Frontier agreements on animal health between South American countries


Summary: Over the past thirty years, under the auspices of the Pan American Health Organization (PAHO), the Pan American Foot and Mouth Disease Center (CPFA) and the Pan American Zoonoses Center (CEPANZO) have developed and set up a methodology for the adoption of bilateral and multilateral agreements with regard to animal health between the different countries of South America. These agreements are aimed at the regional integration of these countries, to coordinate their surveillance and control programmes of foot and mouth disease and other animal diseases of economic and social importance, and to harmonize trade in animals and animal products.

This article describes the chronology of the different meetings and agreements between countries, the results obtained and the recommendations adopted with regard to future activities.

KEYWORDS: Animal diseases - Conferences - Disease control - Foot and mouth disease - International Organizations - Legislation - PAHO - South America - Trade in animals - Veterinary Services - Zoonoses.

INTRODUCTION

Since the 1950’s South American countries have initiated and developed coordinated programmes for preventing and controlling foot and mouth disease and other diseases. As a result of technical meetings on the control of foot and mouth disease, and through the mediation of regional organizations such as the Regional Technical Commission for Animal Health (Comisión Técnica Regional de Sanidad Animal, COTERSA), which functioned between 1964 and 1973, and the South American Commission for Foot and Mouth Disease Control (Comisión Sudamericana para la Lucha contra la Fiebre Aftosa, COSALFA), founded in 1972, there arose a need to hold across-frontier animal health meetings as a mechanism for regional integration and to guarantee the outcome of measures introduced in each country for the control of foot and mouth disease and other animal diseases of economic and social importance.

This approach was promoted by the Pan American Health Organization (PAHO) through the Pan American Foot and Mouth Disease Center (Centro Panamericano de Fiebre Aftosa, CPFA) and the Pan American Zoonoses Center (CEPANZO), which led to the establishment of a uniform methodology and to the achievement of considerable progress in certain frontier areas, followed by an

* Pan American Foot and Mouth Disease Center, Caixa Postal 589, 20000 Rio de Janeiro-RJ, Brazil.
extension to regional agreements involving various countries. Such a methodology might also be usefully employed in other areas in the health sector, and also in agriculture.

The purpose of this report is to describe the current situation, the agreements, methods of working and the results which can be achieved; also to present some recommendations for future activities under the agreements. This report is a summary of a document compiled at the request of the 10th Ordinary Meeting of COSALFA, and approved by Resolution V of its 11th Meeting held in 1984. It is in two parts, the first reviewing the proceedings of meetings and other documents held in the archives of the CPFA (1, 4). The second part consists of a revision and supplementation of the document by the Veterinary Services of each country.

ANTECEDENTS

The first talks on the need for bilateral agreements arose from the international conferences on foot and mouth disease organized by the CPFA in Maracay (Venezuela) in 1958 and in Bogota (Colombia) in 1959, with participants from Colombia, Ecuador, Panama and Venezuela. These conferences passed a recommendation to initiate a preventive programme along the border between Colombia and Panama, with the object of preventing the spread of foot and mouth disease to countries of the disease-free area of Central and North America.

In 1960 the CPFA held a Technical Meeting of Directors of Animal Husbandry of South American countries in Rio de Janeiro (Brazil), in order to deal with problems concerning ways of controlling foot and mouth disease. The meeting recommended that the CPFA should organize a conference on a technical level between Argentina, Brazil, Chile, Paraguay and Uruguay in order to examine the national programmes of these countries, and to establish a basis for coordinated action towards controlling the disease in the vast region covered by these countries.

The First Technical Meeting on Foot and Mouth Disease Control took place in Montevideo, Uruguay, in 1962. Meetings of international committees for Argentina, Brazil and Paraguay, for Argentina, Brazil and Uruguay, and for Argentina and Chile produced the first recommendations on the international transport of animals, promotion of technical meetings at the borders between countries, and the need for harmonizing control measures against foot and mouth disease in border areas.

