SYSTEM FOR THE PREVENTION OF EXOTIC DISEASES IN THE REPUBLIC OF CUBA

V. Bustamante Jova[1]; *A. Fernández Luciano*[2]; *J.I. Mackey Freyre*[3]; *R. Llánes Morffi*[4];

INTRODUCTION

The Republic of Cuba is a country free from foot-and-mouth disease, rinderpest, horse sickness, fowl plague, African swine fever, contagious bovine peripneumonia and other contagious animal diseases. At the same time, the veterinary service attempts to control or eradicate other diseases like brucellosis, anaplasmosis, pyroplasmosis, rabies, etc.

The reality of such an animal health situation indicates the necessity of maintaining and improving it by means of a system that permits suitable protection at the border level. While this is quite relevant to the exotic diseases (Table 1), the system should also be broad enough to include any other animal diseases, including zoonoses.

The prevention of animal diseases is a dynamic, on-going effort whose principles are based on objective criteria of work in accordance with the country's needs.

The promulgation of legal regulations that provide for the adaption and execution of measures at the borders is not the only preventive goal of animal health. The best protection system does not render a country absolutely invulnerable; at best, it only renders the country less vulnerable. The system must therefore include serious dispositions to permit the detection of the possible routes of disease introduction, as well as the diagnosis required to estimate its possible course and consequences.

The element of risk is obviously inherent in international operations. Animal health intervenes in the movement of animals and products and by definition considers as possible disease carriers all passengers, goods, aircraft, ships, border areas, and thus treats them as such. At the proper time the trade and distribution entities and those which provide air and sea transportation and loading and unloading, acquire the responsability of coordinating their operations with the animal health services. And Animal Health, in turn, is responsible for guiding the measures and making them suitable so that they do not conflict with the goals of those operations.

Finally, maintaining an optimal animal health status is certainly not only a national duty; it is also an international responsibility. This report summarizes, in brief form, the fundamental criteria and experiences regarding the prophylaxis of foot-and-mouth disease in Cuba. It must be remembered that although Cuba has never been affected by that animal disease, the nation is exposed to risks that could introduce the disease within its borders.

I. SCOPE OF WORK

In accordance with the legal regulations, the Border Veterinary Service's scope of work comprises the importation and exportation of animals and of products, plus ports, airports and customhouses.

Sanitary risks are inherent to international operations. In addition to the animals and products, the ocean and air transportation, the port and airport operations that may offer risks to animal health, and international mail, are also generally subject to preventive regulations.

The national territory of Cuba comprises an archipelago that includes the main island and

[1]Current address: Médico Veterinario Principal. Empresa Nacional de Genética Porcina, Calzada de Bejucal y Calle 100, Ciudad de La Habana, Cuba.

[2]Current address: Dirección Principal de la Avicultura, Calle 15 No. 851 esquina a 4, Vedado, Habana 4, Cuba.

[3]Head of the: Departamento de los Servicios Veterinarios de Fronteras, Instituto de Medicina Veterinaria, Calle 15 Nº 1011, Vedado, Habana 4, Cuba.

[4]Specialist in the: Servicios Veterinarios de Fronteras, Dirección Provincial Ciudad de la Habana. Instituto de Medicina Veterinaria.

more than 1600 keys (smaller than islets), islets and isles distributed in four groups, of which two are located on the northern coast and two on the southern coast.

The Republic of Cuba has a total surface area of approximately 114,524 km^2. It is 1255 km long from the Cape of San Antonio to Point Quemados, and varies from 191 km at the widest point to 31 km at the narrowest. The domestic animals and wildlife include some species of animals susceptible to foot-and-mouth disease and to other diseases not found in Cuba.

1. OBJECTIVES OF SURVEILLANCE

Surveillance is maintained at the following sites: 34 international seaports, 5 international airports, 1 central post office, 1 quarantine clinic, 10 protected areas and 6 keys.

