PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
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PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

SITUATION OF THE FOOT-AND-MOUTH DISEASE CONTROL PROGRAMS SOUTH AMERICA, 1994

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1. EPIDEMIOLOGICAL SITUATION

1.1 General Aspects

The veterinary services of the South American countries reported a total of 3839 establishments clinically affected by vesicular diseases, which meant that although the total increased by 0.8% over the preceding year, the behavior was practically equal to that of 1993 in terms of overall frequency. However, countries like Brazil, Colombia and Venezuela showed respective increases of 47%, 43% and 29%. Ecuador reported the same occurrence and Argentina, Bolivia (field information from two departamentos), Peru and Paraguay showed decreases of 91%, 93%, 57% and 51%, respectively (tables 1 & 2).

The number of affected grid squares notified to the Continental Epidemiological Surveillance and Information System for Vesicular Diseases, coordinated by the Pan American Foot-and-Mouth Disease Center/Pan American Health Organization (PANAFTOSA/PAHO), dropped by 3% in comparison with 1993, 6% relative to 1992, and 11% in relation to 1991. Nevertheless, Brazil and Venezuela had 33% and 76% increases, respectively, in their reports of affected grid squares; Colombia and Bolivia reported no changes; Argentina, Ecuador, Paraguay and Peru recorded declines (map 1).

Brazil (14), Bolivia (4), Peru (2), Argentina (1) and Colombia (1) recorded vesicular diseases in grid squares that had not been reported as affected since 1977.

Although the past three years have shown a decline in the number of grid squares with presence of vesicular diseases in Argentina, Ecuador and Paraguay, a trend to increase was noted in Brazil. No changes in the affected grid squares were noted in the other countries.

With respect to the weekly repetition of affected grid squares, Colombia and Brazil reported the grid squares having the highest frequencies of weeks with presence of vesicular disease episodes (map 1).

The political-administrative units of each country with greatest occurrence of affected establishments were: in Argentina -Río Negro and Buenos Aires (89% of the total); in Bolivia, with field information of two departamentos -Santa Cruz and Cochabamba (100%); in Brazil -Ceará, Minas Gerais, Pernambuco, São Paulo and Mato Grosso (62%); in Colombia -Cundinamarca (predominance of foot-and-mouth disease), Santander (predominance of foot-and-mouth

disease), Boyacá (predominance of foot-and-mouth disease), Antioquia (predominance of vesicular stomatitis) and Bolívar (predominance of vesicular stomatitis) (67%); in Ecuador -Pichincha, Carchi, Imbabura and Zamora Chinchipe (67%); in Paraguay -Paraguarí and Amambay with 4 foci out of a total of 7; in Peru -Cuzco, Junín and Arequipa (46% of the total) and in Venezuela Zulia, Mérida and Trujillo, with 60%.

The months reporting higher frequencies of establishments affected by vesicular diseases were May, April and January; the first and second with a high contribution of Brazil (84%) and the third of Colombia (66%). Worthy of note was the absence of vesicular diseases in Argentina since May (table 2).

With respect to the expected frequencies of vesicular disease occurrences, Brazil exceeded expectations during the months of March, April, May, July and August; Colombia did the same in January; Ecuador in July; Peru in August and Venezuela in December (table 2).

Of all the species affected -cattle, pigs, sheep, goats, buffalos (Brazil), deer (Venezuela) and equines (Colombia, Peru), cattle reported the greatest number of such episodes (94%). 100,033 cattle were affected, 44% less than the previous year although a larger number of establishments were affected (tables 3 & 4).

As in 1993, the average rate of affected herds was 0.9 x 1000, with the highest rates being attributed to Bolivia and Colombia. Internal morbidity in the farms with episodes was 15.6%; Ecuador, Brazil and Colombia posted rates above that percentage (table 5).

The internal morbidity and lethality rates in pigs were significantly higher than in cattle, just as in the previous year (table 6).

The morbidity and gravity indicators were generally lower in sheep, goats, equines than those reported in cattle (tables 7,8,9).

1.2 Foot-and-Mouth Disease

Chile, Guyana, French Guiana, Suriname, the Patagonian region of Argentina south of the 42nd parallel and the northern region of Chocó in Colombia remained free of the disease. Uruguay recorded its fourth straight year without foot-and-mouth disease and ceased to vaccinate against the disease in June. Uruguay eliminated the handling and existence of virus in the country.

