,900,000
By batches of	3,000,000 doses	US$	3,000,000	3,300,000
By batches of	7,500,000 doses	US$	2,550,000	2,850,000
By batches of	15,000,000 doses	US$	2,400,000	2,700,000

Price: F.O.B. including controls and storage

The bank would be funded and administered through a Trust Fund attached to FAO. The FAO charge for such services would be 5%.

From the above figures a conservative estimate of biennial costs for the bank would be in the order of US$ 3,000,000. This sum would cover cost of vaccine purchase (15,000,000 doses) tests, FAO administration costs and other administrative costs for the Technical Committee, inspection, additional tests etc.

Financial implications of member countries

Each member country would be requested to make a deposit to the Trust Fund. The amount to be charged for each country would be estimated on the basis of the cattle population (US$ 1.40 per 100 heads of cattle). Freight should be charged to the country of destination. Vaccine released from the stock to meet an emergency situation in a member country would be replaced by that country as soon as possible in order to maintain the vaccine reserve.

COUNTRIES IDENTIFIED AS POSSIBLY INTERESTED IN THE BANK

	Cattle population (per thousand)
UNITED STATES	110.864
CANADA	13.864
MEXICO	29.920
AUSTRALIA	27.107
NEW ZEALAND	8.499
JAPAN	4.126
UNITED KINGDOM	13.534
IRELAND	7.178
SWEDEN	1.911
DENMARK	3.034
FINLAND	1.736
NORWAY	971
T O T A L	222.744

APPENDIX B9

INTRODUCTION INTO EUROPE OF MEAT WITH SPECIAL REFERENCE TO GAME ANIMALS AND BEEF

At the previous session of the Executive Committee held in March 1980, importation of game meat and meat from countries where FMD was present, either under forged document or by the illegal movement from customs bonded areas in "free ports" was discussed.

In order to assess the risk of introducing FMD through importation of these meats it was recommended that the Secretary obtain detailed information on the policies adopted in all member countries of the Commission in controlling the importation of these meats and on current import regulations in force at free ports.

This question had been discussed at the XIXth Session of the European Commission in 1972 when a Resolution was passed in which, inter alia, the Commission "..... noted with grave concern the disclosures of the Swiss delegate of the role played by some European free ports and bonded warehouses in the international meat trade .....". The Commission acknowledged with appreciation the action of the authorities of those countries which had imposed rigorous veterinary supervision over bonded warehouses handling meat supplies and strongly recommended that all Governments should take similar action in respect of free ports and bonded warehouses.

Following the recommendation made at the Forty-Second Session of the Executive Committee, a questionnaire was drafted and sent to the Directors of Veterinary Services of all European countries which are members of the Commission. All countries responded to the questionnaire.

The replies received, and especially those from the major importing countries, included comments on the regulations governing their import and bonded customs areas and these are briefly summarized below:

A. Importation of Game Meat for Human Consumption

As indicated under A. of the Questionnaire, all countries except Italy, import game meat for human consumption licences for this being strictly required. With the exception of Malta, Netherlands and Belgium, all countries import meat on the bone. Austria, Luxembourg, and Sweden apply special regulations governing the national distribution of the meat.

B. Importation of game meat and offals as feed for pet animals

Negative answers were received from all countries.

C. Bonded ports and fraudulent certificates

The number of bonded ports officially recognized in Europe are: Netherlands 1, Italy 2, Austria 3, Federal Republic of Germany 3 and Switzerland 7. In those countries where free ports do not exist meat or animal products are admitted into "bonded" storage at any port.

All ports, bonded or otherwise, are under the control of the Veterinary Services of the respective countries, the veterinary sanitary measures in force to control bonded meat or meat products being included in the comments made by the respective countries.

Many countries considered that more effective legislation should be adopted and applied in the control of free ports and the movement of animals and animal products from Customs bonded areas.

D. Meat or meat products and forged certificates

The replies and comments relating to Questions 2, 4 and 5 are summarized under D. It should be noted that two countries gave a positive answer to Question 1 while four countries gave positive answers to the question under 2.

APPENDIX B10

REVIEW OF THE RECOMMENDATIONS AND RESOLUTIONS OF THE EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

(up to the Twenty-Third Session)

SUMMARY OF THE MAIN DOCUMENT[1/]

A. PREAMBLE (see the Main Document - AGA:EUFMD/81/7(a)

B. MAJOR TECHNICAL DELIBERATIONS

B.1 EPIDEMIOLOGY, DISEASE CONTROL AND SECURITY

B.1.1 Procedures for dealing with outbreaks of disease due to exotic type of FMD (Full text in Appendix 2 - Appendices included in the Main Document)

Stockpiling and distribution of seed virus of eight exotic strains was approved by the XVI Session 1969. The choice and stockpiling of types and strains for the stock was approved at the XVII Session 1970. The composition of the stock was modified at the XXII Session 1977, in order to reflect the changed epizootiological situation in the world: ASIA 1, A_{22}, SAT 1, SAT 2 and SAT 3, stocked in the Animal Virus Research Institute, Pirbright, UK.

B.1.2 Submission of samples and information to the World Reference Laboratory (WRL)

(a) All new strains of virus appearing in Europe should be sent to the WRL, Pirbright, for examination (XVIII Session, 1971).

(b) Recommendations of the Research Group adopted by the XXI Session 1975.
i) Countries should submit more detailed epidemiological information with samples sent to the WRL, so that the Laboratory may provide useful data on the significance of change in the distribution of types and subtypes of virus;
iii) Laboratories undertaking typing on a regional basis should submit their findings annually to the WRL which will prepare an annual review of typing results for the FAO/WHO/OIE Animal Health Yearbook.

1/ Main document to be published separately for reference purposes

(c) Observations and recommendations of the XXII Session 1977
i) The Commission drew attention to the need for speedier and more detailed information to be made internationally available in order to enable endangered countries to prepare adequate defensive measures in good time and also to improve international collaboration and facilitate mutual assistance.
ii) Potentially exotic strains should be delivered to the WRL and no other Laboratory.
iii) The principle is affirmed that exotic vaccine production should be encouraged only in those countries which are affected by such viruses.

B.1.3 Disease security in vaccine production plants.

(a) The production of vaccine by the Waldmann method should be discontinued as soon as possible.

(b) The security system of AVRI, Pirbright was indicated as an example to be followed.

B.2 MINIMUM REQUIREMENTS FOR CONVENTIONAL FMD VACCINE IN EUROPE

At the meeting of the Research Group (Lyons, 1976) it was established, as a basic condition, that the vaccine should contain not less than 3 (lower fiducial limit) PD_{50} per vaccination dose, bicarbonate buffer as diluent and results analysed by the probit method. This could bring the average number of PD_{50} per dose to between 6 and 9.

The Research Group's deliberations were endorsed by the XXII Session 1977. (Appendix 3.).

B.3 ANIMAL MOVEMENT, MEAT TRADE AND CARRIER STATE WITH SPECIAL REFERENCE TO EXOTIC FMD

B.3.1 Movement of slaughter stock and meat from areas where exotic strains of FMD have occurred or inactivated exotic vaccines were applied

The problem arose in 1962 with the establishment of buffer zones in South East Europe. The recommended guidelines of the Research Group (Lindholm 1968) approved by the European Commission XVI Session (1969) included:

(a) "The rule restricting movement of slaughter stock or meat from areas where exotic strains have occurred for a period of six months from the last case should continue;

(b) Where vaccination is practised a similar restriction should apply for three months from the date of vaccination without prejudice to the requirements established in paragraph (a) above". (Appendix 4).

B.3.2 Vaccination of young stock especially of those intended for export. (XVII Session 1970)

"Young animals could require a higher number of PD_{50} and could not be assured of full protection unless they are given a second dose after a suitable interval. This is of particular importance in relation to the international movement of livestock and the Group felt that revaccination of young stock should be required shortly before despatch or immediately upon arrival.