In 1964 a South American Conference on Foot and Mouth Disease was held in Rio de Janeiro (Brazil) at technical and ministerial levels, with the participation of all South American countries. This meeting set the pattern for the initiation of organized programmes for controlling foot and mouth disease, together with the creation of specific programmes and the assurance of finance for their implementation.

It was also widely recognized that, while acknowledging the effectiveness of national resources for controlling foot and mouth disease, it was also necessary to arrange for coordination, particularly between those countries which fell within a common natural region by their geographical situation, ecological conditions and commercial links. It was also recommended that the CPFA should collaborate in the promotion of projects aiming at regional coordination for foot and mouth disease control.
At the regional meetings of countries, it was proposed and agreed that an agreement should be drawn up between Ecuador, Colombia and the CPFA/PAHO, also that a technical committee should be arranged for Brazil, Guyana and Venezuela, and joint technical meetings between Peru, Bolivia and Brazil.

In the same year (1964) COTERSA was formed by inviting two professional representatives from each of the Veterinary Services of Argentina, Paraguay and Uruguay. One of the basic objectives of COTERSA was to propose bilateral or multilateral agreements, according to requirements, for the adoption of measures facilitating the control and eradication of various diseases, paying special attention to ways of protecting border zones. Chile joined this Commission in 1965. Brazil, Bolivia and Peru joined in 1968, when it proved possible to reach the stage of an Inter-American Animal Health Agreement, since COTERSA was now covering the Inter-American sphere.

In 1968 the 12th meeting of the PAHO Directing Council, in its Resolution XIX, gave approval to the CPFA as a regular programme of the PAHO, and authorized its Director to call an annual meeting, starting in 1968, of representatives of the Ministries of Agriculture of American countries in order to revise the programme, recommend a budget and examine matters of mutual interest concerning the control of foot and mouth disease and other zoonoses. This meeting was to be called the Inter-American Meeting, at Ministerial Level, for the Control of Foot and Mouth Disease and other Zoonoses ("RICAZ") and it has served to promote regional integration and bilateral agreements, both in the areas affected by foot and mouth disease and in the disease-free areas.

Twelve meetings were held between 1968 and 1979. Starting in 1980 the name was changed to Inter-American Meeting at Ministerial Level on Animal Health (Reunión Interamericana de Salud Animal a Nivel Ministerial, RIMSA) and, to date, four meetings have been held under this title.

In 1971 the CPFA organized, in Rio de Janeiro, the 29th Seminar on Programmes for the Control and Eradication of Foot and Mouth Disease in South America, with the objective of revising and evaluating all aspects of the control programmes. On the subject of international coordination, the emphasis has been placed on the operation of bilateral agreements, principally by means of coordination of activities, exchange of information and mutual cooperation in the processes of implementation. Recommendations were also made on the organization of the agreements and methods of working.

At the continental level, a recommendation was made to the PAHO to form a South-American Commission for Foot and Mouth Disease Control (Comisión Sudamericana para la Lucha contra la Fiebre Aftosa, COSALFA) with the task of examining, coordinating and evaluating activities for the control of this disease.

COSALFA was formed in 1972 upon the recommendation of RICAZ V in Resolution VIII which requested the PAHO to create, promote and coordinate such a Commission. The members of COSALFA are the directors of animal health or directors of foot and mouth disease control in Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Guyana, Paraguay, Peru, Uruguay and Venezuela. At the wish of these countries, the CPFA acts as ex officio secretariat.

The objectives of COSALFA are the coordination, promotion and evaluation on a regional scale, and also the harmonization of sanitary rules and bilateral or multilateral agreements for foot and mouth disease control.
Since 1973 the Commission has held an uninterrupted series of 13 annual meetings. In 1981 it made specific recommendations on regional coordination and its importance for the success of foot and mouth disease control programmes, in the form of a document entitled “Policy and strategies for controlling foot and mouth disease in South America during the decade 1981-1990” (3).