The foot-and-mouth disease/vesicular stomatitis ratio recorded, (4/1) greater than in the two preceding years, is due to an increase in foot-and-mouth disease and a decrease of vesicular stomatitis in some countries of the region.

The characterization of the foot-and-mouth disease frequency in the continent is based on the countries' laboratory diagnosis reports. Its representativity, therefore, is given by the capacity of final diagnosis verification and the coverage of the epidemiological surveillance systems of each country.

1.2.1 Foot-and-Mouth Disease virus type O

Virus type O, which last year had shown a lower frequency when compared to 1992, increased by 334 (79%) diagnoses more than in 1993.

The occurrence of virus type O was 282% higher than that of virus type A and 6.208% higher than virus type C, thus maintaining the predominance reported in 1993 and 1992. As in 1993, it showed a broader geographic spread than the other two types of virus (table 10, maps 2,3,4).

Colombia and Brazil accounted for 88% of the 758 properties having occurrences of virus type O, whereas Venezuela recorded no diagnoses of that type of virus.

Of the 758 affected properties that produced positive diagnoses to type O virus, 97% had affected cattle (tables 11,12).

With respect to distribution over time, the months of highest occurrence were: April and May (highest in Brazil) and January (the highest in Colombia).

1.2.2 Foot-and-Mouth Disease virus type A

Of 198 establishments affected by foot-and-mouth disease virus type A, 195 (98%) were farms with sick cattle; of the total, 76% occurred in Brazil, 20% in Colombia, and 4% remaining in Bolivia and Venezuela (tables 13,14). The highest frequencies occurred in January and May with Brazil accounting for the major amount. Of interest is the fact that this virus has not been recorded in Paraguay since 1987, nor in Ecuador since 1992. In comparison with the preceding year, a 13% drop was posted, thus maintaining the tendency toward decline observed in the last five years.

1.2.3 Foot-and-Mouth Disease virus type C

Twelve farms affected by foot-and-mouth disease virus type C were identified in Brazil, Argentina and Bolivia. Eleven corresponded to properties with affected cattle. Brazil reported almost all the foci (tables 15,16).

Colombia, Ecuador and Venezuela are free of the virus type C. Peru and Paraguay have not reported this virus type since 1984 and 1986, respectively. However, Bolivia, which had not reported the virus since 1990, recorded one episode.

ARGENTINA

Absence. No episodes were recorded in the provinces of Neuquén (since 1984), Mendoza and Tucumán (since 1990), San Juan (since 1974), La Rioja (since 1985), Catamarca and Jujuy (since 1991), Corrientes, Misiones and Entre Ríos (since 1992), Salta, Formosa, San Luis, Córdoba, La Pampa and Santiago del Estero.

Sporadic Frequency. Occurrence characterized as sporadic was recorded in Chaco, Santa Fé and Buenos Aires.

Regular Frequency. No zones with these characteristics were determined to exist.

Epidemic Frequency. Epidemic situations were reported in the beginning of the year in the northeastern region and southwest of Río Negro.

BOLIVIA

This country operates a foci notification system that covers only the departamentos of Santa Cruz and Cochabamba. Thus it is not possible to classify the country's areas according to the disease frequency levels.

Bolivia is undertaking studies to establish a surveillance and information system that will enable it to expand the coverage of the current system.

BRAZIL

Absence. Rio Grande do Sul, Santa Catarina, the Federal District and Alagoas were the only states not recording foot-and-mouth disease notifications.

Sporadic Frequency. Amapá, Roraima, Amazonas, Acre, Pará and Paraná recorded sporadic foot-and-mouth disease.

Regular Frequency. Bahia, Rio de Janeiro, Mato Grosso do Sul, Rondonia, Maranhão, Sergipe, Espírito Santo, São Paulo, Minas Gerais and Goiás reported frequencies at the usual levels.

Epidemic Frequency. Tocantins, Mato Grosso, Ceará, Pernambuco, Rio Grande do Norte, Piauí and Paraíba reported frequencies well above the expected levels.

COLOMBIA

Absence. Amazonas, Atlántico, Caquetá, Chocó, Guainía, Guaviare, Quindío, San Andrés and Providencia, Risaralda, Vaupés and Meta did not record any disease presence.