B.3.3 Proposed conditions for importation of beef into Europe from countries where FMD is endemic and is caused by viruses not considered exotic to Europe. (XIX Session 1972)

"The beef exported must not contain any bones or offal other than diaphragm. The boning process must not be carried out within 48 hours of slaughter....." (Full text of resolution in Appendix 5).

B.3.4 Criteria governing the importation of beef from countries not entirely free from virus disease exotic to Europe with a view to facilitating inter-regional trade.

Recommendations which should enable the establishment and maintenance of disease free zones equipped with pre-slaughter quarantine areas, from where boneless meat could be obtained for exportation into Europe is contained in the report of the XIX Session 1972. (Appendix 6).

B.3.5 Trade in illegal meat through free port facilities. (XIX Session 1972)

"The European Commission for the Control of Foot-and-Mouth Disease, which met in Rome from 11 to 14 April 1972, noted with grave concern the disclosures of the Swiss delegate of the role played by some European free ports and bonded warehouses in the international meat trade. The Commission was particularly disturbed by the disclosure that several lots of up to 60 tons of meat crossed international frontiers, accompanied by documents, including certificates of country of origin which were false. The Commission acknowledged with appreciation the action of the authorities of those countries which have imposed rigorous veterinary supervision on bonded warehouses handling meat supplies, and strongly recommends all Governments to take similar action on free ports and bonded warehouses."

B.3.6 The "carrier" state (and exotic viruses). (XXII Session 1977).

"When dealing with carrier state problems, any virus strain that is new to the region and against which the available vaccines do not show the accepted standard of potency is to be considered as an "exotic" one. (Appendix 7).

B.4 MASS VACCINATION PROGRAMMES IN EUROPE

Mass vaccination has been largely employed in continental Europe with the full support of the Commission since establishment.

The position of the Commission in favour of the maintenance of systematic vaccination campaigns in Europe was further reaffirmed at the XVIII Session (1971), at the XXI Session in 1975 and at the 43rd Session of the Executive Committee, 1981.

B.5 CAMPAIGNS AGAINST EXOTIC FMD IN SOUTH EASTERN EUROPE

Some time after the invasion of the Near East by the SAT 1 virus (1962), FAO and the European Commission undertook to provide all the means necessary for the control of the disease in the countries concerned and the protection of Europe.

The European Commission's policy in the conduct of the campaigns in south-eastern Europe has had so far 3 main objectives in mind:

(a) Immediate objective: establishment and maintenance of a buffer zone in Thrace where nature offers favourable physical conditions for concentrating efforts in a relatively small and easily defensible area.

(b) Medium-term objective: to develop technical infrastructure, including vaccine production units which should allow at a later stage a shift of the buffer zones system to eastern Anatolia.

(c) Long-term objectives: strengtheinig of the field veterinary infrastructure in the Near East; implementation of the disease-free zone concept and regionalisation of FMD vaccine production.

B.6 REGIONALISATION OF FMD VACCINE PRODUCTION

The deliberations of the Special Consultation held by FAO in the regionalization of FMD vaccine production in 1974 and the regionalization policy as approved by the XXI Session of the European Commission (1975) has as objectives:

1. to assist countries, sub-regions and regions in using their own resources in controlling FMD;

2. to improve the efficinecy of vaccination through the manufacture of homologous vaccines in accordance with the latest position in the virus strain distribution within a region;

3. to ensure availability of vaccines for use in other regions of the world to meet emergencies arising from extra-regional spread of virus and to maintain reserve stocks;

4. to cease vaccine production in countries which are not affected or threatened by strains of virus originating outside the region.

The attainment of objectives 3 and 4 implies the establishment of strategically located laboratories capable of producing vaccine conforming to the requirements for purity, innocuity, potency and storage, as stipulated by countries or regions of destination.

B.7 SWINE VESICULAR DISEASE

The following recommendations were agreed at the Ad hoc consultation held at FAO in 1973, with the participation of the Commission:

1. The disease should be described as swine vesicular disease and to avoid confusion with other vesicular diseases it should be described in statistical reports with the addition in parentheses of the words "caused by a porcine enterovirus".

2. It should be made notifiable and countries should report its occurrence to OIE and FAO so that information on the disease may be included in the FAO/WHO/OIE Animal Health Yearbook.

3. From the information available at present, it would appear that the disease is limited in its distribution to some European countries and to Hong Kong. It is urged that every effort be made to eradicate it when it does occur, using the stamping-out method for the slaughter of affected and in-contact pigs, as applied in FMD control.

4. Because of uncertain knowledge of the possible epidemiological role of other classes of livestock, e.g. cattle and sheep, it is recommended that the movement of such animals from infected premises be restricted for a period of six weeks after the completion of slaughter of infected and in-contact pigs.

5. Bearing in mind that the disease has been associated with garbage feeding in some countries, it is essential that all carcasses including offal on the infected premises be disposed of by burning or burial, or that such material be adequately sterilised.

6. Importing countries should make certain that appropriate steps have been taken in the exporting countries to prevent dissemination of the disease.

7. The laboratories in countries where outbreaks have occurred should undertake serolgical surveys to determine whether or not inapparent infection may be important in the disease.

8. Among the points requiring attention are problems relating to disinfection, since it is already known that disinfectants against FMD may not be efficient for swine vesicular disease.

9. There is a need for continuing exchange of information between laboratories, as well as for research on several aspects of the disease, and it is recommended that the World Reference Laboratory should coordinate research activities.

At the XX Session (1973) of the Commission the recommendations were adopted without any change. The above recommendations were then confirmed, as they stood, at the XXI Session (1975) of the Commission.

C. MAIN ADMINISTRATIVE DELIBERATIONS OF THE COMMISSION

C.1 ROLE AND ACTIVITIES OF THE RESEARCH GROUP

At the XIX Session (1972) it was deliberated that membership and activites of the Research Group conform with the following:

- the Group should remain small having not more than six members;
- the Group would meet once a year at laboratories in Europe. It was possible that they would meet at a laboratory or laboratories overseas under the proposed joint auspices of FAO and the Commission.

It was essential that the Research Group should be involved in the practical work concerned with foot-and-mouth disease control from the laboratory angle; their meetings should take place in laboratories actively engaged in foot-and-mouth disease research. One of the principal functions of the Group would be to advise the Commission. Members assured the Chairman that the work they envisaged doing would not in any way duplicate the work of the OIE Permanent Commission on Foot-and-Mouth Disease. The Chairman of the Group would attend meetings of the Executive Committee.

At its XX Session (1973) the Commission endorsed the proposal made by the Research Group concerning its future role and activities which should be covered by:

(a) Annual meetings, limited to members of the Research Group and occasional invited guests, to deal with matters referred to it by the Executive Committee and to review for the Commission the important developments which are constantly taking place in research. These meetings should as a rule take place at members' laboratories.

(b) The Commission should arrange larger scientific meetings which are also open to laboratory workers from all member countries and invited guests approximately every three years and at times which do not clash with the sessions of the OIE Foot-and-Mouth Disease Commission. These should, on each occasion, deal with certain clearly defined topics by means of invited papers in order to summarize the latest position and indicate the direction of new research. They should be held where suitable conference facilities are available and allow participation by staff of the laboratory or Institute which is acting as host. The cost of attendance should be borne by individual participants.

(c) The Commission should also increase training activities which should take two forms:
i) Training of individuals for several weeks or months under the various fellowship arrangements which now exist, and
ii) Specialized courses of one to two weeks' duration at members' laboratories on selected new techniques, for up to 15 participants. These need not be regularly scheduled but could be held every three to five years.

C.2 ASSOCIATION OF THE EUROPEAN COMMISSION WITH OTHER FAO COMMISSIONS

The matter arose at the XIX Session (1972) of the Commission. The Chairman reported that the Commission had been invited to consider its relationship with other similar commissions operating in FAO for the benefit of agricultural advancement in Europe. This matter had been fully discussed and he invited the Commission to give approval to the following resolution:

"The XIXth Session of the European Commission for the Control of Foot-and-Mouth Disease, meeting in Rome from 11 to 14 April 1972 reviewed it policy of cooperation with other agencies and, in particular, its relationship with the three Commissions operating in the European region under the aegis of FAO. The Session considered that only the European Commission on Agriculture performs the functions which were of mutual interest.