2. RESOURCES

Total personnel and equipment assigned to the surveillance operation are 3 veterinarians at the national level, 43 base veterinarians, 15 complementary veterinarians, 38 mid-level technicians, 8 office personnel, 5 inspection motor launches, 4 automobiles, 12 jeeps and 4 motorcycles.

3. IMPORTS SUBJECT TO INSPECTION

The following imports are subject to inspection by the animal health authorities:

– domestic animals for breeding, slaughter, research, fattening out, sports and ornamental purposes;

– wild animals for hunting reserves, show, circuses, zoos and laboratory animal colonies;

– fresh, refrigerated, chilled, frozen or canned

TABLE 1. *Listing of the main exotic diseases in the Republic of Cuba*

1. Enzootic abortion of sheep
2. Acariasis of bees
3. Contagious agalactiae
4. Equine viral arteritis
5. Brucellosis (*Brucella melitensis*)
6. Anthrax
7. Lumpy skin disease
8. Durina (contagious horse disease)
9. Japanese encephalitis
10. Equine encephalomyelitis
11. "Borna" disease
12. "Jembrana" disease
13. Wesslsbron disease
14. Teschen disease
15. Mucosal disease of cattle
16. Nairobi sheep disease
17. Bovine dermopathy disease
18. Specific vesicular stomatitis
19. Genital vesicular exanthema
20. Swine vesicular disease
21. Foot-and-mouth disease
22. Malignant catarrhal fever
23. Rift valley fever
24. East coast fever
25. Ephemeral fever
26. African swine fever
27. Q fever
28. Transmissible gastroenteritis of swine
29. Borer worm disease
30. Heartwater
31. Viral hepatitis in ducks
32. Herpes virus abortion of horses
33. Ibaraki disease
34. Bluetongue
35. Epizootic linfangitis
36. Maedi (contagious pneumonia of sheep)
37. Melioidosis
38. Contagious equine metritis
39. Glanders
40. Nagana (*Trypanosoma brucei*)
41. "Nosemosis" of bees
42. Contagious bovine pleuroneumonia
43. Classical European birds' pest
44. Rinderpest
45. Equine plague
46. Plague of small ruminants
47. Contagious pleuropneumonia of goat
48. Scrapie
49. Surra (from East India)
50. Trichinosis
51. Sheeppox

meats, in sausage form or in any form, from cattle, pigs, sheep, goats or horses;

– milk and by-products thereof (fresh, powdered, condensed milks, cheese, butter);

– other products and by-products of animal origin (pig fat, blood, fertile eggs, semen, hooves, horns, hides, skins, bristles, feathers, visceras, ornamental articles);

– biological products (sera, hormones, enzymes, yeasts and leavening, etc.);

– pharmaceutical products for veterinary use;

– raw materials for preparation of animal feeds.

4. GENERAL FUNCTIONS OF THE BVS

The Border Veterinary Services (BVS) are responsible for the following activities:

– inspection of ships and aircraft, ports and airports;

– inspection of passengers;

– inspection of imported animals and products;

– quarantine of imported and exported animals;

– control and certification of export animals and products;

– control of the provisions of ships and aircraft;

– control of the destination of imported animals and products;

– surveillance of morbidity and mortality in the border territories;

– surveillance of the protection measures in ports and airports;

– analysis and reporting of epizootic risks;

– inspection of postal parcels;

– maintaining of records and compilation of statistical data and information;

– advisory assistance to national agencies.

In addition to the protection services developed by the base personnel, the central level of activity is divided into the ports, airports and customhouse sections, imports, exports and information, and is in charge of:

– compilation, organization, classification and analysis of the world animal health information;

– advisory assistance to state agencies and organizations;

– preparation of importation requirements and meeting the import requirements of countries to which Cuban products are bound;

– updating of quarantine mechanisms;

– organization and coordination of the central-level activities with the other state veterinary service fronts and with other state agencies and organizations;

– issue the procedural guidelines by means of the appropriate instructions;

– supervision of the surveillance measures and the protection system;

– preparation and coordination of the exotic diseases training programs of the BVS staff and of the official and non-official veterinarians;

– issuance of animal health and epidemiological bulletins containing national and international data;

– organization of conferences, technical meetings, and activities related to promoting sanitary protection programs.