In 1982 COSALFA IX, in Resolution VII, requested the CPFA to draw up, in collaboration with the countries involved, a proposal for statutes and regulations in order to gain recognition for COSALFA by chancelleries of the countries as a permanent institutionalized commission at subregional level. The necessary formalities were conducted by the Brazilian Ministry of External Relations and in 1985, during RIMS A IV, an act recognizing the new statutes and the status of a permanent institutionalized commission at subregional level was signed.

In December 1981 there was a meeting at the CPFA of directors of the Veterinary Services of Argentina, Brazil and Uruguay and officials of the CPFA to create a Tripartite Technical Committee to organize a unified programme for the control of foot and mouth disease in the Plata Basin.

This subregional project for the Plata Basin was ratified during a Technical Meeting on Meat Trade and Animal Health, held in Brasilia in September 1983, with the participation of Argentina, Brazil, Paraguay, Uruguay and the CPFA.

In countries of the Andean area, the first steps towards regional and bilateral integration were taken by the Bolivarian Organization for the Health of Livestock and Plants (Organización Bolivariana de Sanidad Agropecuaria, OBSA), which has held occasional meetings since 1965, paying special attention to the unification of animal health legislation.

More recently, in 1975, the Carthaginian Joint Council (Junta del Acuerdo de Cartagena, JUNAC) adopted as Decision 92 an Andean System for Livestock and Plant Health (Sistema Andino de Sanidad Agropecuaria) which defined the procedures of harmonization of national rules for the health of animals and plants, with the objective of opening up trade within the subregion.

A Southern Hemisphere Meeting on Foot and Mouth Disease and International Trade in Animals and Animal Products was held in Buenos Aires (Argentina) in 1978, under the auspices of the Organization of American States (OAS) and the PAHO. Through Resolutions I and IX emphasis was again placed on regional integration and the importance of bilateral agreements in order to advance programmes for foot and mouth disease control, and to harmonize trade in animals and animal products.

More recently, the Inter-American Institute for Cooperation on Agriculture (IICA) has initiated various activities in the field of animal health with the objective of regional integration.

The Food and Agriculture Organization of the United Nations (FAO) has offered assistance to countries of the Andean area towards harmonization of regulations concerning trade in products of animal origin, and to all the Latin American countries and the Caribbean for the prevention of spread of African swine fever and other exotic diseases.

The Office International des Epizooties (OIE) has contributed to the regional harmonization of sanitary regulations by means of its International Zoo-Sanitary Code.
In countries free from foot and mouth disease (Panama, Central America and Mexico), the International Regional Organization for Animal and Plant Health (Organización Internacional Regional de Sanidad Agropecuaria, OIRSA) has provided guidance on sanitary regulations and procedures to guarantee the health of animals and plants, with the emphasis on across-frontier sanitary agreements.

In these countries and in Colombia, the United States Department of Agriculture has drawn up bilateral agreements for the prevention of foot and mouth disease.