The work of the European Commission for the Control of Foot-and-Mouth Disease, was confined to a narrow and highly specialised field within the framework of animal production and health which was only one of the many facets of the work of the European Commission on Agriculture. In view of the European Commission for the Control of Foot-and-Mouth Disease, no advantage would be gained from its merger with the European Commission on Agriculture even if it were constitutionally possible. Such a merger could adversely affect the efficiency of foot-and-mouth disease control campaigns which have shown such satisfactory progress in Europe. Nevertheless, both Commissions should be kept informed of the work and future plans of each other. This could best be achieved by contacts between the Secretariats and the Chairmen whenever necessary."

C.3 MEMBERSHIP OF THE EXECUTIVE COMMITTEE

Membership increased from 6 to 8 members. Deliberation of XX Session (1973), p.25

C.4 SESSIONS OF THE COMMISSION

Biennial instead of annual sessions, as of 1973. Decided by the XI Session (1973).

C.5 SCALE OF CONTRIBUTIONS

(a) Review of the scale of contribution and problems related to payments in non-convertible currencies

The question of payment of contributions in non-convertible currencies had been submitted to the FAO Administration. It had been agreed that Hungary could continue to pay its contribution in local currency as long as FAO was able to make use of the relevant amount in Hungary and credit the Commission with convertible currency. However, the Administration had informed the Commission that similar arrangements could not be made for other countries for technical reasons. Consequently, the Executive Committee felt that future member countries would have to accept that their contributions be payable in convertible currencies, unless there was an unexpected change in the position.

In reviewing the position of all FAO member countries which are already or could become member countries of the Commission, the Executive Committee agreed that the contributions established in 1953, subsequently adjusted for two countries and subjected to an overall increase of 20 percent, was still equitable. The lists of contributions as shown in Table I of the Committee's report was approved (Appendix VII of the report of the XVIII Session, 1971). It was also agreed that the criteria given in Appendix I of the Constitution, calculating the scale of contributions would remain valid. Appropriate notes to these effects should be appended to the Constitution, reflecting these decisions, when the Constitution is next reprinted.

DECISION OF THE XVIII SESSION

(b) Increases of contributions as of 1953

1968: increase by 20% (decided in 1966)
1974: increase by 30% (decided in 1973)
1978: increase by 30% (decided in 1977).

Appendix 1

A. Diagnostic organization in Europe and measures for the identification of new FMD virus strains

Brief review of events and achievements in the identification of FMD viruses

There is hardly a country in Europe which was not involved in FMD diagnosis when the disease was endemic; however, after years of disease freedom in a steadily increasing number of countries, the accumulated experience tends to get wasted and diagnostic facilities fall into disuse. The maintenance of an international reference laboratory is therefore essential especially for those countries which maintain disease freedom in the absence of vaccination.

The establishment of the European Commission in 1953 favoured both development and coordination of activities in order to obtain prompt confirmation of cases and virus typing carried out in all member countries. By virtue of an Agreement reached between FAO, the European Commission and the UK, the Animal Virus Research Institute (AVRI) Pirbright, undertook to receive and examine in a special laboratory (World Reference Laboratory) virus specimens for diagnostic information and typing on a routine basis and for sub-typing whenever required.

To assist member countries in quickly identifying new outbreaks, the Commission provided for the distribution by the WRL of reasonable amounts of antisera of the four exotic virus types and after 1964 of the A_{22} sub-type to the laboratories of all member countries. The WRL's cooperation with FAO, and with the European Commission in particular, was very active especially during the first stage of the FMD campaigns in south-eastern Europe (1962-1964), when hundreds of virus specimens were received from Turkey and other countries every year. This permitted monitoring of the situation in the infected region and preparation of prophylactic action in good time.

At a later stage all countries in south-eastern Europe became able, thanks to training received at Pirbright, to carry out routine diagnostic work locally. Apart from the training given within the framework of technical assistance projects, Pirbright has received staff from all European institutes for specialization in diagnostic procedures. As a result, the intervention of the Pirbright Institute became limited in the course of the years to reference work for the examination of strains suspected to be new for Europe and for assistance to countries (e.g. Malta) - not equipped for FMD diagnosis.

While in South America diagnostic work is carried out by all national laboratories in conformity with a uniform pattern of techniques and procedures established by the Pan American Center for FMD, in Europe there are unfortunately disparities of procedures among institutes and this is largely due to the different history and tradition of the European Institutes.

To facilitate understanding among laboratories in the formulation, composition and control of the vaccines applied on the continent, comparative studies were carried out at Pirbright of the viruses used as seed virus for vaccine production in Europe. The results of the study were discussed by the Research Group and the Commission in 1971 and 1972. While close relationships were found to exist within the O and C groups of viruses, the A group of strains appeared to be rather heterogeneous as they included serologically different sub-types (e.g. A_5 and A_{10}).

A second study directed by the WRL with the collaboration of the Secretary of the Commission and jointly carried out with 20 other laboratories including the Plum Island Institute (USA) and the Pan American Center (Rio), was initiated at the Research Group meeting held in Brescia in 1975 and has now arrived at its third phase of development. The objective of the inter-laboratory study is to reach through analysis of the techniques currently applied by individual laboratories, the highest possible uniformity both in the use and in the interpretation of the testing techniques applicable to the manufacture and official testing of vaccine. The joint study, which is financially supported by the Commission, is proving extremely useful in preparing the ground for a true standardization of methods (including diagnostic methods). Under the leadership of AVRI, identification and investigation of serological relationships of the isolated strains have practically covered all epizootiological situations observed in Europe during the last two decades. However, very few countries, including the UK, have been involved in systematic and comparative studies of the immunological relationship between the strains used in the composition of the European vaccines and the other A, O and C viruses, present in other continents, which are potentially dangerous especially for the meat importing countries of Europe. Since foreign strains are not supposed to be "manipulated" in continental laboratories (except in emergency cases) cross immunity could only be investigated in the case of the appearance of new strains in Europe (e.g. A Valais, C Torhout, A Santander, A Netherlands etc.). A most substantial contribution to the knowledge of both serological and immunological relationships within the O, A and C groups of strains was made by the IFFA-Mérieux Laboratories, and results were presented by IFFA for discussion at the Research Group meetings. The Italo-American cross immunity trials carried out at Buenos Aires and Montevideo in 1971 (results presented in 1972 at the General Session of OIE) showed that double vaccination with a European vaccine of known potency (8-10 cattle PD_{50}) was sufficient to confer satisfactory protection against the O_1 A and C viruses present in the two American countries at that time.

Studies were carried out more recently on the serological identification and immunological relationships with respect to A_5 of the A strains which appeared in Brazil (A Bagé, A Venceslau), in North Africa (A Morocco) and Europe (A Netherlands). In some cases (A Morocco tested in France) the double vaccination with European vaccine appeared to protect; in others (A Netherlands at Lelystad) the European vaccine failed to confer satisfactory protection. These studies, as well as the previous ones, were all directed towards evaluating the potential danger of viruses (especially of the A group) which might gain access to Europe through the meat and livestock trade. Investigations to see whether any of the newly identified A strains could substitute the old A_5 in the composition of European vaccine have so far not been carried out.

Of all "foreign" A, O and C strains studied in Europe (and in the Near East) after the 1951-52 epizootic, only A_{22} was found to be a "true" exotic virus for Europe, as demonstrated by Professor Lucam in plurivaccinated cows (Report of the XX Session, 1973); the South American C_5 which appeared in Greece and Belgium in 1969) was shown to resist double vaccination by European C; fortunately this strain was found for the last time in 1969. (see Session reports of the Commission).