II. COMPONENTS OF THE ANIMAL HEALTH AND VETERINARY PROTECTION SERVICE

For prevention purposes, the animal health regulations are based on the most up-to-date technical and scientific knowledge of the epidemiological behavior of the diseases in order to confront the risks. The regulations are an integral part of the tactic to be followed to achieve all the strategic health objectives.

The prevention of animal health diseases considers two complex sets of measures. The first consists of providing the standards and mechanisms to prevent an exotic disease from penetrating the borders of a given territory, and to estimate and forecast, for purposes of elimination, the possible routes of introduction. The second consists of providing the standards and mechanisms needed to prevent the spread of the disease, if it is introduced, or to control it in order to eliminate it. Two protective barriers have been set up in Cuba for this purpose: the first is the external barrier, the second the internal barrier.

The first barrier includes world animal-health information, border inspection and control of imports. The second barrier comprises national

animal-health information, surveillance of the animal population, and sanitary campaigns.

The prevention of animal health diseases is a dynamic complex whose principles are based on objective action criteria in accordance with the state's health strategy. In general, the prevention regulations are applied on a sufficiently broad scale so that they encompass all the possibilities of disease transmission, and also the elements to be borne in mind in sanitary protection: legislative base, a defined sanitary strategy, sanitary information, qualified personnel, sanitary characterization of the areas, systematic training, diagnosis facilities, quarantine facilities, financial and material resources, communications, records and statistics system, emergency programs, publication and dissemination of sanitary promotional information, participating governmental agencies, and risk forecasting.

The efficiency of the protection system can be assessed from a more complex, fuller description of the various elements involved in or composing the system as it functions in Cuba:

1. LEGISLATIVE BASE

– More than 22 border veterinary and sanitary regulations were issued between March 28, 1900, and November 26, 1951.

– Decree-Law No. 38, directed toward the prevention of foot-and-mouth disease, rinderpest and other exotic diseases, was issued on April 29, 1952.

– The regulation for application of Decree-Law No. 38 was published on February 28, 1958.

– Resolution I-256, regarding protection measures, was issued on November 26, 1962, by the National Agrarian Reform Institute.

– Between 1963 and 1981, eight Resolutions and fifteen Instructions were issued, and four states of alert and two states of national emergency were declared.

– The border animal health protection regulations are issued by the State Council, the Council of Ministers, the Ministry of Agriculture, Ministry of Transportation, Ministry of Fishing, and the Institute of Veterinary Medicine.

– On December 23, 1980, the Directors of the Institute of Veterinary Medicine issued an instruction concerning procedures for the notification of exotic diseases and the plan of action for the eradication thereof.

A Bill concerning the Veterinary Service is now under consideration for approval by the National Peoples Assembly (Asamblea Nacional del Poder Popular).

2. SANITARY STRATEGY

Due to the constantly changing character of the world epizootiological situation, the animal health protection mechanisms in Cuba are adapted to the current animal health situation, and aim to conduct the commercial and other operations developed by the various border areas with minimal risk and, in consonance with State interests, confront the risk inherent in these movements. The protection mechanisms also seek to prevent, as far as possible, that the animal health regulatory measures applicable on the border restrict or hamper said movements.

EPIZOOTIOLOGIC SURVEILLANCE

a) **Control of international movements**

The Institute of Veterinary Medicine maintains BVS personnel at all the points of international movements. Such personnel are responsible for controlling the risks arising from transportation, cargo, passengers, mail and other international elements, by applying the measures required in each particular case.

The regulations contemplate specific measures for disinfection, disinfestation, disposal of international garbage and wastes, sealing up of ships' coolers, and other measures applicable at the time of arrival of the transport and for the duration of its presence in Cuban territory.

b) **Control of importation**

Importation of animals: the imports of animals are subject to requirements established in the legal regulations, including measures extending from the country of origin through to arrival at an authorized port, during the established quarantine period in installations approved by the veterinary service, and during which the required diagnosis examinations are conducted.