**TABLE I**

Chromological summary of the establishment of bilateral animal health agreements for the control of foot and mouth disease and other diseases in South American countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>Date of origin</th>
<th>Remarks</th>
</tr>
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<tbody>
<tr>
<td>Argentina-Bolivia</td>
<td>1976</td>
<td>Regular meetings</td>
</tr>
<tr>
<td>Argentina-Brazil</td>
<td>1980</td>
<td>Notification in 1964; technical consultations since 1980; agreement signed 1983; regular meetings</td>
</tr>
<tr>
<td>Argentina-Chile</td>
<td>1968</td>
<td>Mission for Patagonia in existence at ministerial level since 1962; regular meetings</td>
</tr>
<tr>
<td>Argentina-Paraguay</td>
<td>1968</td>
<td>At Chancellery level in 1977; regular meetings</td>
</tr>
<tr>
<td>Argentina-Uruguay</td>
<td>1977</td>
<td>At Ministry of Agriculture level; revised 1981; ratified by Chancelleries 1983</td>
</tr>
<tr>
<td>Brazil-Bolivia</td>
<td>1977</td>
<td>Regular meetings since 1980</td>
</tr>
<tr>
<td>Brazil-Colombia</td>
<td>1977</td>
<td>Regular meetings at technical level; agreement signed 1985</td>
</tr>
<tr>
<td>Brazil-Guyana-Venezuela</td>
<td>1964</td>
<td>Committee at technical level</td>
</tr>
<tr>
<td>Brazil-Paraguay</td>
<td>1969</td>
<td>Regular meetings</td>
</tr>
<tr>
<td>Brazil-Uruguay</td>
<td>1964</td>
<td>Regular meetings since 1980</td>
</tr>
<tr>
<td>Brazil-Venezuela</td>
<td>1980</td>
<td>Legalizes decisions between Brazil and Venezuela, of the Brazil-Guyana-Venezuela committee</td>
</tr>
<tr>
<td>Colombia-Ecuador-PAHO</td>
<td>1964</td>
<td>Extended to other diseases in 1976; regular meetings</td>
</tr>
<tr>
<td>Colombia-OIRSA-PAHO</td>
<td>1964</td>
<td>Rescinded in 1966; Colombia is continuing its plan of action</td>
</tr>
<tr>
<td>Colombia-USDA</td>
<td>1974</td>
<td>Regular activities</td>
</tr>
<tr>
<td>Colombia-Venezuela</td>
<td>1972</td>
<td>Implemented at technical level in 1975; sporadic meetings; reactivated in 1984</td>
</tr>
<tr>
<td>Chile-Bolivia</td>
<td>1976</td>
<td>Sporadic meetings; inactive</td>
</tr>
<tr>
<td>Chile-Peru</td>
<td>1978</td>
<td>At technical level</td>
</tr>
<tr>
<td>Ecuador-Peru-PAHO</td>
<td>1983</td>
<td>Held first meeting in 1984</td>
</tr>
<tr>
<td>Paraguay-Bolivia</td>
<td>1978</td>
<td>First meeting in 1980</td>
</tr>
<tr>
<td>Peru-Bolivia-PAHO</td>
<td>1975</td>
<td>Revised in 1982</td>
</tr>
</tbody>
</table>
Table I summarizes the existing agreements, their date of origin and remarks about their operation. It is important to bear in mind that most of the agreements initially dealt with only foot and mouth disease, and may have been extended subsequently to other diseases of animals.

In addition various countries have included the zoonoses, particularly Venezuelan equine encephalitis, canine rabies, tuberculosis and brucellosis.

Fig. 1 shows the frontiers where animal health agreements are operating. Note that there are large areas in the Amazon region where no such activity takes place since animal husbandry is not developed there.

**MODE OF OPERATION**

In general the mode of operation of the sanitary agreements is according to a unified pattern, adjusted when necessary to the special conditions operating in each country.

The initial contacts are made at the technical level of the animal health services, who analyse the requirements for coordination and draw up a draft agreement, with the aid of the CPFA/PAHO. This document is transmitted by the Ministry or Secretariat of Agriculture to the Ministry of External Relations.

In general the text of the agreements contains the legal bases, objectives, mode of operation, composition of the Joint Committee and other accessory committees, regulations of the committees, and the final and temporary dispositions such as the duration of the scheme and conditions for its extension and termination.

In many cases the coordinating activities have commenced before the official ratification of the agreement by the Ministries of External Relations of each country.

1. **Central Joint Committee**

The agreements lay down that their implementation is to be the responsibility of an integrated Joint Committee made up of two or three representatives from each country. In general these representatives are the Director of Veterinary Services, the Director of Animal Health and the Director of Foot and Mouth Disease Control or of other disease control schemes.

The Committee is governed by internal regulations which determine the frequency of meetings, responsibilities of the president and secretary, and the method of working.