Problems of virus identification While the major vaccine production firms have the possibility, thanks to their laboratory network in the world, of identifying practically any virus strain which might occasionally appear in Europe, the vast majority of the national FMD laboratories or centres are not in a position in such cases to proceed beyond type determination: the intervention of the WRL then becomes necessary (Table I).

It is known that some national FMD centres would like to be provided with the diagnostic material necessary not only for serological work but also for virological investigations.

The opinion expressed by the Research Group in favour of the distribution of "inactivated" antigens to allow for in-depth investigations may not satisfy entirely, but could constitute a certain progress.

The problem remains as to whether national institutes, well known for their organization and security systems, should be allowed to hold a set of FMD exotic viruses under conditions to be determined and exclusively for diagnostic purposes.

B. Production of vaccines against FMD types and sub-types not present in Europe

Review of FAO policy and activities concerning procurement of exotic vaccines for Europe

Ever since its establishment, the European Commission has maintained a firm attitude against the handling of new strains of FMD, except for indispensable diagnostic purposes.

In sixteen years of campaigns conducted to prevent invasions of exotic strains into Europe, the recommendations made by OIE, with the participation of FAO, at Vienna in 1962, were observed: the SAT_1, A_{22} and $ASIA_1$ viruses have never been grown for production purposes on the continent, except in infected or directly exposed countries (Turkey, Greece, Romania, USSR). Initially (1962-1964), FAO established buffer zones against exotic viruses in south-eastern Europe using SAT_1, vaccines manufactured in the United Kingdom whose contribution in making available vaccine supplies produced at Pirbright was warmly adknowledged at both OIE and FAO meetings.

When a new source of exotic vaccine became available in Iran (in 1964) FAO did not hesitate to make wide use of A_{22} vaccine obtained from the French Frenkel unit at Teheran.

The same policy was followed in combatting the $ASIA_1$ invasion in the Near East and Turkey (1973) and more recently (1977-1978) in procuring vaccines for the control of the A Morocco infection in northern Africa: in this latter case, FAO preferred not to consider offers of vaccine produced in continental Europe and assisted both Morocco and Algeria with homologous vaccine produced at Pirbright.

It should be noted that the use of inactivated exotic vaccines obtained by FAO from Institutes which offer sufficient guarantees as to innocuity and safety of their production have never over a period of 16 years caused trouble attributable to residual infectivity. As a safeguard for potential importers in western Europe, animals vaccinated with exotic vaccines became eligible for export only 3 months after vaccination. This measure has been suggested by the Research Group and adopted by the Commission as of 1969 (XVI Session, April 1969, pp.28 and 65).

In conclusion, after the 1951-52 epizootic, emergency situations, including the maintenance of buffer zones, never required that exotic strains should be handled in the continental laboratories of western Europe. However, Europe is exposed to exotic infection and will remain so until efficient disease control is exercised at the very origin of the FMD epizootics.

So far much has been done to meet this problem in south-eastern Europe and the Near East: FAO provided assistance for the establishment of vaccine production units in Turkey, Israel, Greece, Bulgaria and Iran; French producers developed the Iranian laboratory, major supplier of the FAO campaigns; Romania converted her Waldmann laboratory into a modern tissue culture unit; USSR created new powerful units based on the Frenkel methods; Czechoslovakia opened new production units.

This has inspired FAO action in executing or supporting programmes of technical assistance anywhere governments have shown interest in FMD control. Unfortunately while FMD is a primary problem in the developed world, it would be unrealistic to expect that FMD vaccines meeting the European requirements become readily available in countries where other major problems attract attention and national resources for many years to come. This can only be the result of long-term development projects.

Cognizant of the foregoing, and on the basis of the results so far given in the developing world by FMD projects over a number of years, FAO considers that furtherance of vaccine production should possibly be pursued within the context and scope of regional projects for agricultural development. A consultation on the regionalization of FMD vaccine production took place at FAO headquarters on 8/10 July 1974. The "regionalization policy" of FAO as exposed and approved at the XXI Session held by the European Commission in April 1975, reads as follows:

"Objectives of the regionalization of FMD vaccine production are:

(1) to assist countries, sub-regions and regions in using their own resources in controlling FMD;

(2) to improve the efficiency of vaccination through the manufacture of homologous vaccines in accordance with the latest position in the virus strain distribution within a region;

(3) to ensure availability of vaccines for use in other regions of the world to meet emergencies arising from extra-regional spread of virus and to maintain reserve stocks;

(4) to cease vaccine production in countries which are not affected or threatened by strains of virus originating outside the region.

The attainment of objectives (3) and (4) implies the establishment of strategically located laboratories capable of producing vaccines conforming to the requirements for purity, innocuity, potency and storage, as stipulated by countries or regions of destination."

Emergency production of exotic vaccines and strategic reserve for Europe It is worthwhile recalling that until late in the sixties the Animal Virus Research Institute, Pirbright (AVRI) not only produced different kinds of vaccines (both attenuated and inactivated) but used also to keep some 300,000 (later reduced to 100,000) doses of inactivated vaccine of each type in reserve for the Commission, should an emergency arise.

At that time, the production of experimental vaccines was part of AVRI's regular programme; in 1967 the British Government decided to transfer vaccine production activities entirely to Wellcome and so the maintenance of stocks was discontinued at the Research Institute. In the meantime, the interest of vaccine producers shifted from the Frenkel technique (a sizeable unit had been working with very satisfactory results at the Research Institute) to tissue culture in cell suspension and new plants were set up in Britain and elsewhere to exploit the economic advantages of the new method.

To fill the gap, in 1969 the XVI Session of the Commission adopted a recommendation made by the Research Group and the Executive Committee for the stock piling of seed virus of exotic FMD types and sub-types and in 1970 the Commission contributed (£6,950) to the installation of adequate facilities permitting the storage of 80 to 100 litres

of seed virus of at least 8 epizootiologically significant strains of exotic types. Procedures for dealing with outbreaks and for obtaining the relevant seed (subject to the advice of a Joint FAO/OIE Group) were also approved (XVI Session). Since then the position of the seed virus stock has been published in the reports of the annual or biennial Sessions of the Commission.

The assumption that by receiving the appropriate seed, the major vaccine producers of continental Europe could at any time promptly switch over to the industrial manufacture of the corresponding vaccine started to lose ground when the same supporters of cell suspension found it difficult for certain strains of the piled stocks to be industrially grown at the first attempt (communication by T. Pay et al at the XIV Session of the OIE Permanent Commission in 1975).

Later new difficulties in getting quick adaptation of certain virus strains to cell suspension or good antigenicity from the adapted strains also arose in other institutes, especially those outside of Europe. This as well as other considerations and findings (e.g. instability of the cell lines, mycoplasma contamination, poor correlation between virus titre and antigenicity etc.) negatively affected the confidence previously placed in the seed virus reserve and raised interest again in a strategic reserve of vaccines.

It goes without saying 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 invasive, as happened in 1951-52, before large quantities of the corresponding vaccine had been made available on the market.

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 and wish to remain so.

The following guiding concepts have been prepared by FAO headquarters on this subject:

(a) Production and storage of as many monovalent vaccines as there are immunologically autonomous types or sub-types, outside of Europe. European producers will be responsible for keeping sufficient quantities of European O, A and C vaccines in storage for the bank (only storage costs involved).

(b) Manufacture of the selected vaccines only in institutes which because of their location, organization and technological development, are able to produce in conformity with the international recommendations, regulations and standards regarding safe handling of the FMD virus, as well as carry out purity, innocuity and potency testing of the vaccines.

Outside Europe and South America there are only three institutes, one in Africa and two in Asia, which are equipped for producing vaccines according to European standards but none of them would seem to be able to find antibody-free cattle for vaccine testing in the respective countries. Better possibilities will be offered by the opening of FMD laboratories in Botswana and the Union of South Africa.