The importation of susceptible animals from

countries affected with foot-and-mouth disease is prohibited. Any animal whose importation is allowed shall be accompanied by an official veterinary certificate.

Importation of products: from countries affected by foot-and-mouth disease, importation is restricted to canned and sterilized meat products, powdered milk, condensed and evaporated milks, butter, cured cheeses, melted fats, tanned hides and skins, blood meals and bone meals processed at high temperatures. All products whose importation is permitted shall be accompanied by an official veterinary affidavit.

In addition to all the requirements previously mentioned, such imports shall be subject to other additional external barrier measures, according to the type of importation (animals or products) (Table 2).

TABLE 2. *Outline of import controls on animal and animal products*

Import item	In country of origin	In Cuba
Animals	1) Analysis of animal health situation in country of origin 2) Organization, structure & coverage of the veterinary service 3) Diagnosis possibilities 4) Quarantine 5) Sanitary selection 6) Sanitary precautions during transportation	1) Inspection at arrival 2) Quarantine 3) Replication of diagnostic tests 4) Decision of release from quarantine
Products	1) Analysis of the sanitary situation in country of origin 2) Organization, structure & coverage of the veterinary service 3) Diagnosis possibilities 4) Inspection of slaughterhouses, packing plants & meat plants	1) Veterinary & sanitary inspection 2) Representative sampling 3) Decision of release for consumption

c) **Regulatory measures**

Compliance with all border sanitary regulations is mandatory, and violations are dealt with accordingly. Some violations are subject to fines, independently of the applicable penal liabilities.

The border veterinary units exchange information of the conditions of the means of transport, the treatments carried out, the sanitary occurrences, and the recommendations they deem pertinent. Thus they are able to maintain a preventive record of the movement of transport and goods at all locations and at all times.

A measure of particular importance is the control of the use of food waste and garbage for feeding to animals, especially to pigs. The use of food wastes produced on board aircraft or ships is absolutely prohibited. Garbage generated domestically may be fed to animals only after subjected to heat treatment and when duly controlled and authorized by the veterinary service.

d) **National Commission for the Prevention of Exotic Diseases**

The National Commission for the Prevention of Exotic Diseases was created by governmental decision. This fact is evidence of the support and

institutional concern for the activities developed by the animal health protection services. The Commission is composed of representatives from the majority of the State central agencies. The peoples' organizations are also represented on the Commission. Therefore not only is surveillance enforced, but a suitable capability of mobilization from the preventive standpoint is likewise ensured.

In this regard the Veterinary Services establish working relationships and coordination with most of the national organisms and institutions, especially with the Ministry of Public Health, Ministry of the Interior, Ministry of Foreign Relations, Foreign Trade, National Animal Health Center, Academy of Sciences, and Civil Defense.

3. SANITARY STRUCTURE

Although the sanitary protection service is essentially quite comprehensive, we believe it still lacks certain aspects that will permit the achieving of other goals. Nevertheless, comparative analysis in time indicates that it maintains positive development in accordance with the missions that it must fulfill.

The goal of the protection service is to raise its technical level continually, in terms of quality and quantity, proportionately to the potential risks arising from increased international movements and the national development of livestock and agricultural activities.

In this regard, the quarantine infrastructure tends constantly to maintain a balance with the country's epizootiological situation and circumstances. This is especially true after the experience acquired as a result of the outbreaks of African swine fever in 1971.

4. QUALIFIED PERSONNEL. SYSTEMATIC TRAINING

The sanitary protection personnel is selected and trained according to the technical missions to which they will be assigned. Also taken into consideration are the particular characteristics of the environment where they will develop their functions and in which there is a special psychology: the border psychology.