Each Committee meets alternately in each country, preferably in frontier towns. In general, notification is made through the CPFA/PAHO.

The general agenda for meetings includes the following: information about action already taken; information from technical committees or working groups; recommendations for the future programme; any other business. Each country may request the inclusion of subjects relevant to the disease control programmes.

At each meeting minutes are prepared and are signed by the members and the representative of the CPFA/PAHO.
FIG. 1
Border areas having animal health agreements

XXX Area covered by agreements

***** Wild areas

---------- Inactive agreement
2. Regional Committees and Working Groups

The executive phase of the activities under the agreement is carried out by regional committees or working groups, designated by the Central Joint Committee, which take charge of the drawing up of a programme, implementing actions and reporting the activities accomplished.

The committees or groups are integrated with local veterinarians in border zones and the regional supervisors of the corresponding areas. They may also involve officials at the central level and consultants from the CPFA/PAHO, according to the subject under study.

These committees or groups are also governed by internal regulations and they meet more often, in accordance with the planned activities. In various agreements there is provision for a previous meeting of these committees or groups in order to prepare documents for consideration at the meeting of the Joint Committee.

3. Planning activities and action plans

Working from directions provided by the Joint Committee, the regional committees or working groups prepare plans for activities to be carried out during the year. In the most advanced agreements there is provision for action plans which define the procedures for action and their implementation against foot and mouth disease and other diseases. Such a plan is evaluated periodically, and forms the basis of a report to the Joint Committee.

In some cases specific border projects for control and eradication are specified, such as: vaccination of all livestock along the frontiers between Colombia and Brazil, and between Colombia and Ecuador; use of an oil-based vaccine along the frontier between Brazil and Paraguay; action concerning all outbreaks in the Brazil-Uruguay area. At a more advanced stage there is an action plan for eradicating foot and mouth disease from the border area between Argentina-Brazil-Uruguay-Paraguay, and in the Colombia-Ecuador border area.

4. Tours of the frontier

In order to verify the accomplishment of activities under the agreement, there is an annual tour along certain frontiers by a group of technical personnel from regional and central levels, accompanied by a CPFA/PAHO consultant, to visit all the frontier stations. The purpose is to evaluate the activities agreed on, and to inform and motivate the officials on the importance of the agreement. The information is analysed in conjunction with the technical and local committees.

Most experience has been gained from the Brazil-Paraguay agreement. The principal advantage is the ability to observe operations on the spot, and the opportunity to exchange experiences with the local personnel.

5. Training programmes

Since the initiation of these projects it has become obvious that it is necessary to train local officials in basic disciplines such as epidemiology, communication and education, and also the strategic, tactical and operative aspects of the control of foot and mouth disease and other diseases, and implementation of these activities in the field.
The subjects are selected during the meetings and plans are made to accomplish the programmes during the year.

If convenient, there may be a seminar before the meeting on subjects of interest to the region.

By means of this mechanism it is possible to unify the criteria concerning implementation in the field and methods of control.

6. Information systems and epidemiological surveillance

One of the primary activities of the agreements is the organization of an information and epidemiological surveillance system for alerting at the frontier level, by establishing local and international information units, the channels of communication, and the frequency of providing information. In general such a system is an extension of the national system operating in a given country, while the local units have the ability to exchange information directly in situations which require direct action.

The system includes the appreciation and a diagnosis of the situation, with major emphasis on a census of farms and the animal population within the frontier area, the use of map coordinates in accordance with the methodology of the Continental Information System for Vesicular Diseases, which is used in Latin-American countries under the coordination of the CPFA (2).

In each frontier region a plan for implementing the system is drawn up, defining the information units, channels of communication and the recipients and users of the information.

The functioning of the system is evaluated each year by the committees or working groups, and their conclusions are examined during the meetings of the joint committees.

7. Meetings of epidemiologists in frontier areas

In order to study more deeply the disease situation in a frontier area, some agreements stipulate an annual meeting of epidemiologists from the two countries who, in conjunction with the local veterinarians, analyse the information and make recommendations to the working groups and the joint committees.

