PANAFTOSA

STATUS OF FOOT-AND-MOUTH DISEASE ERADICATION PROGRAMS

SOUTH AMERICA

2004

Pan American Health Organization
Regional Office of the World Health Organization

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER
Veterinary Public Health Unit - PAHO/WHO

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STATUS OF FOOT-AND-MOUTH DISEASE ERADICATION PROGRAMS

SOUTH AMERICA - 2004

GENERAL SITUATION

The national programs for the prevention, control and eradication of foot-and-mouth disease (FMD), within the framework of the Plan for Eradication of Foot-and-Mouth Disease (PHEFA), continued in operation during the year. The countries reported that their programs reached 100% coverage of their territories and of the universe of herds and bovine population and of other susceptible species in South America1[1]. The programs carried out sanitary activities in a universe of 5.4 million herds and 332 million bovines, together with 63 million ovines, 18 million caprines, 43 million swine and 6.3 million camelids. To cover their territories and develop activities, veterinary services used a total of 2,761 local attention units with 4,294 veterinarians and 8,026 assistants.

The programs attended to a total of 1,547 notifications of suspicions of vesicular disease and detection was made of 109 FMD outbreaks and 463 Vesicular Stomatitis (VS) cases, while the rest of the attended suspicions were disregarded.

The status of FMD occurrence per country was the following:

a) No outbreak of the disease was recorded in Argentina, Bolivia, Chile, Guyana, French Guiana, Paraguay and Uruguay.
b) Sporadic outbreaks of the disease were reported in Brazil (Monte Alegre in the northern zone of the state of Pará, and Careiro da Várzea in the Amazon State), Colombia (Tibú, north of Santander) and Peru (Lurin-Lima), and
c) The endemic occurrence of the disease continued in Ecuador and Venezuela.

FMD type A virus was identified (Colombia and Venezuela), type O (Brazil, Ecuador, Peru and Venezuela) and type C in Brazil (Amazon). The last recorded occurrence of virus C was in 1995. Analyses carried out by PANAFTOSA-PAHO/WHO indicate that the detected virus A, O and C are strains endogenous of the region.

The following FMD-free countries and zones without vaccination, recognized by the OIE, maintained their status: Chile, Guyana, French Guiana, Argentina south of parallel 42 and the Chocó region of Colombia. The FMD-free countries and zones with vaccination also maintained their status: Uruguay, 15 states of Brazil[2], La Chiquitanía in Bolivia, and the Atlantic coast of Colombia.

During the year two countries requested OIE to process the recovery of their status of FMD-free with vaccination: Argentina (north of parallel 42) and Paraguay. Both countries obtained recognition from OIE in January 2005. Likewise, Brazil, Bolivia, Colombia and Peru requested recognition of new FMD-free areas. The Scientific Commission of OIE (SC-OIE) approved the recognition, *ad referendum* by the International Commission in May 2005, of the state of Acre of Brazil, territories of the central and southern regions of Colombia and the southern zone of Peru (Map 1)[3]. Requests for international recognition from the south of the state of Pará, Brazil, and the Department of Oruro, Bolivia, were left pending as OIE requested complementary information.

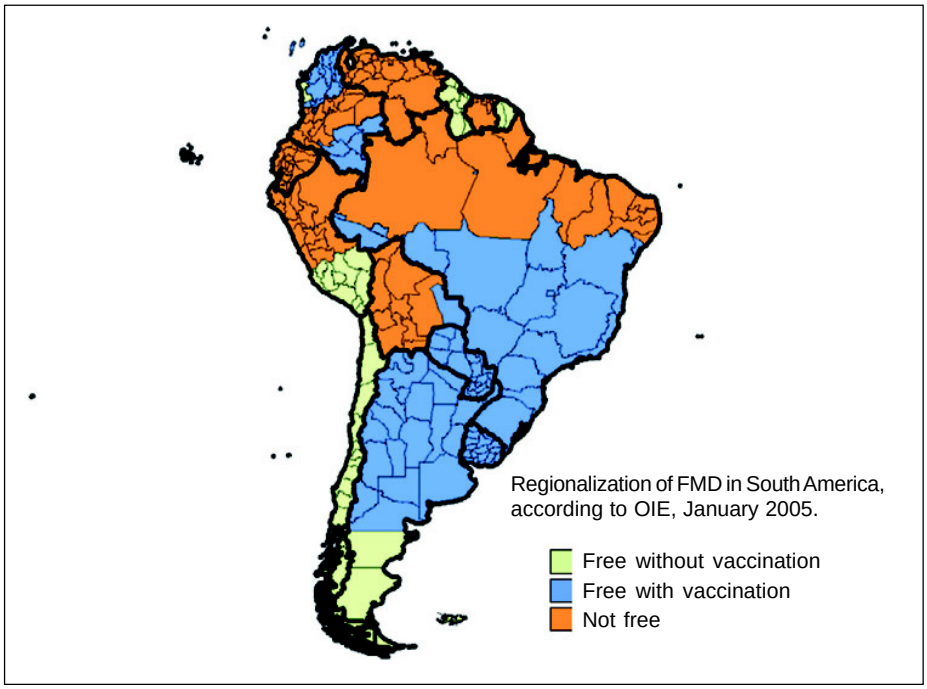
Specific figures of the sanitary situation of the region, according to the OIE (January 2005) show that free zones without vaccination reached 11.1% of the South American territory; 11.1% of the herds and 2% of the existing bovines. Free zones with vaccination

[1] Information from Guyana has not been included as a reply to the questionnaire has not been received.

[2] Rio Grande do Sul, Santa Catarina, Paraná, Mato Grosso do Sul, Mato Grosso, São Paulo, Rio de Janeiro, Minas Gerais, Goiás, Espírito Santo, Tocantins, Rondônia, Sergipe, Bahia and Federal District.

[3] Includes the territories of Brazil, Colombia and Peru which were approved in January 2005 by the SC-OIE as FMD-free zones, *ad referendum* by the International Commission of OIE in May 2005.

Map 1. FMD epidemiologic regions, according to OIE, January 2005



reached 41.9% of the territory, 48.2% of the herds and 76.6% of bovines. The total territories recognized as free represent 53% of the surface; 59.3% of the herds and 78.6% of the bovines of South America (Table 1 and Figure 1).

FMD occurrences in the region are shown in Map 2, which indicates the distribution in South America of FMD outbreaks confirmed by the largest administrative unit. A high concentration of occurrences can be observed in Ecuador and Venezuela and their distribution covers the mayority of the territory of both countries. Cases with reduced spatial area can also be noted in Colombia (Tibú), Brazil (Amazon and Pará), and Peru (Lima). Furthermore, it is also shown that a large important area of the territories not free from the disease, with the exception of those indicating occurrences, did not record FMD outbreaks during the year.

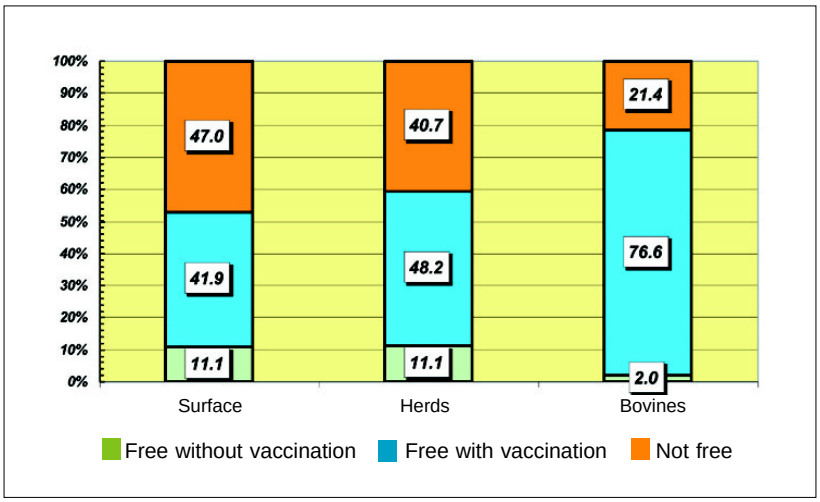
Systematic immunization campaigns against FMD have continued as an important tool in sanitary activities in a large part of the territories of the region, using various strategies. During the year, a total of 549 million doses were produced and vaccine availability in the market was up to 560 million doses

TABLE 1. Distribution of surface, herds and bovines by FMD epidemiologic zones, according to OIE (January 2005).

Zones	Surface		Herds		Bovines	
	Km^2	%	Number	%	Number	%
Free zone without vaccination*	1,939,633	11.1	605,303	11.1	6,639,587	2.0
Free zone with vaccination	7,331,557	41.9	2,621,123	48.2	254,167,221	76.6
Total free zone	9,271,189	53.0	3,226,426	59.3	260,806,808	78.6
Zone not free	8,220,110	47.0	2,213,519	40.7	70,874,935	21.4
Total	17,491,300	100	5,439,945	100	331,681,743	100

* Includes Peru.

Figure 1. Status of FMD in South America, according to OIE, January 2005 (in %)

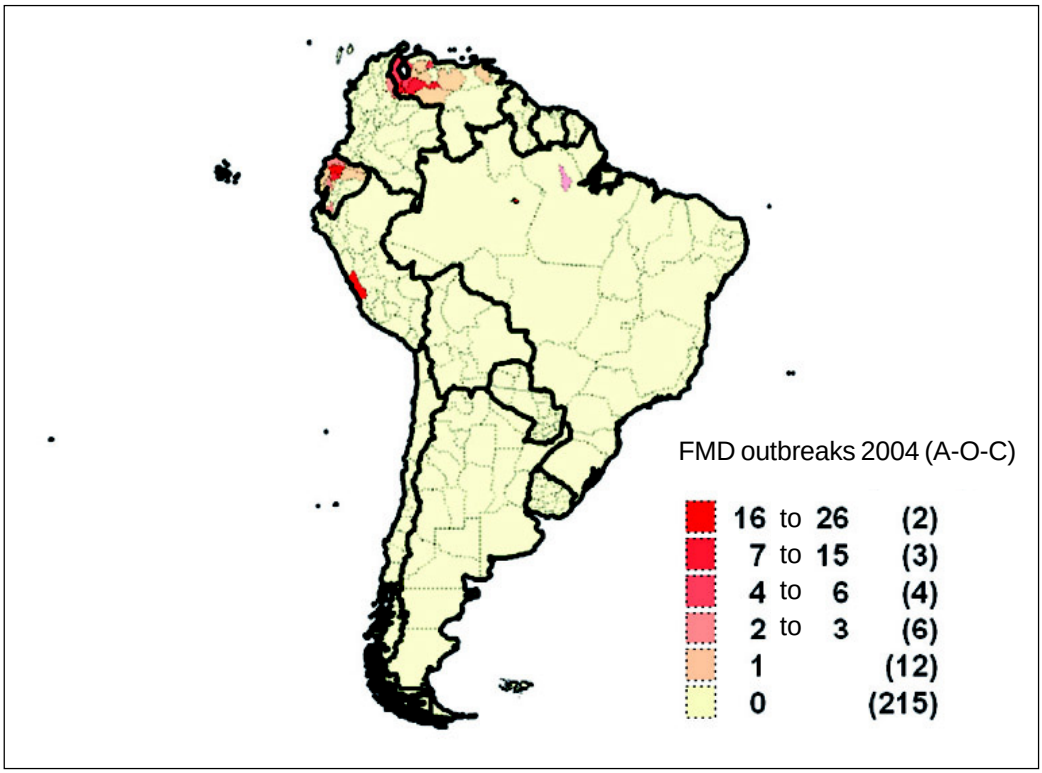


(including stored doses produced during the previous year); a total of 498 dosis of vaccines were used, and a regional average of 1.8 vaccinations per bovine was reached, considering the population within an immunization program.

During the year, Eradication Programs used financial resources of US$ 439,8 million, of which nearly 57% originate from the private sector, especially in the acquisition of vaccines.

With regard to the occurrence of Vesicular Stomatitis (VS), of the 464 reported outbreaks of the disease, 81% was reported by Colombia (378). The disease was also reported in Brazil (7), Ecuador (54), Peru (21) and Venezuela (16) (Map 3). From the total

Map 2. Distribution of FMD outbreaks (Types A, O and C) reported in South America during 2004.



VS diagnosis, 381 were VS type New Jersey and 53 type Indiana.