The veterinary doctors assigned to border protection services receive training that includes quarantine laws, special epizootiology, use of topographical and geographical maps, border procedures and techniques, and emergency programs. This training is given in four courses offered at different stages. The midlevel technical personnel is trained at the National School of the Veterinary Medicine Institute, where they undertake subjects for application at their respective levels: general and special epizootiology, quarantine legislation, geography of Cuba, economic geography, food inspection, disinfection and control and elimination of vectors. Additionally, the BVS personnel, inspectors and veterinarians attend the seminars programmed on International Sanitary Control, Plant Health, Customs Techniques and Legislation, and other port and airport specialties. They are likewise obligated to improve their cultural level and to learn a foreign language. They also sit on councils and participate in technical meetings.

5. SANITARY CHARACTERIZATION OF THE BORDER AREAS

The sanitary characterizations of the border areas comprising the ports, airports, customhouses, islands and keys, serve to provide a basic and functional idea of those sanitary objectives for efficient application therein of the animal health regulatory measures. The characterization is therefore defined as the projection of the anatomy, physiology and pathology of the border sanitary areas.

The characterization provides a knowledge of the particular problems of the place, sanitary gaps and long distance ties, actual personnel and resource needs, and the form of applying measures in emergency cases.

The components of the characterization are: the sanitary and operational history, geographical location, geographical features and accidents, ocean currents, operational characteristics, roads, highways, railroads, communications, surveillance area.

The characterization is updated annually. It considers the relations between the Institute of Veterinary Medicine and the national agencies and institutions regarding the coordination required to achieve prevention efficiency.

6. DIAGNOSIS AND QUARANTINE POSSIBILITIES

The possible diagnosis of foot-and-mouth disease will be conducted by the specialists at the National Animal Health Center (CENSA). Other laboratories and centers would also share in this activity, such as the Central Diagnosis Laboratory, the Central Bromatology Laboratory, and the State Laboratory of Control of Veterinary Products.

Plans are underway for the construction of a high-security laboratory for diagnosis of foot-and-mouth disease and other exotic diseases. Also under consideration is a project to erect a modern quarantine station for large animals.

7. MATERIAL AND FINANCIAL RESOURCES

Material resources have been discussed elsewhere in this description.

Funds allocated for the protection system, including all the activities conducted in the border areas as well as the training of personnel, supervision of the sanitary measures, equipment, and dissemination of information, among other aspects, amounts to approximately three-hundred thousand pesos annually ($300.000,00). This allocation will necessarily be increased as the protection service's scope of work expands.

8. COMMUNICATIONS

Telephone and telex communications exist between all the provinces and the central office, and the various areas use these means of communication among themselves. All the ports and airports are easily accessible by road or highway.

9. RECORDS AND STATISTICS SYSTEM

All the BVS' activities are recorded according to appropriate official statistics models. Such data then can be processed and submitted for the required analysis and evaluation so that at a given moment an appropriate sanitary action or other action may be implemented as required (Table 3).

In addition to the data collected on the official forms, each area records and controls any type of activity or incidents that might provide useful data for sanitary prevention.

10. SANITARY PUBLICATIONS AND DISSEMINATION

The publication and dissemination of preventive sanitary measures is part of a systematic plan to make the public aware of the sanitary activities and to raise the overall level of sanitary awareness and participation. To this end various procedures and means are employed in accordance with the area and the cultural level of the public for which the information is intended: conferences, talks, exhibition of documents, slides, folders of exotic diseases, reports in the press, on the radio and on television, expositions.

TABLE 3. *Official forms used by the Border Veterinary Services*

SVF– 1	Dispatch of ships	SVF– 10	Dispatch of aircraft
SVF– 2	Record of occurrence	SVF– 11	List of Imported & Exported Animals
SVF– 3	Port Veterinary Service Certificate	SVF– 12	Control of Regulated Cargo
SVF– 4–E	Notice of Penalty (Spanish)	SVF– 13	Report (release, retain, confiscate, destroy)
SVF– 4–I	Notice of Penalty (English)	SVF– 14	Report of Inspection of International Cargo Warehouse
SVF– 5	Notice of Violation	SVF– 15	Primary Record of Quarantine
SVF– 6	Warning (English & Spanish)	SVF– 16	Daily Record of Quarantine
SVF– 7	Receipt of Payment	SVF– 17	Daily Work Record
SVF– 8	Invoice		
SVF– 9	Authorization to Remove Damaged Goods, Spills and Sweepings		

SVF = Servicios Veterinarios de Frontera.