8. Assistance from the PAHO

Since the creation of the CPFA in 1952, the PAHO has encouraged national authorities to establish sanitary frontier agreements as a fundamental activity of technical cooperation between countries, essential for the success of control and eradication schemes for foot and mouth disease and other diseases of animals and man. The assistance consists of the coordination required for the signing of agreements and technical support for the definition and implementation of activities aimed at the prevention and control of diseases.

At the request of the countries, the PAHO is an integral part of the agreements between Colombia and Ecuador, Ecuador and Peru, and between Bolivia and Peru. Each of these agreements explicitly solicits the collaboration of the CPFA/PAHO.

By means of the CPFA and the infrastructure of the PAHO, a channel is provided for communications concerning the holding of meetings, and CPFA/PAHO
Consultants participate in meetings of the joint committees and their accessory committees or working groups, giving assistance in technical and organizational aspects. A large part of the training activities is coordinated by PAHO/CPFA/CEPANZO.

SUMMARY OF THE PRINCIPAL ACHIEVEMENTS OF THE AGREEMENTS

Each country of South America has entered into sanitary agreements, with the main emphasis on foot and mouth disease control, the development and intensity of activities being related directly to the national programmes for the control and eradication of this disease.

The method of working by means of joint committees and technical subcommittees or working groups has been perfected as a result of the experience gained in the development of the early agreements.

The most important achievement is the establishment of a system for the rapid exchange of epidemiological information in all the frontier areas. Within certain agreements this is functioning at a high degree of perfection, permitting the implementation of active steps to control foot and mouth disease and other diseases. It has also contributed to a better knowledge of the animal population and health problems in frontier areas.

There follow some examples to illustrate these advances.

— As a result of the Brazil-Uruguay agreement there has been a considerable decrease in foot and mouth disease in the frontier area, and when an outbreak does occur there is immediate notification and joint action towards its prompt elimination.

— The notification system in frontier areas made it possible to rapidly detect new subtypes or strains of the FMD virus, and to take steps to prevent it from spreading. Examples of strains detected in this way in recent years are: type A Venceslau-Br/76, type A Brazil/79 and type O 'Rio Grande do Sul'-Br/80 in Brazil; type A Argentina/81 and type C Argentina/84 in Argentina; type A Sabana-Col/85 in Colombia.

— When foot and mouth disease broke out at the Brazil-Guyana border, the authorities in Guyana (a country free from foot and mouth disease) were notified rapidly and there was active collaboration in the elimination of the disease.

— Under the Brazil-Colombia agreement a sanitary cordon is maintained in the frontier area of the Amazon region, and this has averted the risk of dissemination of type C virus and subtypes of A and O which do not exist in Colombia and Venezuela.

— Agreements between Colombia and countries of the disease-free area have led to the establishment of an important sanitary barrier in the frontier area between Colombia and Panama, diminishing the risk of foot and mouth disease being introduced into these countries.

— More recently, prompt notification of the presence of foot and mouth disease at the border between Argentina and Chile alerted the Chilean authorities to the risk of the disease being introduced. Despite the presence of this outbreak, the authorities were able to prevent its spread into the country.
In the frontier zone between Ecuador and Colombia there has been a detailed study of the livestock, and the ecological systems favouring foot and mouth disease have been defined. This information is essential for defining objectives and methods for control and eradication. Similar studies have been conducted in other frontier zones.

Considerable importance is attached to permanent contact between officials of the Veterinary Services who work in frontier areas, which makes it possible to take joint action in cases of disease emergencies, and to develop regular animal health programmes in each country.

In this respect, it is important for friendly relationships to be formed between the officials of different countries, particularly between those at the frontier where the action takes place, in order to overcome the bureaucratic barriers which would otherwise intervene.