(c) The potency of the vaccines accepted for stock piling should be checked whenever possible in independent laboratories and immunological studies should be supported by the bank in close collaboration with the WRL, Pirbright, with a view to establishing a map of all immunologically distinct FMD viruses in the world and a corresponding list of reference vaccines.

(d) Furtherance of FMD control in the developing countries through the donation of the vaccines to be rotated four to six months before expiry: vaccine donations should be subject to the evaluation of regional programmes under international control in order to support and encourage local initiatives wherever warranted.

(e) Access to the bank should be open initially to countries which are able to maintain disease freedom in the absence of vaccination and at a later stage also to other countries but it should be limited to the supply of vaccine which is exotic for the region (i.e. SAT vaccines to vaccinating countries in Europe).

(f) All operations of the vaccine bank should be under the control of a Technical Advisory Committee including representatives of major international organizations (FAO/OIE/WHO) involved in FMD control and also EEC and COMECON.

Should a decision be taken to establish a strategic vaccine reserve bank, the question of who should be authorized to produce for the bank and where, would arise.

At a meeting held in Rome on 1-2 April 1974, the Research Group tried to formulate conditions for the production of exotic vaccines; the Group's proposals met with strong opposition within the Executive Committee and no report was circulated.

Since then, no further discussion has taken place on this complex issue at the European Commission's meetings.

Appendix 2

PROCEDURE FOR DEALING WITH OUTBREAKS OF DISEASE DUE TO EXOTICE TYPES OF FMD VIRUS

Very serious consequences might follow an outbreak of disease due to an exotic type, unless effective control measures are quickly applied. This paper reviews the procedure under which it is proposed that international help should operate.

Diagnosis

Most laboratories in European countries already have sera against the four exotic types and would therefore be able to make a diagnosis. A sample sent to the World Reference Laboratory would be handled with the greatest urgency and would allow confirmation of the diagnosis.

Phase I Control

On confirmation of diagnosis local control measures should include slaughter and destruction of diseased animals and those in contact.

Vaccine would be made available from Wellcome Foundation and the Razi Institute if they had the appropriate vaccine. The available stock would be 100,000 doses. At the same time, there would be a meeting of the joint group of the officers of the European Commission and of the Permanent Commission of OIE.

Phase II Control

If the action taken in Phase I had failed to stop the spread of the disease, manufacture of further stocks of vaccine would be undertaken, by the Wellcome Foundation (and the Razi Institute if they had the appropriate vaccine).

If facilities were available in the country concerned, vaccine production would also be undertaken there, by changing over from routine production of local strains to the exotic strain. For this purpose, it is proposed that supplies of seed virus should be held by the World Reference Laboratory.

Organization of Distribution of Seed Virus

(1) In consultation with the Chairman and Secretary of the European Commission the World Reference Laboratory would choose not more than eight strains of virus, representative of those likely to threaten Europe.

(2) For each of these strains, a batch of say 20 litres of high-titre virus would be prepared when the strain had been adapted to tissue culture.

A strain would only be accepted as a stored seed when a vaccine had been prepared successfully from virus and the passage selected for storage.

(3) Seeds would be stored at $-70^{\circ}C$.

(4) Seeds would be made available in 4-litre volumes to the laboratories of countries on the decision of the Joint European Commission/OIE Group.

Appendix 3

PD_{50} CONTENT OF FMD VACCINES

The determination of minimal requirements applicable to vaccine production in the Commission's member countries has been on the agenda of the Research Group's meetings several times in recent years. Much has been achieved in the field of disease security, applied, in particular, to vaccine production. The most advanced European laboratories have been visited, and the technical installations and measures adopted to prevent virus escape have been discussed, and described in the Commission's reports.

Innocuity and potency testing of the vaccines has been the subject of many discussions to which the main vaccine producers of Europe, including the private industry, and the Animal Virus Research Institute, Pirbright, have contributed with the results of the experience gained in the course of the last decade.

The first important decision of the Group was taken in 1969 at Brescia when the principle of the PD_{50} content was accepted as the best method currently available for expressing the potency of FMD vaccines. In 1974, the subject of "minimal requirements for FMD vaccines" was discussed in more detail by the Group at Lelystad. For innocuity testing, the technique of antigen elution from the vaccine, as applied in the Federal Republic of Germany, was considered to have better chances than other conventional methods of revealing inactivation failures. As regards potency testing, the Group suggested that vaccines should contain at least 6 PD_{50} as the result of challenge carried out on groups of five cattle each vaccinated with different quantities of the vaccine. It was accepted that dilution of vaccines should be effected in the vaccine base. The Group's views were presented to the European Pharmacopoeia Commission which had been charged with the standardization of the FMD vaccines.

In 1975, the Group met at Brescia/Padua, and confirmed the position taken at Lelystad though admitting that "the series of dilutions employed in the potency test may be prepared in buffer solution without adjustment".

It was regretted on that occasion that the European Pharmacopoeia Commission had not seen fit to accept the proposals worked out by the Group.

After the Brescia meeting, new contacts took place between the Chairman of the European Commission and the Chairman of the Pharmacopoeia Commission; the result was a special session held by the Pharmacopoeia Commission at Alfort on 16/17 March 1976, with FAO and OIE participating. The Chairman, and two members of the Research Group, represented FAO.

The text of the conclusions approved at the Alfort meeting reads as follows:

"1. Foot-and-mouth disease vaccine should, at the dose prescribed, protect 70 percent (lower fiducial limit, having P = 0.95) of animals in the conditions of the test against an inoculation with 10,000 ID_{50} (doses given in 2 sites) of the type or sub-types of virus used for the preparation of the vaccine.

2. The potency test in the monograph shall be by the determination of the PD_{50} in cattle by challenge with virulent virus, administered three weeks after vaccination, the observation time before reading the results being eight days.

Two animals shown to be free of foot-and-mouth disease and having no anti-bodies against the strain of virus used to prepare the vaccine shall be used as controls.

3. The vaccine shall contain not less than 3 (lower fiducial limit)PD_{50} per vaccination dose.

4. A footnote shall recognise that national control officers may authorise alternative methods for routine assays provided that:

   - the method used is sufficiently widely known

   - a thorough statistical evaluation has established a satisfactory correlation between the method used and the PD_{50} established for the vaccine by the officially prescribed method.

5. If desired the K-index method and the determination of the PD_{50} by serum neutralization could be described in an annex as examples of methods which satisfy the above requirements.

6. The period of observation in the safety test shall be 10 days (4 days in the first stage and 6 days in the second stage).

7. The safety test in cell cultures shall be transferred from "tests" to "preparation" and treated as an in-process control."

At the Lyons consultation, finally, the Research Group reviewed the position of the PD_{50} content for vaccines in the light of the document issued by the Pharmacopoeia Commission on 30 March 1976, PA/PH/Exp. 15V(76)3.

While admitting that the new standards were higher than those proposed at the 1974 meeting at Lelystad, the Group accepted the conclusions of the Alfort meeting, with the understanding that:

"a) The statement under item 3 of the conclusions i.e. "The vaccine shall not contain less than 3 (lower fiducial limit) PD_{50} per vaccinating dose" means that not more than one in twenty vaccines will contain less than 3 PD50. **

b) The potency test will be carried out using bicarbonate buffer as diluent and as specified in the report of the meeting, the results will have to be analysed by the probit method.

** The average number of PD_{50} per dose should be six to nine."

Note: The Research Group's deliberations are well in line with the conclusions of the International Symposium on FMD (Lyons, October 1976) concerning the measurement of vaccine potency on cattle. Of the three methods suggested by the Symposium, method (1) reads as follows:

"For each vaccine valency, three fourfold vaccine dilutions in carbonate buffer are injected into 3 troups of 5 fully susceptible bovines. Three weeks later, all the vaccinated animals and two control animals receive an intradermolingual inoculation 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."