11. SUPPORT AT GOVERNMENTAL LEVELS

An important premise for the development of the disease prevention system is the support and concern on the part of the Government, regarding the application of and compliance with the veterinary and sanitary protection measures. The Government therefore actively participates in the execution and development of the National Exotic Disease Prevention Program, whereby all citizens are to comply strictly with all the regulations. In addition, the Institute of Veterinary Medicine has been designated as the competent authority for the issuance of sanitary resolutions and instructions whose compliance is mandatory throughout the national territory.

12. EMERGENCY PROGRAMS

The country's sanitary protection mechanims are designed to prevent the introduction of exotic diseases, but do not provide an absolute guarantee. Thus it is necessary to set up emergency programs to cover any contingency. The emergency measures have been precisely outlined, as well as the resources required to eradicate any exotic disease from the national territory. Technical personnel systematically undergo training and an efficient organization has been set up to provide the swift, efficient action which, in the event of an outbreak, is the basic requirement for successful disease control and eradication. These programs preclude the need for improvised emergency action; their success depends on the following two aspects:

a) **Efficient protection barrier**

The efficient protection barrier encompasses the strict control and compliance with the measures concerning controllable risks, the broadest and best knowledge of the uncontrollable risks, a correct legislation and, furthermore, an adequate information service.

b) **Required measures**

Maintenance of measures that enable action to be implemented with minimum difficulty, maximum speed, and optimal results.

13. RISK FORECASTING

For some time, and as a result of the Nation's development, there have been international movements that increase the risk of disease introduction and spreading. Despite the epizootic surveillance and protection measures, the danger is real. Although they cannot be measured quantitatively because Cuba is a disease-free country, the risk must be analyzed, evaluated and forecasted in order to be minimized.

To this effect, and bearing in mind the worldwide distribution of diseases and the real possibility that diseases can be brought into Cuba through contact with maritime trade, the risks and dangers to the border areas are assessed and, depending on those aspects, the required anti-epizootic measures are actively applied.

III. CONCLUSIONS

The current technical and scientific bases of the disease prevention work in Cuba have been built up from the accumulated historical experience and from the research work accomplished throughout the world by persons dedicated to the noble task of discovering the mechanisms through which diseases are transmitted. Moreover, the recommendations of the world animal health organizations and agencies are consulted for the application of preventive measures in Cuba.

The foregoing is a succinct description of the principles followed for the successful prevention of foot-and-mouth disease and other exotic diseases in the Republic of Cuba, based on the application of measures to prevent their penetration and to eradicate them.

It has been necessary to strengthen both the border protection mechanisms and the internal protection measures, which has meant expending extra efforts and resources to attain the aforesaid objectives.

On two occasions we have had to confront outbreaks of African swine fever that resulted in substantial losses to the national hog-raising sector. In order to accomplish the goal of eradication, which on both occasions was successful, it was necessary to mobilize the veterinary service, extra financial resources, the general public and the various peoples' organizations in the affected areas.

With regard to prevention, and especially when grave animal diseases are involved, the role of the community --represented by the peoples' organizations-- is of utmost importance. In Cuba, the mobilization and response capability of the Committees for the Defense of the Revolution, the National Association of Small Farmers, the Central Committee of Workers of Cuba, and the Federation of Cuban Women constitute a valuable and irreplaceable factor in the surveillance locating and campaigns against the diseases.

In summary, as a result of all these years of work, the acquired experience leads to the following conclusions:

– The preventive effort on the nation's borders, which has become a complex system of quarantine, is a constant effort to render possible and achieve a favorable and dynamic animal health situation influenced by the environment and human work.