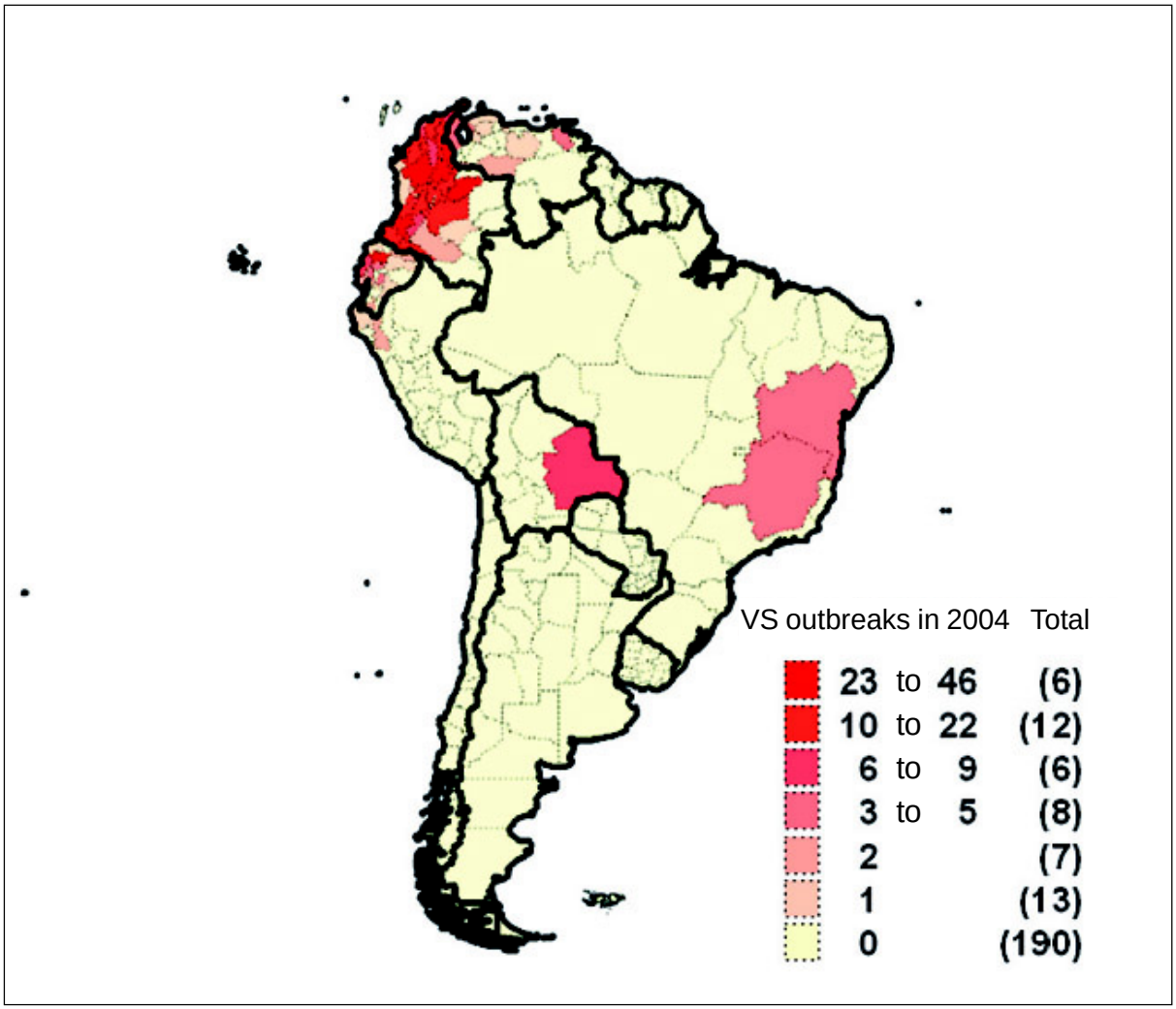
In a general vision important progress in eradication programs has been observed, which has made it possible to reach 78% of bovines in South America with the status of FMD-free and with the recognition of OIE.

In contrast, there are some countries that besides the clinical and historical presence of the disease (Ecuador and Venezuela), also report in part of their territories the existence of critical zones or areas with persistent endemism. This last scenario represents diffusion risk of the agent internally as well as to the other countries of the region.

The conditioning of endemism of these critical zones are generated by the extraordinary biotic potency of the virus (very high contagiousness and capacity of adaptation), together with extensive production systems, low socio-economic levels, a difficult environment for livestock production due to its ecologic conditions, and deficient systems of veterinary services. In some cases, these zones extend to bordering areas and can affect borders of several countries.

The understanding and internalization of these regional risk factors within the policies and strategies of the fight against the disease, will be key factors towards the success of the Hemispheric Program of Eradication.

Mapa 3. VS outbreaks reported during 2004.



SUMMARY OF THE SITUATION OF THE COUNTRIES

Following last year's procedure, PANAFTOSA - PAHO/WHO has considered it convenient to offer the delegates the complete official reports from the countries presented at this XXXII COSALFA. It is considered that they contain valuable information on criteria, components and activities developed by the countries in the fight against FMD and their diffusion is an efficient way to contribute to the knowledge, understanding and communication of the activities developed towards the eradication of the disease from the continent. This executive summary covers the main points of the status of the countries.

Argentina

SENASA, together with the private sector, continued the FMD eradication program covering 100% of its territory. The country did not record FMD occurrence during 2004. Consequently, it maintained the disease-free status without vaccination of the territory south of parallel 42. In addition, the territories north of parallel 42 recovered from OIE the official status of free zone with vaccination starting January 2005 in view of the technical antecedents presented by the country to the Scientific Commission of OIE. This status had been suspended due to an occurrence of FMD type O in Tartagal, Province of Salta, in October 2003, which was eradicated.

During the year, two intensive massive immunization campaigns were carried out and a total of 115 million doses were applied. FMD surveillance activities involved a total of 23,858 serological diagnosis in 2,400 premises with negative results to viral circulation. Attention was given to a total of 55 notifications of suspicions of vesicular disease, all with negative results.

Bolivia

The FMD eradication program reported 100% coverage of its territory.

There was no report of FMD during the year. The last FMD occurrence was in 2003. Consequently, the zone of Chiquitanía in the Department of Santa Cruz maintained its territory under the status of FMD-free with vaccination, with recognition by OIE.

In the massive immunization campaign it is reported a vaccination coverage of 87.7%.

Attention to 283 suspicions of VS was reported, with no case of FMD, and 8 were positive to VS virus Indiana.

During the year studies were made of the FMD situation in the Department of Oruro for the certification of FMD-free zone with vaccination. The SC-OIE left this pending and requested additional antecedents.

Brazil

The FMD eradication program covers 100% of its territory. FMD occurrence was reported in the State of Pará, an outbreak by virus O in the municipality of Monte Alegre; and 4 outbreaks by virus C in the Amazon State. The last FMD outbreak reported was in August 2001 and one occurrence before that, by virus C, was recorded in 1995. These outbreaks occurred outside the territories recognized as free by OIE. Consequently, the following states maintained their sanitary status as officially free with vaccination: Rio Grande do Sul, Santa Catarina, Paraná, Mato Grosso and Mato Grosso do Sul, Minas Gerais, Goiás, São Paulo. Espírito Santo, Rio de Janeiro, Federal District, Tocantins, Rondônia and Bahia. In addition, the country presented technical antecedents from the State of Acre and two municipalities of the Amazon State to the SC-OIE, which approved (January 2005) *ad referendum* their inclusion in the list of FMD-free zones.

One hundred and fifty one suspicions of vesicular diseases were reported, with 5 positive to FMD and 7 positive to VS. Surveillance activity included a serological survey in the free zones in accordance with risk approach.

In the massive immunization program a total of 188.7 million bovines were vaccinated with 333 million doses, 95% coverage was reached and 1.76 vaccine doses were applied per bovine.

On June 16 the Laboratory for Animal Support of the Ministry of Agriculture, Livestock and Supply - MAPA, located in Belém, Pará, confirmed positive diagnosis to FMD virus O in epithelium samples of bovines from the municipality of Monte Alegre, Pará.

The focus occurred outside the FMD-free zone recognized by OIE, at the north of the State of Pará, as shown in the figures below. The municipality of Monte

Alegre is located in the northwest of the State of Pará, in the locality known as Low and Middle Amazon. This region belongs to the Northern Livestock Circuit and at present the animal health defense system is being implemented there. The region is classified as high FMD risk, in accordance with risk classification used by MAPA. In the municipality of Monte Alegre there are 1,639 premises with 171,865 bovines, 3,436 buffaloes and 2,093 swine.

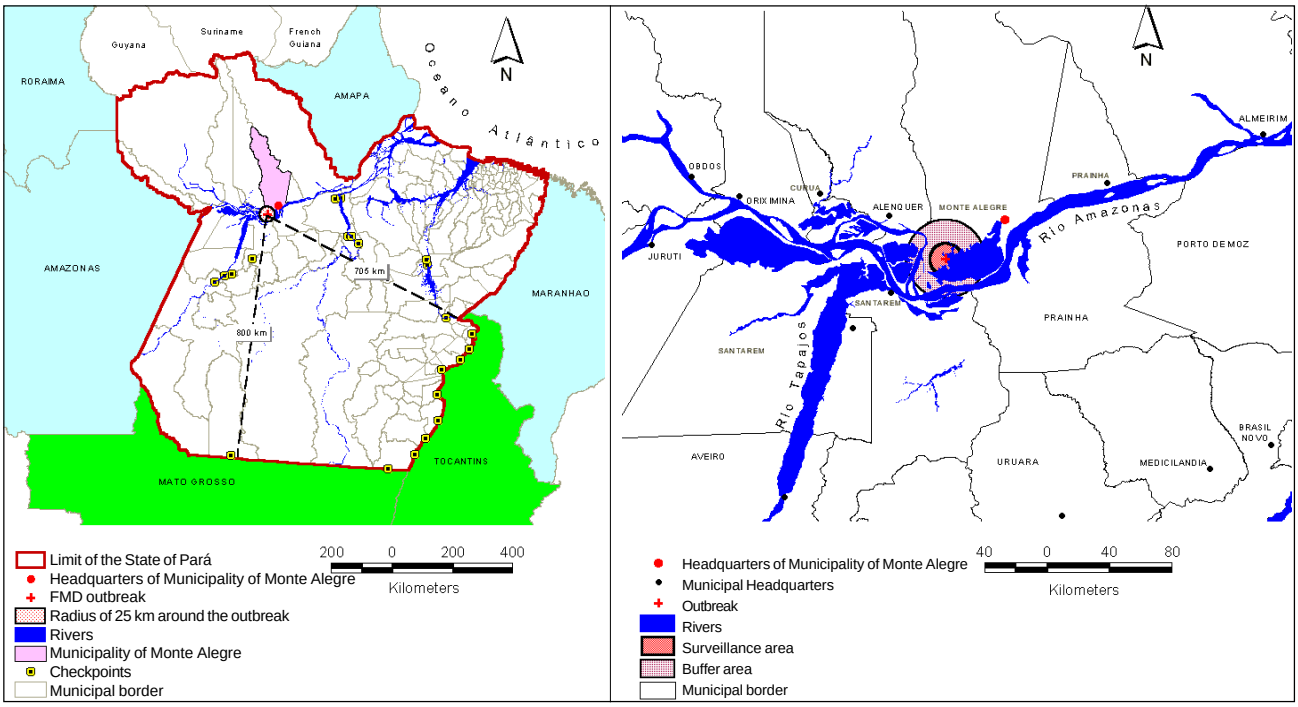
To contain the focus, emergency activities were implemented through the establishment of a 25 km safety zone around it, divided in three sanitary areas: infected area (3 km starting from the focus); surveillance area (7 km starting from the infected area) and buffer area (15 km starting from the surveillance area); interdiction of the whole municipality of Monte Alegre and borders; implementation of checkpoints; prohibition of exit of animals, products and sub-products of animals susceptible to FMD from the interdicted area; inspection of 32 premises where no sick animals were found; control and inspection of ships and embarkation points; collection of samples for laboratory exams in neighboring premises; start of reinforcement vaccination in the whole interdicted region; maintenance of epidemiologic surveillance.

Towards the end of the outbreak, inspection and surveillance activities had been completed in the 16 communities or villas existent, which involved 453 herds, a total of 14,462 bovines, 2,393 buffaloes, 1,221 swine and 142 small ruminants which had been inspected with slaughter and destruction of the 130 susceptible animals found in the forms and 131 contacts; official FMD vaccination of all existing bovines and buffaloes; maintenance of sanitary restrictions in the exit of animals towards other areas; collection of serum samples from susceptible animals in the region and use of the survey questionnaire in order to evaluate all factors related to the maintenance of the viral agent in the region.

On September 9, the Laboratory for Animal Support of the Ministry of Agriculture, Livestock and Supply – MAPA, in Belém, Pará, confirmed positive diagnosis to FMD virus C in epithelium samples from bovines in the municipality of Careiro da Várzea, in the Amazon State.

The suspicion was communicated by neighboring proprietors to the Commission for Defense of Animal Health – CODESAVE, Secretariat of Agriculture and Production of the Amazon State, on August 25. The following day, the Service for Defense of Animal

Map 4. Location of FMD outbreak and safety zone in the municipality of Monte Alegre, Pará, Brazil.



Health of the Amazon confirmed clinical signs compatible with the disease in 4 bovines of 12 to 24 months of age and carried out the recommended procedures, including interdiction of the establishment and collection of material for laboratory diagnosis. The herd of the involved establishment consisted of 34 bovines, 15 ovines and 1 swine and there was no record of FMD vaccination for the cycles of 2003 and 2004. Samples of neighboring premises were obtained and processed.

The outbreak location can be evaluated in the maps below. The Municipality of Careiro da Várzea is located in the eastern region of the Amazon State, near the city of Manaus. This region belongs to the Northern Livestock Circuit and it is in the process of implementing the animal health defense system. At present the region is classified as of unknown FMD risk, according to risk classification of MAPA. All production is destined for local consumption.