Appendix 4

MOVEMENT OF SLAUGHTER STOCK AND MEAT FROM AREAS WHERE EXOTIC STRAINS OF FMD VIRUS HAVE OCCURRED OR INACTIVATED EXOTIC VACCINES WERE APPLIED

1. The Research Group considered that countries threatened, or experiencing infection, by exotic strains should not be discouraged from taking part in vaccination campaigns against the disease. There was every indication that attempts to prevent spread and control the disease by vaccination with inactivated vaccines could do nothing but diminish the risk to those countries wishing to import stock or carcasses.

2. It is considered highly unlikely that if the proper procedure for testing the safety of vaccines had been applied in the country of origin, improperly inactivated vaccines could have been used and have produced the carrier state in cattle. It was also highly unlikely that infected vaccine would only produce sub-clinical infection; any accident with vaccine would, in all likelihood, result in the appearance of overt disease.

3. The development of the carrier state in vaccinated cattle as a result of contact with stock infected with the exotic virus would be unlikely to take place without the authorities becoming aware of the existence of clinical disease which would have to have occurred near the vaccinated stock if carriers were to be produced.

4. Movement of stock from areas where outbreaks have occurred may already be permitted after six months have elapsed since the last cases of disease provided that a slaughter policy and other strict control measures are provided. Animals which have passed through the disease might well be carriers after six months, but they do not appear to have been responsible for transfer of infection either as slaughter stock or as carcase meat. The demonstration of virus at the known predilection sites in carrier animals becomes difficult or irregular as the carrier state progresses. There would, therefore, be little possibility of virus occurring at any other site, (for example, lymphnodes in caracasses etc). A search for virus at such sites would not give any information of value due to the difficulty inherent in demonstrating virus in small quantity at irregular times. An expermintal approach to this problem is therefore considered to be impracticable.

5. In view of these considerations the following guideline is recommended by the Commission:

   (a) The rule restricting movement of slaughter stock or meat from areas where exotic strains have occurred for a period of six months from the last overt case should continue.

   (b) Where vaccination is practised a similar restriction should apply for three months from the date of vaccination without prejudice to the requirements established in paragraph (a) above.

6. Attention is drawn to the desirability of excluding from exportation what can be described as pharyngeal offal from all areas where stock possibly exposed to exotic viruses are slaughtered or the meat processed.

7. Because of the failure to demonstrate the carrier state in pigs, it is suggested that the only risk from this species exists for the first month of convalescence and thereafter as a mechanical carrier from diseased cattle. In drawing up regulations, therefore, the same rules should apply to pigs as cattle.

Appendix 5

PROPOSED CONDITIONS FOR IMPORTATION OF BEEF INTO EUROPE FROM COUNTRIES WHERE FOOT-AND-MOUTH DISEASE IS ENDEMIC AND IS CAUSED BY VIRUSES NOT CONSIDERED EXOTIC (*) TO EUROPE

1. The exporting country must have an effective State Veterinary Service which is the direct responsibility of a Chief Veterinary Officer or Director.

2. Foot-and-mouth disease must be compulsorily notifiable. The type and subtype position and any changes therein must be notified to the appropriate authority in the importing country and all new strains of virus forwarded to the WRL.

3. If foot-and-mouth disease is confirmed on an establishment the movement of all susceptible species off that premises must be prohibited until a fixed period has elapsed since the last case.

4. All animals from which beef is derived must have been vaccinated against foot-and-mouth disease at least twice before slaughter, or at least once, in the four months prior to slaughter in the case of young animals. The times of vaccination should be defined. The vaccine used must be an inactivated vaccine tested and controlled for safety and potency by the State Veterinary Service.

5. The animals must be slaughtered in approved slaughterhouses which conform to international standards and where they will be subjected to ante-mortem inspection by Government veterinarians and post-mortem inspection under the direct supervision of Government veterinarians. De-boning and processing plants must also be under the direct supervision of Government veterinarians.

6. Lairage facilities at approved slaughterhouses must be adequate and be cleansed and disinfected between each batch of animals.

7. Any vehicle employed to carry the animals must be properly cleansed and disinfected before use.

8. All cattle markets must be inspected by Government veterinarians. If any case of foot-and-mouth disease is diagnosed no affected animal or contact animal may be moved to a slaughterhouse approved for export.

9. If foot-and-mouth disease is found at ante- or post-mortem inspection, the animals or carcasses so affected and all in-contact animals or carcasses must not be exported and the premises cleansed and disinfected following removal of the affected batch.

10. All packing and wrapping materials used must be new.

11. The beef exported must not contain any bones or offal other than diaphragm. The boning process must not be carried out within 48 hour of slaughter.

12. The beef so exported must be clearly marked in an approved manner so that its identity of the slaughterhouse of origin can readily be recognised.

(*) In this context "exotic" means a strain of virus against which the susceptible animal population is not protected by vaccines currently used in Europe.

Appendix 6

JOINT FAO/OAU/OIE CONSULTATION
MEETING ON CONDITIONS FOR THE ESTABLISHMENT
AND MAINTENANCE OF DISEASE FREE ZONES

Khartoum, Sudan, 9 December 1971

The meeting was informed of the action that has been taken jointly by OIE/FAO following the first conference of the permanent OIE Regional Commission for Africa in Dakar in 1966 and the 15th Session of the FAO Conference held in Rome in 1969.

A joint FAO/OIE working group was convened in Paris in September 1971 to review the criteria governing the importation of beef from countries not entirely free from virus diseases exotic for Europe with a view to facilitate inter-regional trade, and in particular to re-examine the recommendations made in Brussels in 1960 by a joint meeting of the OIE Foot-and-Mouth Disease Commission and the FAO European Commission for the Control of Foot-and-Mouth Disease to prevent the introduction of exotic types of Foot-and-Mouth Disease into Europe.

The meeting was informed that the working group reviewed the situation in respect not only of Foot and Mouth Disease but also of Rinderpest and its recommendations with regard to the creation of diseas-free zones with a view to facilitate international trade, were described.

The meeting welcomes the initiative that has been taken by both organizations. However, there were certain matters that required clarification.

Since live rinderpest tissue culture vaccine virus is harmless the meeting considered that the use of this vaccine should be permitted within a disease-free zone and that its use should not preclude the export of beef derived from the vaccinated animals as long as all the necessary animal health requirements had been met.

It was felt that a policy which precludes the export of meat derived from animals vaccinated with live rinderpest tissue culture vaccine could seriously jeopardise the efforts of African countries to eradicate the disease from the continent.

Furthermore, the meeting knew of no evidence of transmission of virulent rinderpest virus under natural field conditions through the medium of meat derived from vaccinated animals.

Delegates at the meeting also raised the question of the delimitation of disease-free zones which extend to national borders, and it was felt that where natural barriers did not exist, neighbouring countries should establish common policies and coordinate their efforts so as to maintain the disease-free status of the area or areas concerned.

The meeting noted with satisfaction the efforts made by sub-regional organizations to harmonize health regulations in line with the requirements of the OIE zoo-sanitary code.

The meeting noted with satisfaction also that the report of the joint FAO/OIE working group will be reviewed at the OIE General Session in May 1972, and that an ad hoc consultation on disease-free zones will be convened by FAO late in 1972.

In emphasizing the importance placed by FAO/OAU and OIE on the subject of disease-free zones, the Joint Secretariat said that countries desirous of obtaining the services of FAO experts to advise and assist in the development of such zones could request assistance through the procedures which have been established for the provision of technical assistance financed under the United Nations Development Programme and other sources of funding.

Appendix 7

THE CARRIER STATE

The conclusions reached by the Research Group when discussing Dr. Werdelin's paper "The views of an administrator on the virus carrier" at Brescia in September 1975, were revised by the Group at the Lyons consultation. The revised text is given hereunder.

(1) The Group considered that only ruminants which continued to produce and excrete viruses either continuously or intermittently over periods beginning 3 - 4 weeks after exposure to the virus, should be considered to be virus carriers.