– The epizootiological surveillance --anchored on a broad structure and organization with definite animal health criteria and based on the results of scientific and technical endeavor-- forms the main pillar of the complex that essentially considers the sanitary aspects as directly related to the country's social and economic well-being and to international animal health requirements.

EL USO DE LA VACUNA ANTIAFTOSA CON ADYUVANTE OLEOSO EN AREAS ENDEMICAS[1]

P. Augé de Mello[2]

RESUMEN

El uso de la vacuna antiaftosa con adyuvante oleoso induce una protección más adecuada al rebaño vacunado y mayor duración de inmunidad. El menor número de vacunaciones representa un gran beneficio económico debido a la reducción substancial del costo operacional de los programas.

En la novena reunión de la Comisión Sudamericana para la Lucha Contra la Fiebre Aftosa (COSALFA) fue aprobado el documento "Política y Estrategias del Combate de la Fiebre Aftosa en Sudamérica para la Década 1981-1990" que establece las metas para el control y erradicación de la fiebre aftosa en el continente, prevé la reorganización de las estrategias de combate con base en los estudios de la regionalización epidemiológica de la enfermedad, y la necesidad de incorporar a los programas vacunas de mayor poder inmunogénico.

El Banco Interamericano de Desarrollo (BID) aprobó un proyecto que hace parte del Programa de Adiestramiento en Salud Animal en América Latina (PROASA), sobre vacuna con adyuvante oleoso contra la fiebre aftosa elaborado por el Centro Panamericano de Fiebre Aftosa (CPFA) con el propósito de divulgar los resultados obtenidos con este tipo de vacuna y establecer los criterios estratégicos, tácticos y operativos para su uso en los países de América del Sur.

En junio de 1982, se realizó el primer seminario del PROASA y se concluyó que los órganos oficiales deben orientar el uso de vacuna oleosa prioritariamente para las áreas de mayor importancia epidemiológica, como las endémicas primarias, y en los convenios de frontera donde el movimiento de animales o las condiciones epidemiológicas representan un alto riesgo de difusión de la enfermedad entre los países. Se incluye un resumen del diagnóstico de situación de cada país referente al uso de la vacuna con adyuvante oleoso.

ANTECEDENTES

Los trabajos experimentales de laboratorio con vacuna antiaftosa inactivada preparada con adyuvante de Freund incompleto (vacuna oleosa), realizados por el CPFA en colaboración con el Centro de Enfermedades Animales de Plum Island del Departamento de Agricultura de los Estados Unidos de América, demostraron que este tipo de formulación induce un mayor y más prolongado efecto inmunitario, tanto en bovinos como en cerdos y ovinos.

Los resultados de esta fase de estudios, concluida a fines de la década de 1970, destacaron la importancia que este tipo de vacuna podría traer a los programas oficiales de control de la fiebre aftosa en América del Sur.

Se podría esperar una más adecuada protección del rebaño susceptible y mayor duración de inmunidad, particularmente en la especie bovina, lo que tornaría factible alcanzar un nivel inmunitario de la población susceptible de áreas endémicas de difícil manejo. La disminución del número de vacunaciones anuales, donde fuese justificable esa práctica, traería un gran beneficio económico a través de la reducción substancial del costo operacional de los programas.

Ante tal perspectiva el CPFA dio prioridad a los estudios de vacuna oleosa en bovinos. Con la colaboración del Ministerio de Agricultura de Brasil, en abril de 1972 se inició un proyecto de campo de tres años de duración cuyo objetivo era evaluar el comportamiento inmunológico de la vacuna oleosa en un rebaño bovino bajo control estricto y la factibilidad de los procedimientos de vacunación en condiciones de campo.

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[1] Presentado en el III Congreso Nacional de Veterinaria, Sociedad de Med. Veterinaria del Uruguay. Nov. 1982.

[2] Centro Panamericano de Fiebre Aftosa (OPS/OMS), Caixa Postal 589, 20001 Rio de Janeiro-RJ, Brasil.