After laboratory confirmation of FMD, all the necessary procedures were carried out to contain the disease and prevent its spread to other regions of the country. The establishment affected is located in an island formed by the Amazon river and one of its branches in a region with exclusive access by river.

Due to its geographical location, the focus represents a low risk of diffusion towards areas of the country recognized as FMD-free. It is located at approximately 500 km of the present free zone with international recognition and at about 350 km from the area of the State of Pará with national recognition as FMD-free with vaccination. Its outstanding natural barriers are the Amazon Forest, rivers and lakes and the absence of access roads.

Collection of samples of pharyngeal esophageal liquid – PEL from animals in premises located adjance to the affected establishment resulted in three other premises positive to virus C.

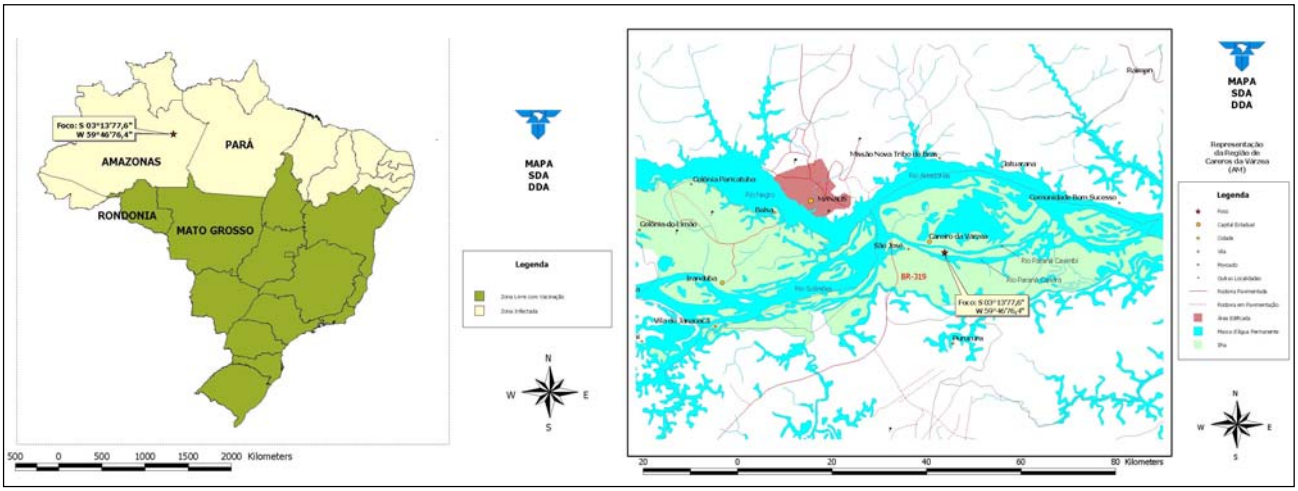
The genetic sequence of the virus confirmed that it was not an exotic strain. The vaccine currently used in Brazil gives protection against this virus.

In the municipality of Careiro da Várzea, 1,201 premises were re-registered and 70,477 bovines and 4,448 buffaloes were vaccinated by the official services. Epidemiologic investigation carried out in the premises of the municipality and in neighboring municipalities with a history of movement of susceptible animals towards the outbreak region, through inspection of more than 17,000 animals, did not detect the presence of animals with clinical signs compatible with vesicular disease.

Chile

The last FMD report in the country was in August 1987. The FMD prevention program reached the coverage of 100% of its territory. No FMD outbreak was

Map 5. Geographic location of FMD outbreak in Careiro da Várzea, Amazonas, Brazil.



detected in Chile, therefore it maintains its status as FMD-free country without vaccination, with recognition by OIE. Vaccination against FMD is prohibited.

During 2004 attention was given to a total of 252 notifications. Of these, 46 corresponded to notifications of signs compatible with vesicular diseases or with other diseases of differential diagnosis. All these notifications had negative diagnosis to FMD.

The FMD prevention program in pastures in the mountain range is maintained. Surveillance zones have been established in accordance with risk characterization, with clinical and serological monitoring through which 29,085 FMD serological tests were carried out, with negative results.

Colombia

The FMD eradication program reported 100% coverage of its territory and it did not record the presence of the disease during the period. The last report of the disease was in September 2002.

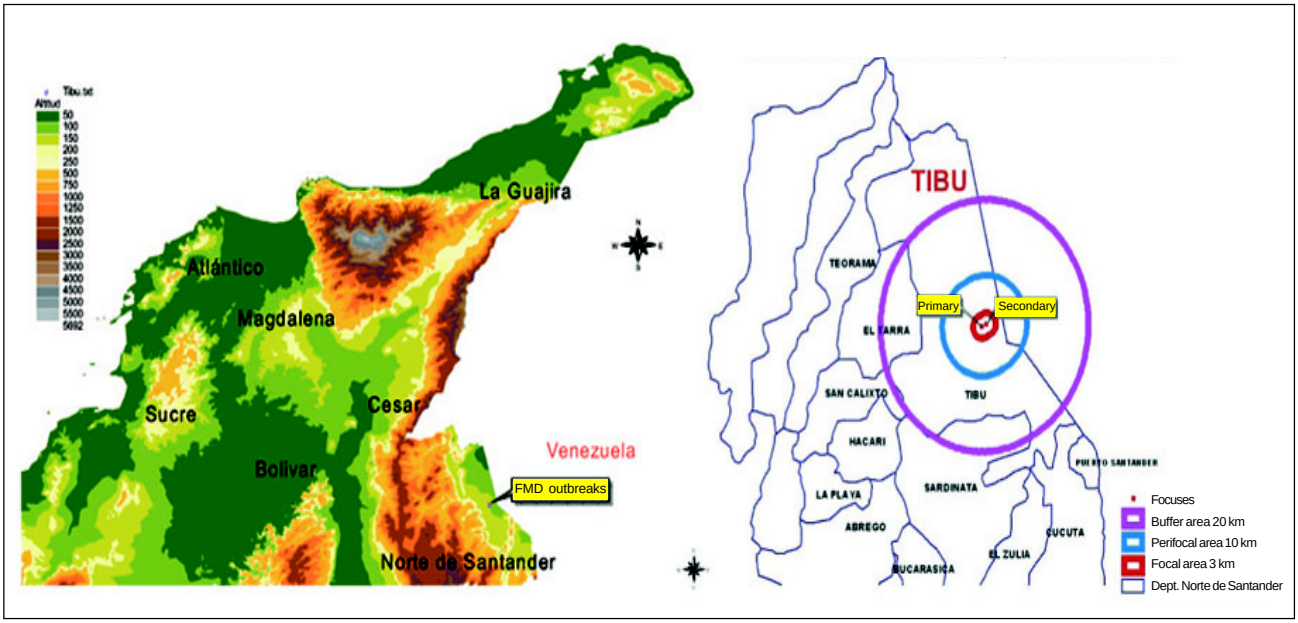
Vaccination coverage in the country reached 94% and 20,59l,975 doses of vaccine were applied. Strategic vaccinations were carried out in fairs and livestock auctions and also in cases of mobilization from zones difficult to attend to during the dates of the established vaccination cycles. A total of 95,044 doses were applied in bovines, 39,403 in caprines, 16,136 in ovines and 121,109 in swine.

During 2004, attention was given to 523 notifications of vesicular disease in Colombia, of which 2 corresponded to FMD. Of the total, 358 (68.5%) corresponded to VS, 2 (0.4%) had positive FMD diagnosis, 6 (1.1%) had differential diagnosis (bacterial ulcerative dermatitis); in 134 (25%) FMD was disregarded through clinical seroepidemiologic investigation, 8 (2%) had no final diagnosis and 15 (3%) had pending final diagnosis.

Out of the 358 VS outbreaks, 318 (89%) corresponded to New Jersey type, 27 (7.5%) to Indiana type and 13 (3.5%) were diagnosed by clinical seroepidemiologic research, and the equine species affected had no virus typification. VS type New Jersey decreased by 22% and the Indiana type by 58% as compared to the previous year.

The two FMD outbreaks occurred in the municipality of Tibú, department of Norte de Santander, at the border with Venezuela, and corresponded to FMD type A. The

Map 6. FMD outbreak, Municipality of Tibú.
August 2004



strain found is endogenous of the region, with a homology of 96% with the A/Mérida/Venezuela/2003 strain. Since 2000 there had been no occurrence of FMD type A in Colombia and during 21 months the disease had not been present in the country. This is the second consecutive year with absence of FMD type O in the whole country.

In the primary focus were 107 of 484 bovines with an attack rate of 22 x 100. The affected establishment had no valid vaccination against FMD. In the secondary focus the two swine of the establishment, which was located at approximately one kilometer from the primary focus, were affected.

Ecuador

The FMD eradication program reports coverage of 100% of its territory. The country continues with the clinical presence of FMD, as during the previous year. During the year of the report, 254 premises recorded sick animals with clinical signs compatible with vesicular diseases. Of these, 178 corresponded to premises attended directly by the Ecuadorian Service for Agriculture and Livestock Health (SESA) through its local agencies, and through the System of Zoosanitary Epidemiologic Surveillance (SVEZ) – (Spatial Distribution, enclosed Maps) and the other 76 are establishments affected by diseases confounded with FMD, which were recorded in the monthly reports of the Veterinary Laboratories of the National Institute of Hygiene Leopoldo Izquieta Pérez.

Of the 178 affected bovine herds attended by SESA, 42 had laboratory diagnosis of type O virus. FMD type A virus has not been present during two consecutive years. The most affected area was Santo Domingo de los Colorados, where the most important animal fair of the country is held. Most of the primary and secondary foci concentrated at this locality, affecting neighboring livestock zones and other provinces where there was mobilization of infected cattle. Meanwhile, research carried out by the Veterinary Laboratories Izquieta Pérez, North Zone, indicates 76 herds affected by diseases confounded with FMD, of which 35 had diagnosis of Bovine Viral Diarrhea and 41 of Infectious Bovine Rhinotracheitis.

With regard to Vesicular Stomatitis, New Jersey type has been diagnosed in 51 bovine herds and the Indiana type in three herds; it can be recorded that during 2004 there was epidemic presence of VS.

With the 4,737,148 applied doses, 2,368,574 bovines were vaccinated, thus there is a real coverage of 53%, of which 355,287 bovines belong to the under one year category, with coverage of 32%, and 2,013,287 bovines are over one year, with coverage of 60%. Strategic-tactic vaccinations are included within the application of the over one year category and they cover 214,683 vaccinated bovines, which are revaccinated at the fair in Santo Domingo de los Colorados and perifocal areas of the Provincia de Rios (Ecuadorian Coast Subproject); likewise, in the north-west of Pichincha in the Sierra Province and in Orellana in the Amazon. (Subproject remainder of Ecuador).

Guyana

It did not reply the questionnaire sent by PANAFTOSA. Tables repeat the information received the previous year.

Paraguay

The FMD eradication program reports coverage of 100% of its territory. The country did not report FMD occurrence during the year.

During 2004 attention was given to 21 notifications of vesicular disease. A total of 112 samples were collected for laboratory examination, of which 100% had negative result to FMD. From all the samples collected, 37 were positive to Infectious Bovine Rhinotracheitis (IBR), 12 to Bovine Viral Diarrhea (BVD), 27 traumatism cases, 33 intoxication cases.

The country presented to the SC-OIE technical antecedents for the recovery of FMD-free status of all its territory, which was suspended due to the outbreaks of Canindeyu and Pozo Hondo. The investigation carried out supported the request of the country and included the collection of 18,114 samples distributed in 795 Epidemiologic Units. In view of these antecedents the SC-OIE restored the status of FMD-free country in January 2005.

In the massive immunization campaign a total of 9.02 million bovines were vaccinated, reaching a vaccination coverage of 91%.

Peru

The FMD eradication program reported coverage of 100% of its territory. During 2004 there have been 74 notifications of occurrences of vesicular disease suspicions, 20 corresponded to FMD type O and 6 were FMD by clinical diagnosis. VS was identified in 21 herds, 2 with positive diagnosis to type New Jersey, 2 positive to type Indiana and 17 with clinical diagnosis. In 27 herds the diagnosis was negative to vesicular disease.

The country requested recognition from OIE as FMD-free zone without vaccination for the southern region of the country, which covers the Departments of Ica, Ayacucho, Huancavelica, Apurimac, Madre de Dios, Arequipa, Cuzco, Puno, Moquegua and Tacna.

In the southern zone of the country, 3,791 samples of blood serum were collected and analyzed, all with negative results in diagnostic tests of ELISA 3ABC and EITB. Within the activities of active surveillance in the zone declared FMD-free without vaccination, 1,569 samples were processed during 2004.

Peru maintains a strategic vaccination program in nine provinces and 20 districts of high risk. A campaign for vaccination of bovines of all ages is carried out in both phases of the immunization campaign, reaching vaccination coverage of 91.17% in Phase I and 87.93% in Phase II; these percentages were calculated on the total susceptible bovine population in zones as with vaccination identified through national norms. In addition, Tumbes, Piura, Lambayeque and Lima held periodic vaccinations up to 31 December 2004; a total of 97,395 additional immunizations have been carried out in the proposed vaccination program, periodic vaccination during the whole year.