Sporadic Frequency. Antioquia, Arauca, central-north Bolívar, Caldas, Casanare, Huila, La Guajira, Magdalena, Norte de Santander, Putumayo and Valle reported frequencies in this range.

Regular Frequency. No regions were characterized in this category.

Epidemic Frequency. South of Bolívar, Boyacá, Cauca, César, Córdoba, the plains of Bogotá and Ubaté valley in Cundinamarca, Santander, Nariño, Sucre, Tolima and Vichada reported occurrences defined as epidemic.

ECUADOR

Absence. Cotopaxi, Galápagos, Tungurahua, Cañar, Esmeraldas, Manabí, Guayas, El Oro, Napo, Pastaza, Morona Santiago, Zamora, Chinchipe and Sucumbíos.

Sporadic Frequency. Imbabura, Chimborazo, Bolívar, Azuay, Loja and Los Ríos.

Regular Frequency. No provinces could be considered as having usual occurrences.

Epidemic Frequency. Carchi and Pichincha.

PARAGUAY

Absence. Boquerón, Alto Paraguay, Central, Cordillera, Guairá, Misiones, Itapúa, Ñeembucú, Caazapá, Alto Paraná, Concepción and San Pedro: no disease was reported in these areas.

Sporadic Frequency. Amambay, Presidente Hayes, Caaguazú, Canindeyú and Paraguarí reported foot-and-mouth disease frequencies falling into this category.

Regular Frequency. No departamento had occurrences in this category.

Epidemic Frequency. No departamento reported behavior catalogued as epidemic.

PERU

Absence. The disease was not recorded in Amazonas, Loreto, Madre de Dios, Moquegua, San Martín, Tacna, Tumbes or Ucayali.

Sporadic Frequency. Occurrences that may be considered sporadic were reported in Ayacucho, Cajamarca, Piura, Huanuco, Cerro de Pasco, Ica, Huancavelica, Puno and Lambayeque.

Regular Frequency. Frequencies considered as normal were reported in Junin, La Libertad, Ancash, Cuzco, Apurimac, Arequipa and Lima.

Epidemic Frequency. No epidemic frequencies were reported.

VENEZUELA

Information not made available.

1.2.4 Virus sybtypes

The O_1 subtype was identified in all the countries of the area that were affected by foot-and-mouth disease. Brazil and Colombia identified the A_{24} subtype. Venezuela and Bolivia did not forward samples to PANAFTOSA for characterization. Both Argentina and Brazil identified the C_3 virus subtype (table 22).

1.3 Vesicular Stomatitis

256 diagnoses of the two stomatitis viruses were reported during the year in South America. This was a decline of 17% and 38% when compared to 1993 and 1992, respectively.

1.3.1 New Jersey vesicular stomatitis virus

The Andean Region -Colombia, Peru and Venezuela- were the only countries reporting the presence of this disease. As in previous years, Colombia maintained the highest percentage (95%) of farms identified with this disease (table 17).

95% of the properties affected reported cattle afflicted by the disease (table 18).

1.3.2 Indiana vesicular stomatitis virus

Colombia and Peru were the only countries reporting episodes caused by this type of virus. The same as with the New Jersey virus, Colombia reported the highest frequency (98%) of properties affected by this virus.

As in the previous year, the frequency of occurrence of Indiana type virus was much lower than the New Jersey type.

94% of the properties reporting presence of the disease recorded diseased cattle (tables 19,20).

1.3.3 Vesicular stomatitis in Mesoamerica and Mexico

Of 367 properties affected by vesicular disease, the New Jersey virus was confirmed in 40% of the cases and Indiana virus in 4%. The remaining 56% was related to negative findings in laboratory results or clinical-epidemiological diagnoses.

El Salvador, Mexico and Honduras were the countries recording the highest numbers of episodes up to September (table 23).

2. SITUATION OF THE FOOT-AND-MOUTH DISEASE CONTROL PROGRAMS

2.1 Geographic and Populational Coverage

The foot-and-mouth disease-control programs encompass 70.2% of the geographical surface of South America, 91% of the cattle herds and 88% of the cattle population (table 24).