(2) The Group was unanimous in feeling that in a primary outbreak all animals, whether vaccinated or not, should be eliminated. However, this view was not based on the possible creation of carrier animals among the protected animals, but rather on the advisability to deal drastically with a virus which might be new for the country.

The possible existence of carrier animals in a herd was not considered sufficient argument for stamping out the herd in question in countries where the population is routinely vaccinated. The policy followed in Denmark consisting in the elimination of the whole herd involved in the primary outbreak and the application of ring vaccination, was considered acceptable because, the population not being routinely vaccinated, the chance of the creation of carriers in the susceptible population was considered to be reduced. Secondary outbreaks should also be dealt with by stamping out.

(3) The possible existence of carriers in a population was not considered a valid reason for the restriction of animal movements between countries once the disease has been eradicated and the usual quarantine restrictions have been lifted. These measures were considered acceptable for European countries where the cattle are vaccinated annually and when dealing with European virus types.

However, the virus carrier is felt to constitute a small but definite risk.

Therefore, before admitting potential virus carriers into countries which have been free from the disease in recent years, and when disease control is based on the application of veterinary police measures only, quarantine and probang testing should be considered for breeding stock.

Potential carriers of exotic FMD virus should not be admitted into any European country.

(4) The risk involved in the trade within Europe of meat derived from carrier animals is not considered to be of any importance. The trade in offal of carrier animals may have to be considered to constitute a risk in case of exotic viruses.

Footnote: For the purpose of this document the Group considers any virus strain "exotic" that is new to the region and against which the available vaccines do not show the accepted standards of potency; even if the cattle population had an appreciable immunity due to repeated vaccination, there might still be an extensive outbreak in pigs against which no suitable vaccine might be available.

APPENDIX B11

FUTURE ACTIVITIES

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

The Secretary will continue his activities within the European continent along the lines of the Functions specified under Articles IV and V of the Commission's Constitution, in particular -

1) The buffer zone will be maintained in Thrace and efforts by all interested countries will be coordinated in order to assure efficient disease surveillance. Vaccine will be procured from the funds especially allocated for this purpose.

2) The Joint Study so far undertaken for the evaluation of laboratory techniques will continue in order to arrive at the greatest possible standardization of methods and procedures used in Europe.

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

4) The plans for the setting up of an FMD Institute in Bulgaria will continue to receive technical support in collaboration with the Italian Government and in accordance with the programme contained in the UNDP project for FMD in Bulgaria and Turkey, with the Secretary as Technical Adviser.

5) The Commission through its Secretary will participate in all activities carried out by FAO in the field of FMD epizootiological investigation and control in different parts of the world. However, priority consideration will be reserved to regions of interest for Europe.

6) The Secretary will attend the OIE General Sessions, the Regional Sessions of the OIE Commission for Europe, and any other important international meetings where FMD policy and control are discussed. He will visit countries involved with FMD outbreaks in Europe whenever the epizootiological situation justifies this or when requested to arrange joint programmes for FMD control.

APPENDIX B12

FINANCIAL REPORT AND APPROVAL OF BUDGETS

a) Budget and accounts for 1979/1980
b) Provisional budget for 1981
c) Proposal for increase in scale of contributions

a) Budget and accounts for 1979 and 1980

The biennium 1979/1980 is now closed and the actual expenditure (provisional for 1980) for these years is shown in Appendix I. The reserve fund (Special Account) at 31 December 1980 amounted to US$ 24,130.53.

The last accounts reviewed by the Commission were for the years 1977 and 1978.

The breakdown of accounts against approved budget (Appendix I) for 1979 shows that expenditure exceeded the budget for Personal Services. This was due to increased costs for interpretation services and temporary assistance for meetings. Travel also exceeded the budgeted figure. The excess was balanced by no expenditure under Fellowships and lower expenditure under Contractual Services and Emergency Expenditure. The outstanding deficit was drawn from reserves under the Special Account as permitted by the Financial Regulations of the Commission.

Provisional accounts against approved budget for the year 1980 (Appendix I) show that expenditure exceeded the budget under Personal Services. This was due to i) a readjustment in in General Service Category salary scales (retroactive to August 1979) as approved by the FAO Council at its Seventy-Eighth Session (24 November-5 December 1980), ii) increasing costs for meetings and iii) a carry-over from the 1978/1979 biennium of an outstanding deficit (US$ 3,438) for interpretation services. Attention is drawn to the fact that the estimated budget figure under Personal Services for 1980 was less than the actual expenditure under this heading for 1979. This estimate was based on the fact that in 1980 there would have been no General Session of the Commission. Despite this, total expenditure under this item exceeded the 1979 figure by approximately US$ 4,500. Contractual Services also exceeded the budgeted figure. The excess was balanced by lower expenditure under travel and no expenditure under Emergency Expenditure. The deficit was drawn from the Special Account.

b) Provisional budget for 1981

The provisional budget for 1981 (Appendix II) is hereby submitted for approval.

c) Proposal for increase in scale of contributions

The present scale of contributions to Trust Fund 9042 is given in the first column of Appendix III. Details of outstanding contributions as at 31 December 1980 are given in Appendix IV. In view of steeply rising costs, it is requested that member countries respond promptly to the FAO call letters, thereby making funds pledged available to the Commission as early as possible. At the Forty-Second Session of the Executive Committee held in Edinburgh in March 1979, it was noted that a number of countries were experiencing difficulties in paying annual contributions before the end of the first month of the year to which they apply since the call letters from FAO were not being received in time for consideration in the national budgets. This has been brought to the attention of the Financial Services Division of FAO and it is hoped that as of 1981 member countries will be in a position to have commitments included in their national budgets at the appropriate time. A further improvement in the procedure is that in future a copy of all such letters will be sent to the Director of Veterinary Services of each member country.

At the Forty-Second Session of the Executive Committee the question of an increase in contributions was brought up for discussion. The Chairman made brief reference to the three increases in the scale of contributions approved since the establishment of the Commission:

- the first on 1 January 1969,
- the second on 1 January 1974, and
- the third on 1 January 1978

The Committee noted that at the Twenty-Third Session of the Commission held in Rome in March 1979 some delegates stated that they would like to see the Special Account fully expended before contributions are raised. The budget for 1981 shows that this is now the case. On the assumption that France's application for membership will be formalized early in 1981, the budget for 1981 has been based on an annual income of US$ 103,935 from member countries' pledges.

The Executive Committee, therefore, at its Forty-Second Session agreed that the proposal to increase the scale of contributions by 30% be submitted to the Twenty-Fourth Session of the Commission in April 1981 and that member countries of the Commission be given advance notice of this proposal in order to be in a position to give it due consideration and be prepared to take a decision when the matter comes up for discussion at the Twenty-Fourth Session.

This proposal was rediscussed at the Forty-Third Session of the Executive Committee held in Crete from 27 to 30 January 1981.

At this Session the Committee noted that the average cost increase under Personal Services in FAO for the period 1978/1981 had been approximately 43%.

Bearing in mind that the last increase in the scale of contributions had been in January 1978, that there had been a steep upward trend in inflation since then and that as of 1981 the Special Account will have been completely exhausted, the Committee recommended that a request for a 30 percent increase in contributions as of 1 January 1982 followed by an 8 percent increase on 1 January 1983 be submitted for consideration to the Twenty-Fourth Session of the Commission. This would cover the period which will elapse between the 24th and 25th Session at which time the financial situation of the Commission can be reviewed once again. It was agreed that all member countries of the Commission be informed of this proposal through their Chief Veterinary Officers immediately after the Forty-Third Session of the Executive Committee. This would give delegates to the Twenty-Fourth Session time to consult their national governments on the proposal and thus be in a position to take a decision when the matter comes up for discussion at the Twenty-Fourth Session.