Uruguay

The FMD eradication program has a coverage of 100% of its territory. The country did not register presence of the disease, therefore it maintains its status as FMD-free country with vaccination. The last FMD report was in August 2001.

In the massive immunization program a total of 10.8 million bovines were vaccinated, with one annual vaccination for animals over one year of age and two for under one year. Attention was given to a total of 9 notifications of suspicions of vesicular disease, all with negative results to FMD and VS.

Venezuela

The FMD eradication program reports coverage of 100% of its territory. The country continues with FMD outbreaks as during the previous year. In 2004 there were 131 notifications of occurrence of vesicular diseases. FMD virus was identified in 34 herds, 5 with virus O and 29 with virus A. VS was identified in 16 herds, 10 type New Jersey and 6 type Indiana. In 48 herds the diagnosis was negative to vesicular diseases, in 17 there was no diagnosis and 16 are still in the process of diagnosis.

In the systematic immunization program a total of 10.3 million bovines were vaccinated in two vaccination cycles, with coverage of 89% of the bovines.

TABLES

Table 1
Coverage of the programs to fight against foot-and-mouth disease according to countries.
South America, 2004

Country	Total of the country			Total in Program			Nº of Local Units of Vet. Serv.
	Surface in km^2	Nº of herds with bov./buf.	Nº of bov./buf.	Surface in km^2	Nº of herds with bov./buf.	Number of bov./buf.	
Argentina	2.780.525	213.921	58.720.387	2.780.525	213.921	58.720.387	316
Bolivia	1.098.581	312.590	6.461.846	1.098.581	312.590	6.461.846	132
Brazil	8.514.877	2.747.247	198.941.557	8.514.877	2.747.247	198.941.557	1.500
Chile	756.096	160.218	4.098.438	756.096	160.218	4.098.438	63
Colombia	1.141.768	483.135	21.623.124	1.141.768	483.135	21.623.124	126
Ecuador	274.045	427.514	4.486.021	274.045	427.514	4.486.021	250
Guyana	148.354	1.600	125.570	67.364	1.600	125.570	8
Paraguay	406.752	107.724	9.516.296	406.752	107.724	9.516.296	65
Peru	1.285.216	855.701	4.497.450	1.285.216	855.701	4.497.450	124
Uruguay	175.086	43.299	11.581.729	175.086	43.299	11.581.729	43
Venezuela	910.000	86.996	11.629.325	910.000	86.996	11.629.325	134
Total	**17.491.300**	**5.439.945**	**331.681.743**	**17.410.309**	**5.439.945**	**331.681.743**	**2.761**

Table 2
Human resources of the programs to fight against foot-and-mouth disease according to countries. South America, 2004.

Country	Professionals			Assistants		
	Field	Laboratory	Total	Field	Laboratory	Total
Argentina	393	7	**400**	715	8	**723**
Bolivia	132	5	**137**	73	0	**73**
Brazil	2.837	90	**2.927**	5.797	241	**6.038**
Chile	104	4	**108**	63	0	**63**
Colombia	107	23	**130**	237	11	**248**
Ecuador	108	0	**108**	397	1	**398**
Guyana	...	...	...	...	...	...
Paraguay	127	32	**159**	329	34	**363**
Peru	89	0	**89**	133	0	**133**
Uruguay	67	10	**77**	224	12	**236**
Venezuela	141	18	**159**	58	17	**75**
Total	**4.105**	**189**	**4.294**	**8.026**	**324**	**8.350**

Table 3
Physical resources of the programs to fight against foot-and-mouth disease according to countries. South America, 2004.

Country	Number of vehicles		
	Cars - Utility Vehicles	Trailers	Motorcycles
Argentina	602	3	2
Bolivia	119	31	41
Brazil	4339	47	457
Chile	230	27	0
Colombia	38	0	82
Ecuador	94	0	0
Guyana	...	...	...
Paraguay	116	0	66
Peru	25	0	53
Uruguay	77	12	130
Venezuela	75	1	0
Total	**5.715**	**121**	**831**

Table 4

Financial resources (in thousands of American dollars) of the programs to fight against Foot-and-Mouth Disease according to countries. South America, 2004.

Concept		Argentina		Bolivia		Brazil		Chile		Colombia		Ecuador	
		Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Physical infrastructure and expenses	Vehicles	60,20		36,30				307,21					
	Equipment	370,88		407,00	180,00			412,46		12,69	365,34		17,40
	Installations					5.003,14							
	Vaccines		69.000,00				119.803,88				8.472,59		240,00
	Others			1.003,30		33.394,32				130,00	582,05		
Subtotal		431,08	69.000,00	1.446,60	180,00	38.397,46	119.803,88	719,67		142,69	9.419,98	0,00	257,40
Plant personnel	Salaries	5.596,63		1.370,90		115.187,82		1.184,20		3.698,00	4.370,87	440,80	171,00
	Per diem	2.218,09		33,30				259,87		296,62	52,00		85,00
Subtotal		7.814,72		1.404,20		115.187,82	0,00	1.444,07		3.994,62	4.422,87	440,80	256,00
Operation and maintenance	Fuel	69,15		48,50				70,11		149,30	829,47	6,19	30,00
	Rep/Maintenance of vehicles	13,09		5,00				0,00		58,12		5,75	45,00
	Maintenance - Phisical infrastructure of Sanitary barries			3,00				1.556,37					
				2,00									
	Communications	338,39		1,60						18,27			19,10
	Vaccinators (temporary contracts)						28.394,93						141,30
	Other expenses			1.715,90			11.856,16			10,39			
Subtotal		420,63		1.776,00		0,00	40.251,09	1.626,48	0,00	236,08	829,47	11,94	235,40
Total of the country		8.666,43	69.000,00	4.626,80	180,00	153.585,27	160.054,97	3.790,22	0,00	4.373,40	14.672,32	452,73	748,80
		77.666,43		4.806,80		313.640,24		3.790,22		19.045,71		1.201,53	

Conceito		Guiana		Paraguay		Peru		Uruguay		Venezuela		**Total General**	
		Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Physical infrastructure and expenses	Vehicles	...	...	17,21				...	...	350,00		770,92	0,00
	Equipment	...	...	138,71				...	...	10.030,00		11.371,74	562,74
	Installations	...	...	24,91				...	...			5.028,05	0,00
	Vaccines	...	...	8,20		37,82		...	...	30,00	6.600,00	76,02	204.116,47
	Others	...	...	143,19		124,26		...	...			34.795,07	582,05
Subtotal		...	...	332,22		162,08		...	...	10.410,00	6.600,00	52.041,80	205.261,26
Plant personnel	Salaries	...	...	1.043,76					...	..	...	128.522,11	4.541,87
	Per diem	...	...	123,68		9,96		...	...	...	...	2.941,52	137,00
Subtotal		...	...	1.167,44		9,96		...	...			131.463,63	4.678,87
Operation and maintenance	Fuel	...	...	135,38		48,04		...	...	10,00	25,00	536,67	884,47
	Rep/Maintenance of vehicles	...	...	10,82				...	...	20,00	25,00	112,77	70,00
	Maintenance - Phisical infrastructure of Sanitary barries	...	...	44,21				...	...			1.603,58	
		...	...					...	...	5,00		7,00	
	Communications	...	...	12,28				...	...	15,00		385,54	19,10
	Vaccinators (temporary contracts)	...	...	128,75		342,48		...	...	15,00		486,23	28.536,23
	Other expenses	...	...	139,34		40,03		...	...			1.905,66	11.856,16
Subtotal		...	...	470,78		430,55		...	...	65,00	50,00	5.037,46	41.365,96
Total of the country		...	...	1.970,44		602,59		...	...	10.475,00	6.650,00	188.542,88	251.306,09
		...		1.970,44		602,59		...		17.125,00		439.848,97	

Table 5

Main characteristics according to zoning for foot-and-mouth disease.
South America, 2004.

Zoning		Country	Surface in km2	Nº of herds with bov./buf.	Number of bov./buf.	Nº of Local Units of Vet. Serv.	Cars - Utiliy Vehicles - Motorcycles	Trailers	Field staff	
									Veterinarians	Assistants
Free Zone	With vaccination	Argentina	2.196.248	210.583	58.435.736	305	587	3	383	686
		Bolivia	160.000	1.893	490.168	8	8	4	8	23
		Brazil	4.124.424	1.964.753	163.330.475	1.171	3.889	42	2.272	5.084
		Colombia	269.047	292.871	10.812.817	60	70	0	48	141
	Subtotal		**6.749.719**	**2.470.100**	**233.069.196**	**1.544**	**4.554**	**49**	**2.711**	**5.934**
	Without vaccination	Argentina	584.277	3338	284651	11	17	0	10	29
		Colombia	18.294	969	87.396	3	0	0	0	13
	Subtotal		**602.571**	**4.307**	**372.047**	**14**	**17**	**0**	**10**	**42**
Zone not free	With vaccination	Bolivia	918.581	305.988	5.403.001	118	146	25	118	50
		Brazil	4.255.823	769.436	34.569.882	315	874	5	551	599
		Colombia	788.761	92.539	9.436.571	54	41	0	46	74
		Ecuador	266.035	427.217	4.474.917	249	94	0	107	397
		Perú	30.789	32.431	228.755	12	17	0	25	133
		Venezuela	910.000	86.996	11.629.325	134	75	1	141	58
	Subtotal		**7.169.989**	**1.714.607**	**65.742.451**	**882**	**1.247**	**31**	**988**	**1.311**
	Without vaccination	Ecuador	8.010	297	11.104	1	0	0	1	0
		Perú	1.254.427	823.270	4.268.695	112	61	0	64	0
	Subtotal		**1.262.437**	**823.567**	**4.279.799**	**113**	**61**	**0**	**65**	**0**
Free Country	Without vaccination	Chile	756.096	160.218	4.098.438	63	230	27	104	63
		Guyana	148.354	1.600	125.570	8	...	...	...	....
	Subtotal		**904.450**	**161.818**	**4.224.008**	**71**	**230**	**27**	**104**	**63**
	With vaccination	Paraguay	406.752	107.724	9.516.296	65	182	0	127	329
		Uruguay	175.086	43.299	11.581.729	43	207	12	67	224
	Subtotal		**581.838**	**151.023**	**21.098.025**	**108**	**389**	**12**	**194**	**553**
Buffer zone		Bolivia	20.000	4.709	568.677	6	6	2	6	0
		Brazil	134.630	13.058	1.041.200	14	33	0	14	114
		Colombia	65.666	96.756	1.286.340	9	9	0	13	9
Subtotal			**220.296**	**114.523**	**2.896.217**	**29**	**48**	**2**	**33**	**123**
General Total			**17.491.300**	**5.439.945**	**331.681.743**	**2.761**	**6.546**	**121**	**4.105**	**8.026**

Table 6

Number of establishments* with notification of clinical signs compatible with vesicular diseases, according to diagnostic and countries.
South America, 2004

Country	Number of establishments											
	With notification of symptoms compatible with vesicular diseases	With positive diagnosis to							Negative to FMD and/or VS	With disconsidered suspicions and/or positive to other confounded diseases	Without diagnosis	In diagnostic process
		Virus					Clinical					
		O	A	C	NJ	IND	FMD	VS				
Argentina	55	0	0	0	0	0	0	0	0	55	0	0
Bolivia	283	0	0	0	0	8	0	0	78	197	0	0
Brazil	151	1	0	4	0	7	0	0	22	117	0	0
Chile	46	0	0	0	0	0	0	0	29	17	0	0
Colombia	523	0	2	0	318	27	0	13	134	6	8	15
Ecuador	254	42	0	0	51	3	0	0	21	76	61	0
Guyana	0	0	0	0	0	0	0	0	0	0	0	0
Paraguay	21	0	0	0	0	0	0	0	0	21	0	0
Peru	74	20	0	0	2	2	6	17	27	0	0	0
Uruguay	9	0	0	0	0	0	0	0	0	9	0	0
Venezuela	131	5	29	0	10	6	0	0	48	0	17	16
Total	**1.547**	**68**	**31**	**4**	**381**	**53**	**6**	**30**	**359**	**498**	**86**	**31**

* independently of the animal species

Table 7
Diagnosis of foot-and-mouth disease according to type of virus, per country and per year.
South America, 1993-2004

País/Año	Virus	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Argentina	O	78	15	0	0	0	0	0	0	0	0	1	0
	A	4	0	0	0	0	0	0	0	2,126	1	0	0
	C	50	2	0	0	0	0	0	0	0	0	0	0
Bolivia	O	10	24	17	7	4	1	2	7	7	8	9	0
	A	5	3	19	1	4	6	18	18	81	1	0	0
	C	0	1	0	0	0	0	0	0	0	0	0	0
Brasil	O	115	304	83	9	19	5	13	12	0	0	0	1
	A	182	150	99	18	5	1	2	6	15	0	0	0
	C	1	9	3	0	0	0	0	0	0	0	0	4
Chile	O	0	0	0	0	0	0	0	0	0	0	0	0
	A	0	0	0	0	0	0	0	0	0	0	0	0
	C	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	O	137	361	144	25	19	92	49	37	5	8	0	0
	A	33	40	79	81	17	11	8	1	0	0	0	2
	C	0	0	0	0	0	0		0	0	0	0	0
Ecuador	O	26	23	32	17	30	67	17	11	15	104	22	42
	A	0		0	5	34	14	2	8	8	4	0	0
	C	0	0	0	0	0	0	0	0	0	0	0	0
Guyana	O	0	0	0	0	0	0	0	0	0	0	0	0
	A	0	0	0	0	0	0	0	0	0	0	0	0
	C	0	0	0	0	0	0	0	0	0	0	0	0
Paraguay	O	12	7	0	0	0	0	0	0	0	1	1	0
	A	0	0	0	0	0	0	0	0	0	0	0	0
	C	0	0	0	0	0	0	0	0	0	0	0	0
Perú	O	44	24	3	10	4	0	0	0	0	0	0	20
	A	1	0	0	15	0	0	15	48	0	0	0	0
	C	0	0	0	0	0	0	0	0	0	0	0	0
Uruguay	O	0	0	0	0	0	0	0	3	0	0	0	0
	A	0	0	0	0	0	0	0	0	2,057	0	0	0
	C	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	O	1	0	1	0	2	0	0	0	0	0	8	5
	A	3	5	3	1	1	17	4	4	4	9	55	29
	C	0	0	0	0	0	0	0	0	0	0	0	0

Table 8

Number of establishments affected by vesicular stomatitis, according to type of virus and country. Central America and Mexico, 2002.