The following are the countries that do not yet have full-coverage programs in the fight against the disease: Bolivia, with 25% of the cattle population; Peru with 75% of its cattle; Brazil with 84% of its farms and 81% of the cattle population, and Colombia with 99.6% of its establishments and 99% of its cattle inventory.

2.2 Human Resources

In contrast to 1993, when the number of personnel participating in the foot-and-mouth disease-control programs declined by 8%, human resources availability increased some 7% in 1994. Peru, Venezuela and Brazil, where human resources numbers had declined from 1992 to 1993, showed increases of 196%, 54% and 10%, respectively. On the other hand, personnel numbers declined by 28% and 52%, respectively, in Colombia and Ecuador (tables 25,26).

2.3 Physical Resources

Compared to 1993, Argentina, Brazil, Ecuador and Paraguay expanded their motor-vehicle fleets slightly, while Colombia reported a slight reduction and the other countries showed no change (table 27).

2.4 Field Units

In general terms the field units showed no change in comparison with 1993. However, Argentina (4%), Colombia (12%) and Ecuador (11%) reduced their field units while Peru and Paraguay did not provide the 1993 base information (table 25).

2.5 Private and Public Expenditures

The public and private funds spent on the continental campaign amounted to US$ 298,449,100, of which the private sector provided 76% of the total (Peru did not inform of the private sector's amount) (table 28).

Total expenditures increased 22% in 1993; however, Colombia (2%), Chile (33%) and Ecuador (6%) posted declines. The previous

situation's explanation lies in the fact that Colombia determined the private expenditure in 1993 based on vaccine commercialized, and in 1994, based on vaccine recorded; Chile likewise posted a reduction in the expenditure due to the lower amounts paid out as indemnization to owners, and Ecuador posted a drop in both public and private expenditures.

2.6 Laboratory Confirmation of Vesicular Diseases

In the South American countries only 32% of the establishments affected by vesicular diseases produced etiological confirmation. All below this average are: Brazil (22%), Venezuela (19%) and Peru (30%) (table 29).

In Mesoamerica and Mexico, based on information available up to September, positive confirmation of vesicular stomatitis was found on 44% of the affected establishments. Mexico (39%), El Salvador (40%), and Guatemala (2/10) were both below this percentage (table 23).

2.7 Vaccination Against Foot-and-Mouth Disease

2.7.1 Production strains

The type O virus strain used to produce foot-and-mouth disease vaccine in South America was O_1 Campos-Br/58, with the exception of the O_1 Caseros-Arg/67 strain used in Argentina.

With respect to the type A virus strain, Argentina used strains A79-Arg/79 and A81-Arg/87, while the rest of the countries that produced vaccine utilized A_{24} Cruzeiro-Br/55.

With respect to the type C virus strain, Brazil utilized C_3 Indaial-Br/71, Paraguay and Uruguay used C_3 Resende-Br/55, and Argentina used C1 Arg/85 (table 30).

2.7.2 Availability of foot-and-mouth disease vaccine

2.7.2.1 Vaccine produced

In 1994, Brazil (37%), Argentina (44%), Colombia (6%), Uruguay (7%), Paraguay (3%) and Venezuela (2%) all produced a total of 273,027,800 doses of oil-adjuvanted vaccines. Only Brazil (109,948,500 doses) and Uruguay produced vaccines with aqueous adjuvant (table 31).

2.7.2.2 Controlled and approved vaccine

All the vaccines produced were controlled by the respective official agencies. 89% (three percentage points more than in 1993)

of the vaccine submitted to controls were approved for use (table 31).

Respectively, Colombia, Brazil and Argentina had 100%, 87% and 88% of their oil-adjuvanted vaccines approved, they used the foot-pad generalization protection test for their quality controls.

Paraguay and Venezuela approved their oil-adjuvanted vaccine production using the mouse protection and seroneutralization tests. Uruguay approved 97% of the controlled oil-adjuvanted vaccine production but did not indicate the quality control method used.

Of the aqueous vaccine controlled, Brazil approved 94% using the foot-pad generalization protection test; Uruguay approved 1,063,900 doses but did not indicate how many were controlled nor the method employed for controls (table 31).