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

Trust Fund 9042 - Approved budget/actual exp. 1979/1980

GENERAL ACCOUNT Application of resources	1979 Approved Budget US$	1979 Actual Expenditure US$	1980 Approved Budget US$	1980 Actual Expenditure US$	1981 Provisiona Budget US$
.10 Personal services 1 P5 Animal Health Officer 1 G6 Administrative Assistant (Temporary assistance & interpreters for meetings)	76,500	87,576.76 (15,011.16 for meetings)	85,000	92,293.04 (7,802.40 for meetings)	97,700
.20 Travel - secretariat & Chairman	9,000	14,424.52	10,411	14,811.44 1/	7,000
.30 Contractual services - World Reference Laboratory	2,000	2,000.00	2,000	2,000.00	2,000
.40 Gen. Operating Expenses	700	696.70	700	326.15	500
.50 Emergency Exp. (Special Functions, Art.V of Constitution	10,000	3,023.81	10,000	-	10,000
	98,200	107,721.79	108,111	109,430.63	117,200
1979 Budget based on expected income of $89,739 and transfer from Special Account of 8,461 = US$ 98,200 Actual income 70,573.62 Transfer from Special Account 37,148.17 = US$107,721.79 Balance Special Account 31/12/79 $ 31,897.22					
1980 Budget based on expected income of 89,739 and transfer from Special Account of 18,372 = US$108,111 Actual income 104,886.46 Transfer from Special Account 4,544.17 US$109,430.63 Balance Special Account 31/12/80 $ 24,130.53					
SPECIAL ACCOUNT				1/ This amount includes Res. Group travel	
.20 Travel of Research Group	8,500	6,193.61	8,500		6,000
.30 Cotractual services for work on Laboratory Study	3,500	-	3,000	3,222.52	2,865.53
.80 Fellowships	6,000	-	-	-	2,000
	18,000	6,193.61	11,500	3,222.52 + Travel	10,865.53

Appendix II

BUDGET FOR 1981

(Note by the Director-General of FAO)

1981 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 3.2.

4. The proposed Annual Administrative Budget for 1981 totals $117 200, a certain amount of which ($13 265) 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 1981 allow as in 1980 for one P-5 Secretary to the Commission, one G-6 Administrative Assistant and temporary conference staff. The higher provision for personal services against 1980 reflects cost increases. Total contributions received in 1980 from Member Governments amount to $ 104 886, including accrued interest.

1981 Special Budget

6. In the Special Budget for the Special Account in 1981, it is recommended that the following amounts be provided for: (a) $6 000 to cover any necessary travel and per diem of the members of the Standing Technical Committee; (b) $2 865 for reimbursement to the World Reference Laboratory for work related to the Research Group; (c) $ 2 000 for fellowships; (d) $13 265 to meet the deficit foreseen in the General Account.

7. Attached is the Budget for 1981 which covers the Annual Administrative Budget and the Special Budget for the Special Account.

Assistance given by FAO

8. Besides the above expenditure, 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.

TRUST FUND BUDGET

Code 9.9100.9042.00 (EFF/EFT.011.NUL)

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

Source of Fund: Contributions from Member Governments of the Commission

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

Contributions pledged in respect of 1981:	$103,935
Transfer from Special Account:	$ 13,265
TOTAL	$117,200
Funds available - carried forward from 1979 including interest:	$ 24,130
Less transfer to General Fund:	$-13,265
TOTAL	$ 10,865

Application of Resources in 1981:

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

P-5 Animal Health Officer x 12 mos. (Post No. 6162-660)
G-6 Admin. Assistant x 12 mos. (Post No. 6162-546)
Temporary Conference Staff

Code 9042.00.10	Personal Services 1/	$ 97,700
.20	Travel on Official Business	$ 7,000
.30	Contractual Services	$ 2,000
.40	General Operating Expenses	$ 500
	Sub-Total, Chapter I	$107,200
Ch.II	Emergency Expenditure under Art. V of the Constitution (campaigns)	
Code 9042.00.50	Supplies and Materials	$ 10,000
Ch.III	Contingencies	Nil
	TOTAL	$117,200

SPECIAL ACCOUNT

Code 9042.00.20	Travel of Research Group on Official Business	$ 6,000
.30	Contractual Services	$ 2,865
.80	Fellowships	$ 2,000
	TOTAL	$ 10,865

Issued by: P. Vermeersch
Senior Programme & Budget Officer
for the ADG, PBE

11 March 1981
Date

1/ Travel of secretariat and chairman of the Commission

cc: DDF (2)
Mr. Skullerud, DDF
Mr. Teunissen, DDF
Mr. De Bethlen/Mr. Piccardi, AFFA
Mr. Griffiths, AGA
Mrs. Mazzoni-Pomplun, AGA
Mr. Stouratis, AGA
Mrs. Gibellini, AGA
Miss Raftery, AGA (30)
Internal Audit
External Audit
Data Plates, AFM.B.120
AFF Registry (3)

Appendix III

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

TF 9042

	Present scale	Proposed new scale of contributions 1982/1983	
Member Countries	US$	30% increase as of 1982 US$	8% increase as of 1983 US$
Austria	3,042	3,954,60	4,270.96
Belgium	5,070	6,591.00	7,118.28
Bulgaria	1,521	1,977.30	2,135.48
Cyprus	507	659.10	711.82
Denmark	5,070	6,591.00	7,118.28
Finland	3,042	3,954.60	4,270.96
(France)	(14,196) **	18,454.80	19,931.18
Germany (Fed. Rep. of)	10,140	13,182.00	14,236.56
Greece	1,521	1,977.30	2,135.48
Hungary	3,042	3,954.60	4,270.96
Iceland	507	659.10	711.82
Ireland	1,521	1,977.30	2,135.48
Italy	10,140	13,182.00	14,236.56
Luxembourg	507	659.10	711.82
Malta	507	659.10	711.82
Netherlands	5,070	6,591.00	7,118.28
Norway	1,521	1,977.30	2,135.48
Portugal	1,521	1,977.30	2,135.48
Spain	5,070	6,591.00	7,118.28
Sweden	5,070	6,591.00	7,118.28
Switzerland	5,070	6,591.00	7,118.28
Turkey	3,042	3,954.60	4,270.96
United Kingdom	14,196	18,454.80	19,931.18
Yugoslavia	3,042	3,954.60	4,270.96
T O T A L	103,935	135,115.50	145,924.64

** Included in annual income but France not yet formal member.

Trust Fund No. 9042.00 - International European Commission for the Control of Foot and Mouth Disease

Appendix IV

Pledge Position as at 31 December 1980 (Provisional)
(expressed in US dollar equivalents)

	Contributions outstanding at 31 Dec.1979	Contributions due in 1980	Received at 31 Dec.1980	Total outstanding at 31 Dec.1980 (Provisional)
Government of Austria	-	3,042.00	3,042.00	-
" " Belgium	-	5,070.00	5,070.00	-
" " Bulgaria	(1,521.00)	1,521.00	-	-
" " Cyprus	-	507.00	507.00	-
" " Denmark	-	5,070.00	5,070.00	-
" " Finland	-	3,042.00	3,042.00	-
" " Germany	10,140.00	10,140.00	20,280.00	-
" " Greece	-	1,521.00	1,521.00	-
" " Hungary	-	3,042.00	3,042.00	-
" " Iceland	-	507.00	507.00	-
" " Ireland	-	1,521.00	1,521.00	-
" " Italy	(122,05)	10,140.00	10,017.95	-
" " Luxembourg	-	507.00	507.00	-
" " Malta	-	507.00	507.00	-
" " Netherlands	5,070.00	5,070.00	10,140.00	-
" " Norway	-	1,521.00	1,521.00	-
" " Portugal	1,521.00	1,521.00	1,521.00	1,521.00
" " Spain	-	5,070.00	5,070.00	-
" " Sweden	-	5,070.00	5,070.00	-
" " Switzerland	-	5,070.00	5,070.00	-
" " Turkey	539.86	3,042.00	-	3,581.86
" " United Kingdom	-	14,196.00	14,196.00	-
" " Yugoslavia	3,042.00	3,042.00	6.084.00	-
	18,669.81	89,739.00	103,305.95	5,102.86

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