Countries	New Jersey	Indiana	Negatives	Without diagnosis	Total
Belice	1	0	2	0	3
Costa Rica	112	10	44	4	170
El Salvador	46	2	32	4	84
Guatemala	5	0	4	0	9
Honduras	4	0	6	0	10
Nicaragua	351	8	219	3	581
Panamá	15	9	28	1	53
México	57	4	113	6	180
Total	591	33	448	18	1.090

Source: Ladines and Weekly Reports from the countries to the Continental Systems of Information and Surveillance of PANAFTOSA - PAHO/WHO.

Table 9

Number of establishments* with notification of clinical signs compatible to vesicular diseases with disconsidered suspicions and/or positive to other confounded diseases according to clinical or laboratory diagnosis by countries.
South America, 2004

Country	Number of establishment with diagnosis of						
	Viral bovine diarrhoea	Blue Tongue	Infectious Bovine Rinotracheitis	Contagious Ecthyma	Bacterial Infection and Poxvirus	Other	Total
Argentina	0	0	2	1	21	31	**55**
Bolivia	33	0	164	0	0	0	**197**
Brazil	12	0	9	3	61	32	**117**
Chile	7	0	8	2	0	0	**17**
Colombia	0	0	0	0	6	0	**6**
Ecuador	35	0	41	0	0	0	**76**
Guyana	0	0	0	0	0	0	**0**
Paraguay	3	0	12	0	0	6	**21**
Peru	0	0	0	0	0	0	**0**
Uruguay	0	0	1	0	0	8	**9**
Venezuela	0	0	0	0	0	0	**0**
Total	**90**	**0**	**235**	**6**	**88**	**77**	**496**

* independently of the animal species

Table 10

Monthly distribution of notifications from establishments with signs compatible to vesicular diseases according to countries.
South America, 2004

Country	Months												Total for the year
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Argentina	0	8	0	7	4	7	8	5	3	2	7	4	**55**
Bolivia	8	27	24	37	14	31	36	37	20	21	22	6	**283**
Brazil*	0	0	3	0	3	2	0	0	4	0	0	0	**12**
Chile	2	1	5	1	5	7	6	11	4	4	0	0	**46**
Colombia	34	41	58	23	25	46	50	49	60	50	45	42	**523**
Ecuador	13	11	39	18	5	27	46	36	17	5	20	17	**254**
Guyana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Paraguay	2	2	2	2	1	0	2	4	1	1	1	3	**21**
Peru	1	4	10	8	4	24	13	4	3	1	2	0	**74**
Uruguay	1	0	1	0	3	0	1	0	1	1	0	1	**9**
Venezuela	22	14	16	3	12	16	11	4	12	6	4	11	**131**
Total	**83**	**108**	**158**	**99**	**76**	**160**	**173**	**150**	**125**	**91**	**101**	**84**	**1408**

* The country did not inform montly distribution of 117 establishments with disconsidered suspicions and/or with diagnosis positive to other diseases confounded with vesicular diseases, besides 22 establishments with diagnosis negative to FMD and vesicular stomatitis (VS).

Table 11

Monthly distribution of establishments* with FMD epidemiologic clinical diagnosis or laboratory according to countries.
South America, 2004

Country	Clinical or laboratory diagnosis for FMD	Months												Total for the year
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Argentina	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Bolivia	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Brazil	Virus O	0	0	0	0	0	1	0	0	0	0	0	0	**1**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	4	0	0	0	**4**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Chile	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Colombia	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	1	1	0	0	0	0	**2**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Ecuador	Virus O	1	1	1	0	0	9	18	1	3	1	4	3	**42**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Guyana	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Paraguay	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Peru	Virus O	0	0	0	0	0	11	9	0	0	0	0	0	**20**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	4	2	0	0	0	0	0	**6**
Uruguay	Virus O	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus A	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Venezuela	Virus O	0	0	0	2	0	1	0	0	1	0	0	1	**5**
	Virus A	3	2	4	1	3	4	2	1	2	1	4	2	**29**
	Virus C	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**Virus O**	**1**	**1**	**1**	**2**	**0**	**22**	**27**	**1**	**4**	**1**	**4**	**4**	**68**
	Virus A	**3**	**2**	**4**	**1**	**3**	**4**	**3**	**2**	**2**	**1**	**4**	**2**	**31**
	Virus C	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**4**
	Clinical	**0**	**0**	**0**	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**6**

* independently of the animal species

Table 12

Monthly distribution of establishments* with epidemiologic clinical diagnosis of vesicular stomatitis (VS) or laboratory diagnosis of VS according to countries. South America, 2004

Country	Clinical or laboratory diagnosis for VS	Months												Total for the year
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Argentina	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Bolivia	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	6	2	0	0	0	0	0	0	0	0	0	**8**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Brazil	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	0	3	0	3	1	0	0	0	0	0	0	**7**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Chile	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Colombia	New Jersey	15	15	28	14	15	29	35	27	38	34	35	33	**318**
	Indiana	4	1	0	2	1	0	2	8	4	1	1	3	**27**
	Clinical	1	4	2	0	1	1	1	0	2	1	0	0	**13**
Ecuador	New Jersey	2	1	8	3	5	2	3	13	9	1	0	4	**51**
	Indiana	0	1	1	0	0	0	0	1	0	0	0	0	**3**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Guyana	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Paraguay	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Peru	New Jersey	1	0	0	0	0	0	0	0	0	1	0	0	**2**
	Indiana	0	0	0	1	1	0	0	0	0	0	0	0	**2**
	Clinical	0	2	5	3	1	3	1	0	1	0	1	0	**17**
Uruguay	New Jersey	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Indiana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Venezuela	New Jersey	0	0	1	0	2	3	0	1	3	0	0	0	**10**
	Indiana	1	4	0	0	0	0	0	0	0	0	0	1	**6**
	Clinical	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	New Jersey	**18**	**16**	**37**	**17**	**22**	**34**	**38**	**41**	**50**	**36**	**35**	**37**	**381**
	Indiana	**5**	**12**	**6**	**3**	**5**	**1**	**2**	**9**	**4**	**1**	**1**	**4**	**53**
	Clinical	**1**	**6**	**7**	**3**	**2**	**4**	**2**	**0**	**3**	**1**	**1**	**0**	**30**

* independently of the animal species

Table 13

Monthly distribution of establishments* with epidemiologic clinical diagnosis or laboratory diagnosis positive to other diseases confounded with foot-and-mouth disease and vesicular stomatitis according to countries. South America, 2004

Country	Months												Total for the year
	Jan	Feb	Mar	Abr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Argentina	0	8	0	7	4	7	8	5	3	2	7	4	**55**
Bolivia	2	13	11	34	7	19	30	31	13	15	19	3	**197**
Brazil	...	...	...	...	...	...	...	...	...	...	...	...	**117**
Chile	1	0	3	0	1	3	3	4	1	1	0	0	**17**
Colombia	0	2	2	0	0	1	0	1	0	0	0	0	**6**
Ecuador	8	3	13	10	0	10	0	17	0	2	11	2	**76**
Guyana	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Paraguay	2	2	2	2	1	0	2	4	1	1	1	3	**21**
Peru	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Uruguay	1	0	1	0	3	0	1	0	1	1	0	1	**9**
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**14**	**28**	**32**	**53**	**16**	**40**	**44**	**62**	**19**	**22**	**38**	**13**	**498**

* independently of the animal species

Table 14

Monthly distribution of establishments* without diagnosis, with process of diagnosis in development or with laboratory diagnosis negative to FMD and/or VS according to division of countries. South America, 2004

Country	Lab. Diagnosis negative to FMD and/or VS	Months												Total for the year
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Argentina	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Bolivia	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	6	8	11	3	7	12	6	6	7	6	3	3	**78**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Brazil	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	...	...	...	...	...	...	...	...	...	...	...	...	**22**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Chile	Neg. FMD	1	1	2	1	4	4	3	7	3	3	0	0	**29**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Colombia	Neg. FMD	14	18	26	7	7	11	11	8	14	11	7	0	**134**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Without diagnosis	0	1	0	0	1	3	0	2	1	0	0	0	**8**
	In process	0	0	0	0	0	1	0	2	1	3	2	6	**15**
Ecuador	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	2	0	0	1	9	0	2	0	5	2	**21**
	Without diagnosis	2	5	14	5	0	5	16	4	3	1	0	6	**61**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Guyana	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Paraguay	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Peru	Neg. FMD	0	2	5	4	2	6	1	0	1	0	1	0	**22**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	4	1	0	0	0	**5**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Uruguay	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Without diagnosis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	In process	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Venezuela	Neg. FMD	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. VS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Neg. FMD and VS	13	3	5	0	5	4	5	1	2	4	0	6	**48**
	Without diagnosis	4	2	4	0	0	2	1	0	4	0	0	0	**17**
	In process	1	3	2	0	2	2	3	1	0	1	0	1	**16**
Total	**Neg. FMD**	**15**	**21**	**33**	**12**	**13**	**21**	**15**	**15**	**18**	**14**	**8**	**0**	**185**
	Neg. VS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Neg. FMD and VS	**19**	**11**	**18**	**3**	**12**	**17**	**20**	**11**	**12**	**10**	**8**	**11**	**174**
	Without diagnosis	**6**	**8**	**18**	**5**	**1**	**10**	**17**	**6**	**8**	**1**	**0**	**6**	**86**
	In process	**1**	**3**	**2**	**0**	**2**	**3**	**3**	**3**	**1**	**4**	**2**	**7**	**31**

* independently of the animal species

Table 15

Number of establishments* with notification of clinical signs compatible to vesicular diseases according to zoning for foot-and-mouth disease.
South America, 2004

Zoning		Country	Number of establishments positive to											
			With notification of signs compatible with Vesic. Diseaes	With diagnosis positive to diseases							Negative to FMD and/or VS	With disconsidered suspicion and/or other confounded diseases	Without diagnosis	In diagnosis process
				Virus					Clinical					
				O	A	C	NJ	IND	FMD	VS				
Free Zone	With vaccination	Argentina	55				0	0		0	0	55	0	0
		Bolivia	1				0	0		0	1	0	0	0
		Brazil	125				0	7		0	6	112	0	0
		Colombia	207				125	15		4	47	5	4	7
	Subtotal		**388**				**125**	**22**		**4**	**54**	**172**	**4**	**7**
	Without vaccination	Argentina	0				0	0		0	0	0	0	0
		Colombia	0				0	0		0	0	0	0	0
	Subtotal		**0**				**0**	**0**		**0**	**0**	**0**	**0**	**0**
Zone not free	With vaccination	Bolivia[1]	69	0	0	0	0	0	0	0	69	0	0	0
		Brazil	26	1	0	4	0	0	0	0	16	5	0	0
		Colombia	241	0	0	0	142	11	0	7	68	1	4	8
		Ecuador	254	42	0	0	51	3	0	0	21	76	61	0
		Peru	40	20	0	0	1	1	6	5	7	0	0	0
		Venezuela	131	5	29	0	10	6	0	0	48	0	17	16
	Subtotal		**761**	**68**	**29**	**4**	**204**	**21**	**6**	**12**	**229**	**82**	**82**	**24**
	Without vaccination	Ecuador	0				0	0		0	0	0	0	0
		Peru	34				1	1		12	20	0	0	0
	Subtotal		**34**				**1**	**1**		**12**	**20**	**0**	**0**	**0**
Free country	Without vaccination	Chile	46				0	0		0	29	17	0	0
		Guyana	0				0	0		0	0	0	0	0
	Subtotal		46				**0**	**0**		**0**	**29**	**17**	**0**	**0**
	With vaccination	Paraguay	21				0	0		0	0	21	0	0
		Uruguay	9				0	0		0	0	9	0	0
	Subtotal		**30**				**0**	**0**		**0**	**0**	**30**	**0**	**0**
Buffer zone		Bolivia	213	0	0	0	0	8	0	0	8	197	0	0
		Brazil	0	0	0	0	0	0	0	0	0	0	0	0
		Colombia	75	0	2	0	51	1	0	2	19	0	0	0
Subtotal			**288**	**0**	**2**	**0**	**51**	**9**	**0**	**2**	**27**	**197**	**0**	**0**
General Total			**1547**	**68**	**31**	**4**	**381**	**53**	**6**	**30**	**359**	**498**	**86**	**31**