2.7.2.3 International commercialization

The following countries imported oil-adjuvanted vaccines: ECUADOR received from PANAFTOSA 1,160,104 doses under the Technical Cooperation agreement, BOLIVIA imported 156,000 doses from Brazil, 1,044,000 from Uruguay, and received 420,000 doses under the PANAFTOSA Technical Cooperation agreement; VENEZUELA received 2,000,000 doses from Brazil and 600,000 doses from Colombia, PARAGUAY imported 1,440,030 doses from Uruguay and PERU imported 1,269,750 doses of which Brazil provided 30,000 and Uruguay provided 331,570; it also received 412,075 doses through the Technical Cooperation with PANAFTOSA, but did not report on the origin of the remaining doses.

2.7.2.4 Systematic vaccination

199,863,870 head of cattle were vaccinated in systematic vaccinations of one or two doses per year, which meant an overall increase of 9% over the total reached in 1993. Bolivia, Brazil, Ecuador, Paraguay and Venezuela posted increases over 1993; Colombia (used different data criteria), Uruguay (suspended vaccination in June) and Peru reduced the number of cattle vaccinated (table 32).

2.8 Commercialization of Animals and their By-products

The countries of the continent imported from each other and from foreign countries 217,431 cattle, 1,207,673 doses of cattle semen, 1829 embryos, 54,522 tons of meat and 37,280 tons of milk (table 33).

7423 swine and 35,241.47 tons of pork were imported from abroad (table 34).

Regarding sheep, 10,260 animals, 1650 doses of semen (Uruguay) and 4,369.8 tons of mutton were imported (table 35).

With regard to goats, 95 animals and 9 tons of meat (table 36) were imported, while 5607 head of equines, 120 doses of semen from Argentina and 0.8 tons of meat were brought in (table 37).

To their sister countries, and to countries outside the continent, the South American countries exported 333,221 head of cattle, 28,760 doses of cattle semen, 862 bovine embryos, 361,510 tons of beef and 14,907 tons of milk (table 38); 16,266 swine and 8114 tons of pork (table 39); 90,220 sheep and 14,620.1 tons of mutton (table 40); 232 goats and 66 tons of goat meat (table 41); 6127 horses, 20 embryos and 14,289 tons of horsemeat (Brazil and Bolivia did not submit reports) (table 42).

3. CONCLUSIONS

3.1 Epidemiological

The frequency of the appearance of vesicular diseases goes on within the rising cycle first observed in 1992. Nevertheless, the differences in relation to the previous year are owing more to a qualitative than to a quantitative change in the distribution of the foci on the continent. The Plata basin subregion has shown an improvement in its epidemiological situation, with absence of clinical disease in broad areas of the respective countries and maintenance of the traditional free areas, in the Andean and Amazon subregions the situation has grown worse.

While Uruguay began the second phase of its eradication program, prohibiting the vaccination and the possession and manipulation of the foot-and-mouth disease virus throughout the country beginning in June 1994, foot-and-mouth disease in Colombia reported increased incidence in comparison with the preceding year, including epidemic situations occasioned by the A and O type viruses, predominantly situations produced by the second.

Argentina reported the lowest level of foci in its history. The Mesopotamia region posted 24 months without the clinical presence of the disease, ditto throughout the country since the month of May.

Bolivia, after the critical situation presented in 1993, reported a decline in the number of foci. Brazil, on the other hand, reported an epidemic situation in the northeastern region, with 1002 foci. In the southern region, however, no foci were reported after June, and two of the States posted no record of the disease during the entire year.

The past three years have shown a decline in the number of grid squares affected on the continent. Although a greater number of farms were affected in comparison with 1993, the number of sick cattle was less due to a reduction in the attack rate or internal rate on the affected farms.

With reference to the episodes showing positive diagnosis, the trend shown in preceding years was altered regarding the foot-and-mouthdisease/vesicular stomatitis ratio where the latter showed growing importance. In 1994 a 4/1 ratio was observed, owing mainly to the growing frequency of the foot-and-mouth disease virus type O recorded over the past three years, as well as to a decline in both types of vesicular stomatitis. Foot-and-mouth disease caused by the A and C viruses continue to remain stable considering the entire continent.

3.2 Situation of the Programs

Generally, the process of deterioration in the sanitary services was reversed, as the number of human resources increased, except for Colombia and Ecuador where they declined.

The private sector has taken a more active, stronger role by making larger funding available, in comparison with the public sector, to conducting the foot-and-mouth disease campaign.