The development of plans having defined objectives and methods for control and eradication was slow, but it has benefited from experience gained in the implementation of joint activities, which will be most useful when carrying out strategies and methods in future years. Such experience is valid for foot and mouth disease and also other diseases such as rabies, brucellosis, tuberculosis and parasitoses.

In fact, the first steps have been taken towards the establishment of regional programmes for foot and mouth disease control, such as that in the River Plate Basin and involving the frontiers of Argentina, Brazil and Uruguay. It has been decided that any advance in the eradication of foot and mouth disease from these countries depends on coordinated action across national boundaries.

Valuable experience has been gained in controlling the sanitary aspects of trade in animals and in animal products in border areas. When there are common regulations for a region, and when the technical criteria have been unified, the health certificates and the quarantine procedures are the same.

By means of the agreements it is possible to offer training programmes for officials who operate in border areas, which contributes to adoption of unified technical criteria, and provides the motivation required for taking the necessary action.

**FINAL CONSIDERATIONS**

- As part of the concerted action of South American countries towards control and eradication of foot and mouth disease, a defined methodology has been developed for the organization and implementation of frontier agreements concerning animal health. This methodology may be extended to other health problems such as the prevention of diseases in man and plants.

- COSALFA and the bilateral animal health agreements constitute a mechanism for coordination, promotion and evaluation of programmes for the control and eradication of foot and mouth disease and other diseases which are developed in South American countries.

- In most of the frontier areas there is motivation among the officials responsible for animal health programmes to carry out coordinated action in order to control and eradicate foot and mouth disease and other diseases.
• By means of frontier agreements it has been possible to make some outstanding advances in the control of foot and mouth disease, such as the identification of new subtypes of the virus in frontier areas of Brazil, Argentina, Colombia, Venezuela and Uruguay; the eradication of outbreaks detected in Guyana; the creation of a disease-free area at the border between Colombia and Panama; the detection of type C virus infection at the border between Bolivia and Peru.

• The adoption of a suitable methodology in most of the agreements has led to the active interchange of epidemiological information, coordinated action when an outbreak occurs, and regulation of the health aspects of trade in animals and in animal products.

• As a result of policies and strategies adopted for the control and eradication of foot and mouth disease during the decade 1981-1990, it will be necessary to devise a more detailed plan of action to achieve methods of control and eradication for frontier areas having common characteristics of livestock production and similar occurrence of foot and mouth disease. The example of such action is the eradication plan for the frontier area between Argentina, Brazil and Uruguay.

• In order to establish a detailed plan of action it will be necessary to complete a regional inventory of livestock and the prevalence of foot and mouth disease in frontier areas, to establish the type of ecological systems existing in these areas and the corresponding control strategies.

• The operation of the agreements is an activity of great value to programmes for preventing exotic diseases. Its function in this respect was demonstrated when African swine fever occurred in Brazil. Officials of frontier areas constituted an active system of vigilance and the disease did not spread to any adjoining country.

• Certain frontier areas have a strategic importance for preventing the spread of the disease to disease-free areas, as in the border between Colombia and Panama, between Argentina, Peru and Chile, and between Brazil and Guyana.

In a special way, certain areas have a strategic importance for preventing the spread of type C aphthovirus to countries free from it. This is the case at the borders of Brazil with Colombia and Venezuela, of Bolivia with Peru, and of Peru with Ecuador.

• Certain countries have developed coordinated activities in frontier areas on a technical basis without a legal agreement between their respective governments. This demonstrates the will which exists to take coordinated action to solve common problems.

• For the greater effectiveness of the programmes it would be necessary to achieve greater integration with livestock owners invited to participate in meetings and willing to execute the necessary programmes.

• The existing methodology and infrastructure may be utilized for the organization and coordination of frontier activities in other problems of animal health, and also public health and plant health. A practical example is the plan for the elimina-
tion of urban rabies from Latin America by the end of the 1980's, which envisages the inclusion of specific action by means of the existing agreements, or the establishment of agreements based on the developed methodology.

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REFERENCES

(See p. 755)