* independently of the animal species

Table 15a

Number of establishments with notification of clinical signs compatible to vesicular diseases according to type of establishment and zoning for FMD.
South America, 2004

Zoning		Country	Type of establisment or herd	Number of establishments											
				With notification of signs compatible with vesic. Diseases	With diagnosis positive to diseases						Neg. to FMD and/or VS	With disconsidered suspicion and/or positive to other confounded diseases	Without diagnosis	Still in diagnostic process
					Virus					Clínico				
					O	A	C	NJ	IND	FMD	VS				
Free zone	With vaccination	Argentina	Only with Bov ./Bub	41				0	0		0	0	41	0	0
			Swine herd	1				0	0		0	0	1	0	0
			Only with ovines/caprines	5				0	0		0	0	5	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Another (not specified)	8				0	0		0	0	8	0	0
			Subtotal	55				0	0		0	0	55	0	0
		Bolivia	Only with Bov ./Bub	1				0	0		0	1	0	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	1				0	0		0	1	0	0	0
		Brazil	Only with Bov ./Bub	125				0	7		0	6	112	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	125				0	7		0	6	112	0	0
		Colombia	Only with Bov ./Bub	194				118	15		0	46	4	4	7
			Swine herd	2				2	0		0	0	0	0	0
			Only with ovines/caprines	2				0	0		0	1	1	0	0
			Only with equines	2				0	0		2	0	0	0	0
			Bov-equ or Bov-equ-swine	7				5	0		2	0	0	0	0
			Subtotal	207				125	15		4	47	5	4	7
			Total	**388**				**125**	**22**		**4**	**54**	**172**	**4**	**7**
	Without vaccination	Argentina	Only with Bov ./Bub	0				0	0		0	0	0	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	0				0	0		0	0	0	0	0
		Colombia	Only with Bov ./Bub	0				0	0		0	0	0	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Bov-equ or Bov-equ-swine	0				0	0		0	0	0	0	0
			Subtotal	0				0	0		0	0	0	0	0
			Total	**0**				**0**	**0**		**0**	**0**	**0**	**0**	**0**
Zone not free	With vaccination	Bolivia	Only with Bov ./Bub	69	0	0	0	0	0	0	0	69	0	0	0
			Swine herd	0	0	0	0	0	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Subtotal	69	0	0	0	0	0	0	0	69	0	0	0
		Brazil	Only with Bov ./Bub	26	1	0	4	0	0	0	0	16	5	0	0
			Swine herd	0	0	0	0	0	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Subtotal	26	1	0	4	0	0	0	0	16	5	0	0
		Colombia	Only with Bov ./Bub	221	0	0	0	134	11	0	0	65	0	3	8
			Swine herd	5	0	0	0	2	0	0	0	2	1	0	0
			Only with ovines/caprines	1	0	0	0	0	0	0	0	0	0	1	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Bov-equ or Bov-equ-swine	14	0	0	0	6	0	0	7	1	0	0	0
			Subtotal	241	0	0	0	142	11	0	7	68	1	4	8
		Ecuador	Only with Bov ./Bub	254	42	0	0	51	3	0	0	21	76	61	0
			Swine herd	0	0	0	0	0	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Subtotal	254	42	0	0	51	3	0	0	21	76	61	0
		Peru	Only with Bov ./Bub	40	20	0	0	1	1	6	5	7	0	0	0
			Swine herd	0	0	0	0	0	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Subtotal	40	20	0	0	1	1	6	5	7	0	0	0
		Venezuela	Only with Bov ./Bub	128	4	28	0	9	6	0	0	48	0	17	16
			Swine herd	1	0	0	0	1	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Another (not specified)	2	1	1	0	0	0	0	0	0	0	0	0
			Subtotal	131	5	29	0	10	6	0	0	48	0	17	16
			Total	**761**	**68**	**29**	**4**	**204**	**21**	**6**	**12**	**229**	**82**	**82**	**24**

Table 15b

Number of establishments with notification of clinical signs compatible to vesicular diseases according to type of establisment and zoning for FMD.
South America, 2004

Zoning		Country	Type of establisment or herd	Number of establishments											
				With notification of signs compatible with vesic. Diseases	With diagnosis positive to diseases						Neg. to FMD and/or VS	With disconsidered suspicion and/or positive to other confounded diseases	Without diagnosis	Still in diagnostic process
					Virus					Clinical				
					O	A	C	NJ	IND	FMD	VS				
Zone not free	Without vaccination	Ecuador	Only with Bov ./Bub	0				0	0		0	0	0	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	0				0	0		0	0	0	0	0
		Peru	Only with Bov ./Bub	34				1	1		12	20	0	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	34				1	1		12	20	0	0	0
			Total	**34**				**1**	**1**		**12**	**20**	**0**	**0**	**0**
Free country	Without vaccination	Chile	Only with Bov ./Bub	43				0	0		0	26	17	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	3				0	0		0	3	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	46				0	0		0	29	17	0	0
		Guyana	Only with Bov ./Bub	0				0	0		0	0	0	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	0				0	0		0	0	0	0	0
			Total	**46**				**0**	**0**		**0**	**29**	**17**	**0**	**0**
	With vaccination	Paraguay	Only with Bov ./Bub	16				0	0		0	0	16	0	0
			Swine herd	0				0	0		0	0	0	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Bov/Sui	1				0	0		0	0	1	0	0
			Bov/Ovi and/or Cap	3				0	0		0	0	3	0	0
			Bov-equ or Bov-equ-swine	1				0	0		0	0	1	0	0
			Subtotal	21				0	0		0	0	21	0	0
		Uruguay	Only with Bov ./Bub	8				0	0		0	0	8	0	0
			Swine herd	1				0	0		0	0	1	0	0
			Only with ovines/caprines	0				0	0		0	0	0	0	0
			Only with equines	0				0	0		0	0	0	0	0
			Subtotal	9				0	0		0	0	9	0	0
			Total	**30**				**0**	**0**		**0**	**0**	**30**	**0**	**0**
Zona Tampón		Bolivia	Only with Bov ./Bub	210	0	0	0	0	5	0	0	8	197	0	0
			Swine herd	0	0	0	0	0	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	2	0	0	0	0	2	0	0	0	0	0	0
			Bov/Sui	1	0	0	0	0	1	0	0	0	0	0	0
			Subtotal	213	0	0	0	0	8	0	0	8	197	0	0
		Brasil	Only with Bov ./Bub	0	0	0	0	0	0	0	0	0	0	0	0
			Swine herd	0	0	0	0	0	0	0	0	0	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Subtotal	0	0	0	0	0	0	0	0	0	0	0	0
		Colombia	Only with Bov ./Bub	64	0	1	0	45	1	0	0	17	0	0	0
			Swine herd	4	0	1	0	2	0	0	0	1	0	0	0
			Only with ovines/caprines	0	0	0	0	0	0	0	0	0	0	0	0
			Only with equines	0	0	0	0	0	0	0	0	0	0	0	0
			Bov-equ or Bov-equ-swine	7	0	0	0	4	0	0	2	1	0	0	0
			Subtotal	75	0	2	0	51	1	0	2	19	0	0	0
			Total	**288**	**0**	**2**	**0**	**51**	**9**	**0**	**2**	**27**	**197**	**0**	**0**
Total by type of establishment or herd			Only with Bov ./Bub	**1474**	**67**	**29**	**4**	**359**	**50**	**6**	**17**	**350**	**476**	**85**	**31**
			Swine herd	**14**	**0**	**1**	**0**	**7**	**0**	**0**	**0**	**3**	**3**	**0**	**0**
			Only with ovines/caprines	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**6**	**1**	**0**
			Only with equines	**4**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**
			Bov/Sui	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**
			Bov/Ovi and/or Cap	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**
			Bov-equ or Bov-equ-swine	**29**	**0**	**0**	**0**	**15**	**0**	**0**	**11**	**2**	**1**	**0**	**0**
			Another (not specified)	**10**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**
General Total				**1547**	**68**	**31**	**4**	**381**	**53**	**6**	**30**	**359**	**498**	**86**	**31**

Table 16

Number of establishments with notification of clinical signs compatible to vesicular diseases with disconsidered suspicions and/or positive to other confounded diseases according to clinical or laboratory diagnosis and zoning for FMD.
South America, 2004

Zoning		Country	Number of herds with diagnosis of					
			Viral bovine diarrhoea	Blue tongue	Infectious bovine Rinotracheitis	Contagious Ecthyma	Bacterial Infection and Pox virus	Others
Free zone	With vaccination	Argentina	0	0	2	1	21	31
		Bolivia	6	0	53	0	0	0
		Brazil	10	0	6	3	61	32
		Colombia	0	0	0	0	5	0
	Subtotal		**16**	**0**	**61**	**4**	**87**	**63**
	Without vaccination	Argentina	0	0	0	0	0	0
		Colombia	0	0	0	0	0	0
	Subtotal		**0**	**0**	**0**	**0**	**0**	**0**
Zone not free	With vaccination	Bolivia	27	0	111	0	0	0
		Brazil	2	0	3	0	0	0
		Colombia	0	0	0	0	1	0
		Ecuador	35	0	41	0	0	0
		Peru	0	0	0	0	0	0
		Venezuela	0	0	0	0	0	0
	Subtotal		**64**	**0**	**155**	**0**	**1**	**0**
	Without vaccination	Ecuador	0	0	0	0	0	0
		Peru	0	0	0	0	0	0
	Subtotal		**0**	**0**	**0**	**0**	**0**	**0**
Free country	Without vaccination	Chile	7	0	8	2	0	0
		Guyana	0	0	0	0	0	0
	Subtotal		**7**	**0**	**8**	**2**	**0**	**0**
	With vaccination	Paraguay	3	0	12	0	0	6
		Uruguay	0	0	1	0	0	8
	Subtotal		**3**	**0**	**13**	**0**	**0**	**14**
Buffer zone		Bolivia	0	0	0	0	0	0
		Brazil	0	0	0	0	0	0
		Colombia	0	0	0	0	0	0
Subtotal			**0**	**0**	**0**	**0**	**0**	**0**
General Total			**90**	**0**	**237**	**6**	**88**	**77**

* independently of the animal species

Table 17

Indicators of morbi-mortality in bovines/buffaloes for foot-and-mouth disease and vesicular stomatitis according to countries. South America, 2004

Country	Total of herds	Total population	FMD								VS							
			Affected Bov/Buf herds	Exposed population	Sick	Dead	Rates				Affected Bov/Buf herds	Exposed population	Sick	Dead	Rates			
							Affected herds (1000)	Morbility (10000)	Attack (100)	Lethality (100)					Affected herds (1000)	Morbility (10000)	Attack (100)	Lethality (100)
Argentina	213.921	58.720.387	0	0	0	0	-	-	-	-	0	0	0	0	-	-	-	-
Bolivia	312.590	6.461.846	0	0	0	0	-	-	-	-	5	...	27	0	0,002	0,042	...	0,00
Brazil	2.747.247	198.941.557	5	1.269	20	0	0,002	0,001	1,58	0,00	7	1.804	394	0	0,000	0,020	21,84	0,00
Chile	160.218	4.098.438	0	0	0	0	-	-	-	-	0	0	0	0	-	-	-	-
Colombia	483.135	21.623.124	1	484	107	0	0,002	0,000	22,11	0,00	324	31.560	1.747	4	0,067	0,808	5,54	0,23
Ecuador	427.514	4.486.021	42	6.809	922	3	0,098	2,055	13,54	0,33	54	10.584	1.555	0	0,013	3,466	14,69	0,00
Guyana	1.600	125.570	0	0	0	0	-	-	-	-	0	0	0	0	-	-	-	-
Paraguay	107.724	9.516.296	0	0	0	0	-	-	-	-	0	0	0	0	-	-	-	-
Peru	855.701	4.497.450	26	2.989	132	132	0,030	0,293	4,42	100,00	21	108	32	0	0,002	0,071	29,63	0,00
Uruguay	43.299	11.581.729	0	0	0	0	-	-	-	-	0	0	0	0	-	-	-	-
Venezuela	86.996	11.629.325	32	11.694	1.474	12	0,368	1,267	12,60	0,81	15	0	0	0	0,017	0,000	0,00	0,00
Total	**5.439.945**	**331.681.743**	**106**	**23.245**	**2.655**	**147**	**0,019**	**0,080**	**11,42**	**5,54**	**426**	**44.056**	**3.755**	**4**	**0,008**	**0,113**	**8,52**	**0,11**