A factor of concern is the low percentage of affected properties that have a subsequent etiological confirmation; this situation is especially apparent in the Andean area and some regions of Brazil.

3.3 Continental Vesicular Diseases Surveillance and Information System: functioning and results

3.3.1 Introduction

The regular meeting of COSALFA XXI in 1994 discussed the overall weakening of the operations and utilization of the continental system's information for vesicular disease epidemiological surveillance, and accordingly, identified the critical points that affect the system in order to apply the most suitable measures according to the present possibilities of the veterinary services, and the advances achieved in some areas of South America.

PANAFTOSA examined in detail the components of the weekiy report, the means of information and the feedback procedures that make up the system in both the affected area and the free area (see tables 43,44,45 and 46). It was found that the system iniciated in April, 1977, continues being an agile and simple system to communicate information under the current conditions of the animal

health services in Latin America. But also, it was recognized that the feedback should include other indicators that lead to a broader awareness of the geographic space wherein the presence of vesicular disease is suspected. This will complement the information needs of the users of the continental epidemiological surveillance system.

3.3.2 Functioning in South America

3.3.2.1 Communications of alert

The communication of alert was envisioned as a mechanism to warn the countries quickly, bringing to their attention the occurrence of vesicular disease episodes in areas of neighboring countries near their borders, or when the disease appears in spaces where occurrences have not been reported for long periods of time.

As part of the continental surveillance system, the alert system operates independently of the weekly reports, and should enable pertinent action to be taken with the haste required by a given situation.

In 1994 PANAFTOSA sent out 96 alert warnings to the countries, alerting them to the occurrence of vesicular disease in 148 grid squares near their borders. The occurrences of episodes in the border spaces and the types of virus identified were distributed as follows (see map 5):

- 11 to Argentina, one originating in Bolivia (without laboratory diagnosis); 7 in Brazil (all virus type A); and 3 in Paraguay (two with O_1 virus and one negative). For Argentina, grid squares 3262 and 3363 were the major risk ones (virus A in both);

- 45 to Bolivia, 42 originating in Brazil and 3 in Peru. For Bolivia grid squares 1065 and 1161 (with negative lab results), and 1062 and 1656 (with virus O_1 identified), and 1558 and 1657 (no samples collected), represented the greatest risk for the frequencies of episodes observed during the year. Virus type C_3 was identified in grid square 1957;

- 2 to Brazil, originating in Paraguay (virus type O);

- 11 to Colombia, 6 originating in Ecuador and 4 in Venezuela, of which virus O was identified in one case. The greatest risk for Colombia was found in the border grids 0077N and 0177N (virus O_1 in both);

- 4 to Chile, one originating in Argentina (virus O identified) and three in Peru, virus O being identified in grid square 1669;

- 23 to Ecuador, all originating in Colombia. Grid 0177N (virus O_1) showed the greatest risk for the country with a frequency of 19 weeks with episodes reported;

- 2 to Guyana, both originating in Brazil, but without identification of the virus types in the samples collected;

- 12 to Paraguay, all episodes originating in Brazil. Grid squares 2554 and 2654 (both virus A) were of greatest risk. Virus C_3 was identified in the border grid square 1955;

- 2 to Peru (virus O identified), originating in Ecuador;

- 36 to Venezuela, 2 originating in Brazil (virus type not identified), and 34 in Colombia. The major risk for Venezuela was shown in grid square 0973N (virus O_1 and NJ) which showed 13 weeks of occurrences, and 0873 (virus O_1) with 14 weeks of occurrences, as well as grid 0672N (virus O_1 and NJ).

The surveillance system improved in 1994, as the countries showed more dedication and concern to forward to PANAFTOSA samples from the episodes occurring in border grid squares; Ecuador was the country that sent in the highest number of samples.

The countries must pay special attention to the promptness with which they send to PANAFTOSA the weekly epidemiological report; this aspect is viable nowadays thanks to the modern mechanisms available for information transmission. Consequently, the alert warning can be promptly prepared and forwarded.

PANAFTOSA is studying the possibility of tying into the international information network that could speed up the system even more.