... Without information

Table 18

Morbi-mortality in ovines affected by foot-and-mouth disease and vesicular stomatitis according to countries. South America, 2004

Country	Total population	FMD						VS					
		Exposed in affected establishments	Sick	Dead	Rates			Exposed in affected establishments	Sick	Dead	Rates		
					Morbility (10000)	Attack (100)	Lethality (100)				Morbility (10000)	Attack (100)	Lethality (100)
Argentina	11.242.071	0	0	0	-	-	-	0	0	0	-	-	-
Bolivia	7.675.593	0	0	0				0	0	0	-	-	-
Brazil	13.678.244	0	0	0	-	-	-	7	0	0	-	-	-
Chile	3.695.063	0	0	0	-	-	-	0	0	0	-	-	-
Colombia	1.595.516	0	0	0	-	-	-	809	21	0	0,13	2,60	0,00
Ecuador	1.127.407	0	0	0	-	-	-	0	0	0	-	-	-
Guyana	21.710	0	0	0	-	-	-	0	0	0	-	-	-
Paraguay	442.985	0	0	0	-	-	-	0	0	0	-	-	-
Peru	14.296.717	0	0	0	-	-	-	0	0	0	-	-	-
Uruguay	9.876.090	0	0	0	-	-	-	0	0	0	-	-	-
Venezuela	58.783	0	0	0	-	-	-	238	10	0	1,70	4,20	0,00
Total	**63.710.179**	**0**	**0**	**0**	**0,000**	**0,00**	**0,00**	**1.054**	**31**	**0**	**0,00**	**2,94**	**0,00**

Table 19

Morbi-mortality in swine by foot-and-mouth disease and vesicular stomatitis according to countries.
South America, 2004

Country	Total population	FMD						VS					
		Exposed in affected establishments	Sick	Dead	Rates			Exposed in affected establishments	Sick	Dead	Rates		
					Morbility (10000)	Attack (100)	Lethality (100)				Morbility (10000)	Attack (100)	Lethality (100)
Argentina	2.070.073	0	0	0	-	-	-	0	0	0	-	-	-
Bolivia	2.796.871	0	0	0	-	-	-	...	2	2	0,01	...	100,00
Brazil	26.922.527	1	0	0	0,000	0,00	0,00	16	0	0	0,00	0,00	0,00
Chile	1.716.881	0	0	0	-	-	-	0	0	0	-	-	-
Colombia	2.563.480	2	2	0	0,000	100,00	0,00	3.751	113	4	0,44	3,01	3,54
Ecuador	1.517.740	6	3	0	0,020	50,00	0,00	0	0	0	-	-	-
Guyana	10.817	0	0	0	-	-	-	0	0	0	-	-	-
Paraguay	1.473.974	0	0	0	-	-	-	0	0	0	-	-	-
Peru	2.787.533	0	0	0	-	-	-	0	0	0	-	-	-
Uruguay	254.908	0	0	0	-	-	-	0	0	0	-	-	-
Venezuela	1.129.933	20	0	0	0,000	0,00	0,00	0	0	0	-	-	-
Total	**43.244.737**	**29**	**5**	**0**	**0,001**	**17,24**	**0,00**	**3.767**	**115**	**6**	**0,03**	**3,05**	**5,22**

Table 20

Morbi-mortality in caprines affected by foot-and-mouth disease and vesicular stomatitis according to countries.
South America, 2004

Country	Total population	FMD						VS					
		Exposed in affected establishments	Sick	Dead	Rates			Exposed in affected establishments	Sick	Dead	Rates		
					Morbility (10000)	Attack (100)	Lethality (100)				Morbility (10000)	Attack (100)	Lethality (100)
Argentina	2.135.212	0	0	0	-	-	-	0	0	0	-	-	-
Bolivia	1.354.247	0	0	0	-	-	-	0	0	0	-	-	-
Brazil	9.284.093	0	0	0	-	-	-	40	0	0	0,00	0,00	0,000
Chile	727.310	0	0	0	-	-	-	0	0	0	-	-	-
Colombia	1.393.208	0	0	0	-	-	-	184	0	0	0,00	0,00	0,000
Ecuador	178.346	0	0	0	-	-	-	0	0	0	-	-	-
Guyana	9.556	0	0	0	-	-	-	0	0	0	-	-	-
Paraguay	135.501	0	0	0	-	-	-	0	0	0	-	-	-
Peru	2.068.256	0	0	0	-	-	-	0	0	0	-	-	-
Uruguay	7.309	0	0	0	-	-	-	0	0	0	-	-	-
Venezuela	1.129.933	0	0	0	-	-	-	0	0	0	-	-	-
Total	**18.422.971**	**0**	**0**	**0**	**-**	**-**	**-**	**224**	**0**	**0**	**0,00**	**0,00**	**0,000**

Table 21

Morbi-mortality in equids affected by vesicular stomatitis according to countries.
South America, 2004

Country	Total population	Equines						Total population	Others equids					
		Exposed in affected establishments	Sick	Dead	Rates				Exposed in affected establishments	Sick	Dead	Rates		
					Morbility (10000)	Attack (100)	Lethality (100)					Morbility (10000)	Attack (100)	Lethality (100)
Argentina	1.195.405	0	0	0	-	-	-					-	-	-
Bolivia	509.638	0	0	0	-	-	-		...	3	0	0,000	...	0,00
Brazil	5.369.490	12	2	0	0,004	16,67	0,00	2.554.049	0	0	0	-	-	-
Chile	408.186	0	0	0	-	-	-	30.872	0	0	0	-	-	-
Colombia	1.816.756	1.200	50	0	0,275	4,17	0,00					-	-	-
Ecuador	394.202	5	4	0	0,101	80,00	0,00	280.300	43	1	0	0,036	2,33	0,00
Guyana	0	0	0	0	-	-	-					-	-	-
Paraguay	390.402	0	0	0	-	-	-					-	-	-
Peru	1.062.262	88	2	0	0,019	2,27	0,00	1.113.628	0	0	0	-	-	-
Uruguay	390.192	0	0	0	-	-	-					-	-	-
Venezuela	560.086	192	0	0	0,000	0,00	0,00	0				-	-	-
Total	**12.096.619**	**1.497**	**58**	**0**	**0,048**	**3,87**	**0,00**	**3.978.849**	**43**	**4**	**0**	**0,003**	**9,30**	**0,00**

Table 22

Production, control and avaibility of FMD vaccine, according to country.
South America, 2004

Country	Valence	Prepared (in 2004)	Controlled* (in 2004)	Approved	Exported	Imported	Available doses** (distributed)	Available doses Bovine
Argentina	Monovalent	2.369.375	2.369.375	...	...	0	...	...
	Tetravalent	134.725.245	115.725.305	108.059.655	6.052.620	0	118.515.125	2,02
Bolivia	Trivalent	0	0	0	0	9.574.147	9.670.571	1,50
Brazil	Bivalent	13.249.960	13.249.960	13.249.960	11.000.000	0	0	-
	Trivalent	311.058.060	311.058.060	303.078.590	16.200.390	0	347.889.280	1,75
Colombia	Bivalent	67.405.018	80.108.658	60.119.528	12.072.225	0	48.047.303	2,22
Ecuador	Bivalent	0	0	0	0	6.400.000	5.000.000	1,11
Paraguay	Trivalent	13.434.600	...	...	4.452.600	6.008.900	14.990.900	1,58
Peru	Bivalent	0	0	0	0	400.600	400.600	Vac.Táctica
Uruguay	Bivalent	0	0	0	0	28.173.000	18.302.260	1,58
Venezuela	Bivalent	7.138.000	7.138.000	7.130.000	0	9.300.000	16.438.000	1,41
Total	**Monovalent**	**2.369.375**	**2.369.375**	**...**	**...**	**0**	**...**	
	Bivalent	**87.792.978**	**100.496.618**	**80.499.488**	**23.072.225**	**16.100.600**	**69.885.903**	
	Trivalent	**324.492.660**	**311.058.060**	**303.078.590**	**20.652.990**	**15.583.047**	**372.550.751**	
	Tetravalent	**134.725.245**	**115.725.305**	**108.059.655**	**6.052.620**	**0**	**118.515.125**	

* Includes doses produced in 2003 and not necessarily all doses produced in 2004.

** Doses of vaccine distributed in the country (independently of the year of production and includes doses remaining from the previous year.

ANNEX

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER
Veterinary Public Health – PAHO/WHO

REPORT ON THE OCCURRENCE OF OUTBREAKS OF FMD TYPE C IN THE AMAZON STATE, BRAZIL

I. SUMMARY OF THE OFFICIAL INFORMATION

1. Information on the first outbreak

On September 9, 2004 the Ministry of Agriculture, Livestock and Supply of Brazil -MAPA, reported an outbreak of FMD in the Municipality of Careiro da Varzea, State of Amazon, (03º 13' 77,6" Latitude South - 59º 46' 76,4" Longitude West).

The suspicion was communicated to the MAPA by the owners of the operation on August 25.

A total of 4 bovines (1 to 2 years old) were reported affected. The animal existences in the premises were 34 bovines, 15 sheep and one swine.

The results from the official laboratory at Belem, Pará came out as FMD type C.

The outbreak was located in an island in the Amazon River (Careiro Island) where animal movement is made exclusively by river boats, and is separated from the FMD free zone with vaccination recognized by the OIE for more than 500 km.

The Amazon Region is enclosed in the Northern Livestock Circuit, in which the animal health attention system is still under development. All livestock production is consumed locally.

2. Actions taken

Affected premises were quarantined and animal movement curtailed. An intense epidemiological surveillance was carried out around the zone

Every farm in the Island was interdicted and 5 control posts and two boats for surveillance put in place

A total of 600 premises were visited and more than 17.000 susceptible animals inspected

Every farm in the enclosed area was subjected to a new census and all bovine and buffaloes (Bubalus bubalis) vaccinated under official supervision.

Army, Navy, local and federal government personnel were used in the activities carried out (12 DVMs, 23 technicians; 78 assistants)

3. Secondary outbreaks

Three other outbreaks were registered in the vicinity of the index outbreak. In these premises there were 1180 susceptible animals (973 bovines, 1 swine and 207 buffaloes). Among them there were 17 affected bovines.

4. Final Report: (November, 11, 2004)

The census was finalized in Careiro da Várzea and 1.201 premises were subjected to supervised compulsory vaccination of a total of 70,477 bovines and 4,448 buffaloes

The epidemiological survey in the premises of Careiro da Várzea and neighboring municipalities, including animal movement history, covered more than 17,000 animals without detecting clinical signs compatible with vesicular diseases.

On October 30th., when sanitary surveillance activities were finished, all movement restrictions for animals and products were. A minimum of two vaccinations was imposed for those animals headed to the municipality.

II. CHARACTERIZATION OF THE CAUSING AGENT BY PANAFTOSA

Samples of the isolates of FMDV type C were analyzed at PANAFTOSA-OPS/OMS with the following results:

1. Typing and sub typing. Samples were processed at LAPA Laboratory in Belem with three passages on BHK (FC 50%), confirming the diagnosis of FMDV type C (registered as C3/Careiro da Várzea/AM/Bra/2004) (see annex).
2. Immunogenic Characteristics. An EPP study carried out, using the sera bank at PANAFTOSA, from vaccinated and revaccinated animals with prototype vaccines of the region showed EPP values of 52, 15% at 30 DPV (days post vaccination) and 95,91% at 30 DPR.
3. Genetic Characteristics. BHK 1,2,3 cell passage samples of the C virus sent by MAPA-Brasil (treated with TRISOL) were submitted to molecular studies at PANAFTOSA. Nucleotide sequence of the VP1 protein encoding gene were run and compared with Type C reference strains (annex). Results lead to the conclusion that the isolate is endogenous to the Continent. Nevertheless, it was not possible to establish a close relationship with any of the isolates of the PANAFTOSA-OPS/OMS data bank (maximum homology of 89%). Results of the comparison between this isolate C3/Careiro and C3/Indaial/Bra/71 (vaccine strain), showed a genetic difference of 13% in the region studied. This precludes the hypothesis that the virus resulted from an escape from the vaccine industry.

III. EPIDEMIOLOGICAL ANALYSIS ON THE OCCURRENCE

Amazon State is included in an area considered by national authorities as of unknown risk for FMD. The State is presently in the process of improving the animal health service.

Amazon State has an area of 1,5 thou. km2. (18,4% of Brazil's surface). The State registers a bovine population of 1,152,108 heads (0,6% of the country's) and 11,950 farms (0,46% of the country's). Production systems are family own and operated but some extensive farming also exists. Farming areas and animal movement are limited by the natural river tide (Equatorial Rain Forest) (photos in annex). Livestock production is consumed within the zone, and the additional demand supplied by importations from other status.

Furthermore, according to national authorities, disease detection capacity and vaccination levels are very low in the region.

The conditions for livestock production, the ecology, animal density and animal movement in the area, in addition to the difficulties faced by the veterinary service are compatible with viral circulation and maintenance of FMD endemism in the bovine population. Genetic characteristics of the isolate of an indigenous virus support the fact that clinical activity was detected when surveillance capabilities of local veterinary attention services were improved.

Epidemiological analysis carried out by national authorities never discarded the eventuality of diagnosing FMDV type C in the area, reason for which the trivalent vaccine (O,A,C) is still used in the country.

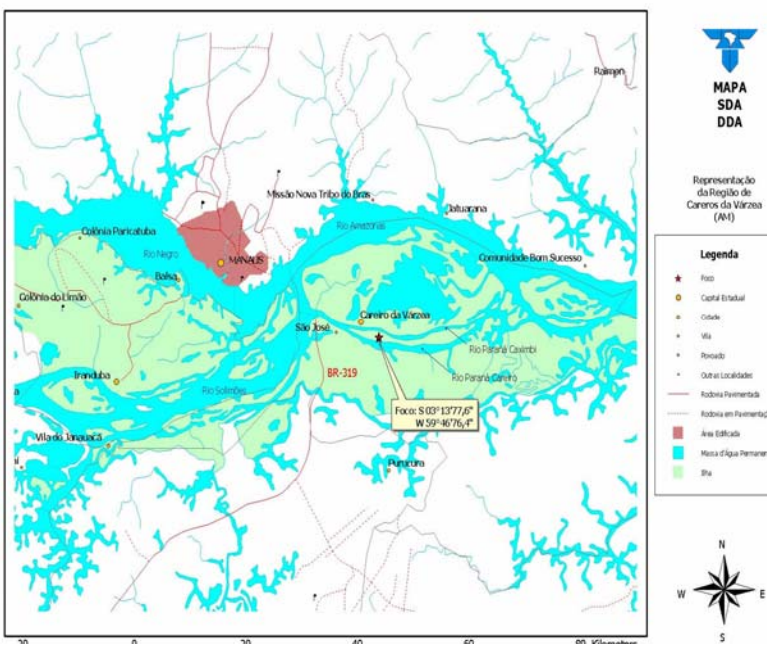
Brazilian authorities have developed a phased national FMD eradication program, based on a regionalized strategy in accordance with the so called livestock circuits. As a result of such approach, Brazil has achieved recognition by the OIE, of the livestock circuits of the south (Río Grande do Sul, Santa Catarina and Paraná states), and eastern and western circuits (Sao Paulo, Mato Grosso, Mato Grosso do Sul, Goias, Minas Gerais, Río de Janeiro, Espirito Santo, Distrito Federal and Bahia). During the processes of recognition a variety of aspects were taken into account such as: epidemiological evaluations, analysis of vulnerability and receptivity, absence of clinical disease as well as viral activity, and vaccination coverage.

The free zone is physically separated from the endemic by natural barriers such as the Amazon jungle and wide rivers complemented with buffer zones. Additionally, animal movement into the zone is controlled by barriers manned by federal personnel. The free zone is surveyed by 1135 units of veterinary attention, 2126 official veterinarians and 8146 auxiliaries

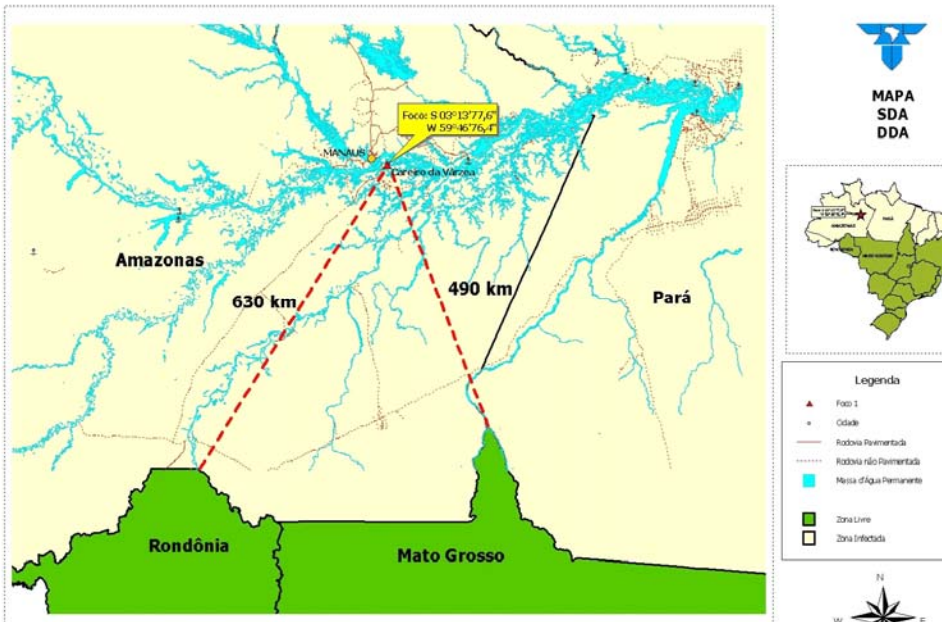
Animal health authorities of Brazil have started the implementation of the FMD program within the northern and northeastern circuits, and that includes Amazon State.

Based on the above described it is accepted that the risk of diffusion of type C virus to FMD free zones in Brazil and elsewhere in South America is very low mainly due to the absence of ecological and productive links with them and for the animal movement control activities enforced. Furthermore, in the case of Brazil, with the exception of the State of Santa Catarina where vaccination is not performed, the FMD free zone with vaccination has a coverage that exceeds 90% with a trivalent vaccine (A,O,C).

IV. ANEXOS



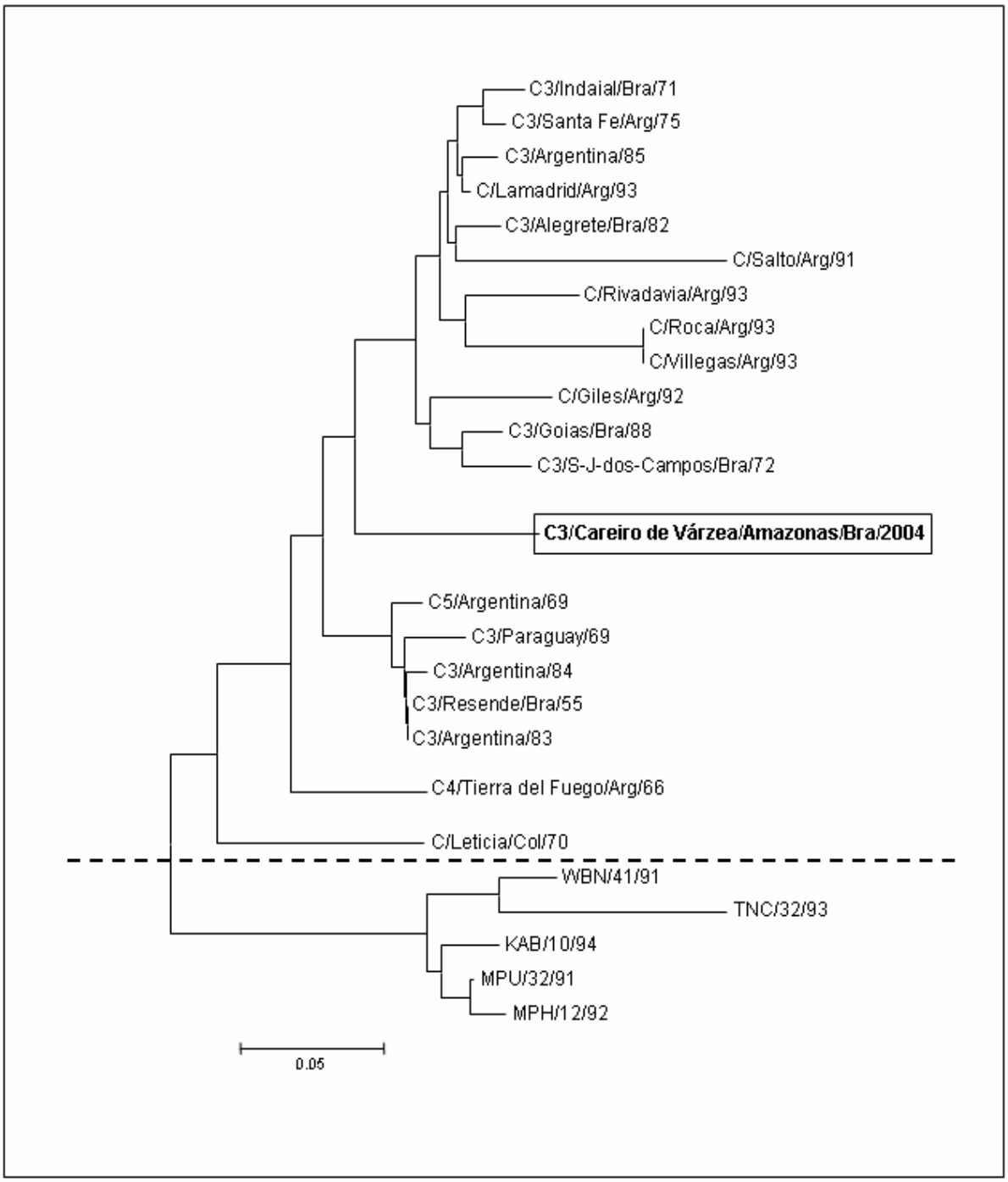
Map 1. location of the FMD outbreak by type C virus in the Municipality of Careiro da Varzea, Amazon State, Brazil (Sep.2004)



Map 2 location of the outbreak in relation to the FMD free zone with vaccination.

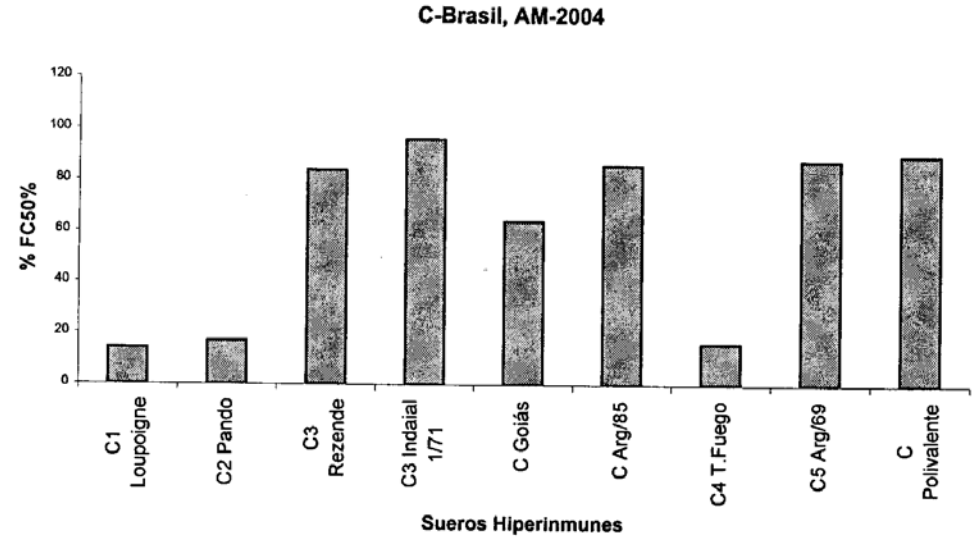
Satellite image of the zone affected by FMD virus C Amazon, Brazil.

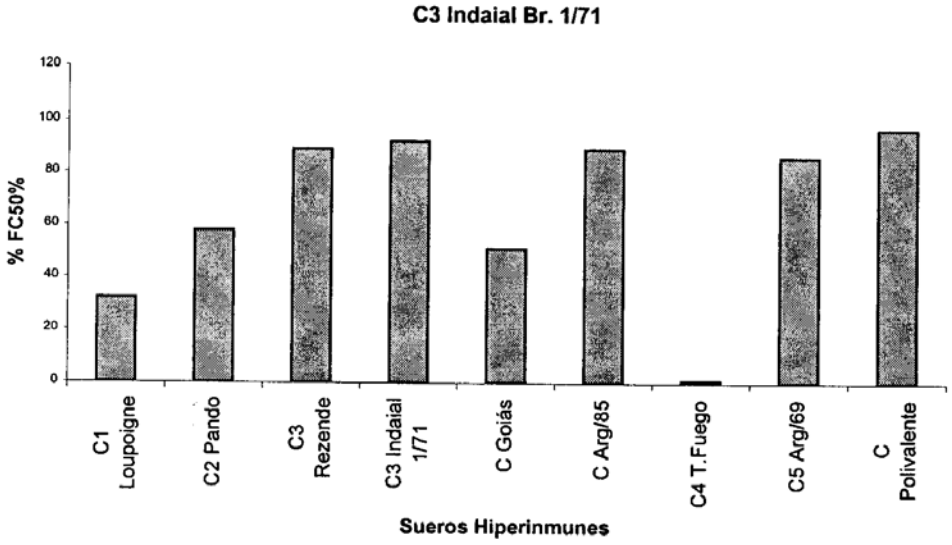
Aerial photo of the zone



Graph 1. Genetic Characterization of Virus C3/Careiro da Várzea/AM/Bra/2004

VIRUS FIEBRE AFTOSA "C-Brasil, AM-2004"
Caracterización antigénica por subtipificación en Fijación de Complemento 50%





Graph 2 Antigenic Characterization of Virus C3/Careiro da Várzea/AM/Bra/2004

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