3.3.2.2 Weekly Epidemiological Report

The epidemiological surveillance systems of the official animal health services of the South American countries generate information about the presence of vesicular diseases in a form independent of the number of episodes recorded. That information is then located on maps divided into grid squares based on geographic coordinates, and sent weekly to PANAFTOSA. The information is then fed into a data base that generates the Weekly Epidemiological Report. This in turn is distributed to the countries of the region and to international agencies on and off the continent; the purpose is to provide information that enables epidemiological surveillance to be maintained.

In 1994 the countries sent in 98% of the information reports (table 43). Only Bolivia posted a low compliance (81%). Peru

managed to forward the reports systematically as of mid-year, while Bolivia normalized its communications from week 47 on.

On average, there was a 13-day delay on weekly reports reception. However, the time span between PANAFTOSA's receiving the reports and transmitting the "feedback" to the countries was cut to a day when, starting with week Nr. 37/94 (corresponding to September), the epidemiological summary of the week was transmitted by fax on Tuesdays to the PAHO/WHO offices, to the national services and to international agencies.

To reach that goal the content and text of the information was changed to stress:

- The grid squares showing occurrences that week where a vesicular disease had never been recorded, or is the first time in the last three years.

- The frequencies recorded during the year underway in the grid squares with occurrences during the week, which enables the system to notice endemic or epidemic situations in the space.

- The grid squares with vesicular disease adjacent to another country, which enables analysts to foresee threatening or risk situations for the neighboring country.

- The information coverage for the week, as an indication of the management level reached in the local units.

- The countries that informed the absence of occurrences during the week.

- The countries from which no information was received at the close of the week.

4. SYSTEM FOR NOTIFICATION OF SYNDROMES COMPATIBLE WITH EQUINE ENCEPHALOMYELITIS. INPPAZ/PANAFTOSA/PAHO

Ccoperation between PANAFTOSA and INPPAZ is producing and disseminating information related to equine encephalomyelitis. The countries feed this report together with the weekly communication on vesicular diseases using the same procedures.

Now in its sixth year of activity, the system has managed to become and remain functional in Bolivia, Brazil, Colombia, Ecuador, Paraguay and Venezuela. The countries of Central America and the Caribbean, except for Panama, El Salvador and Guatemala, do not provide information to the system.

TABLE 1. Number of establishments affected by vesicular diseases, by causal agent. South America, 1994

Country	Establi. Affected	Establi. Affected w/Samples	Diagnoses				
			FMD			Ves. Stomatitis	
			O	A	C	New Jersey	Indiana
Argentina	18	18	15	0	2	0	0
Bolivia *	59	36	24	3	1	0	0
Brazil	2.084	740	304	150	9	0	0
Colombia	1.452	959	361	40	0	194	51
Ecuador	63	29	23	0	0	0	0
Paraguay	7	7	7	0	0	0	0
Peru	89	35	24	0	0	2	1
Venezuela	67	50	0	5	0	8	0
Total	3.839	1.874	758	198	12	204	52

* Departments of Santa Cruz, Cochabamba, La Paz and Chuquisaca.

TABLE 2. Monthly distribution of properties affected by vesicular diseases.
South America, 1994

Country/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	15	1	0	2	0	0	0	0	0	0	0	0	18
Bolivia *	4	11	5	6	4	10	2	3	3	2	5	4	59
Brazil	111	83	252	455	517	145	213	126	36	41	63	42	2.084
Colombia	285	153	106	67	80	109	130	150	117	60	98	97	1.452
Ecuador	1	2	3	3	5	7	13	8	11	3	4	3	63
Paraguay	2	0	1	0	1	0	0	0	3	0	0	0	7
Peru	7	5	13	7	6	8	10	18	7	2	2	4	89
Venezuela	8	2	2	3	2	5	6	3	6	7	14	9	67
Total	433	257	382	543	615	284	374	308	183	115	186	159	3.839

* Departments of Santa Cruz, Cochabamba, La Paz and Chuquisaca.

TABLE 3. Monthly distribution of properties with cattle affected by vesicular.
South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	14	1	0	2	0	0	0	0	0	0	0	0	17
Bolivia *	2	11	5	6	4	10	2	3	3	2	5	4	57
Brazil	109	83	246	449	515	143	211	124	34	41	63	42	2.060
Colombia	269	139	95	62	77	104	111	113	92	49	88	78	1.277
Ecuador	1	2	3	3	5	7	13	8	11	3	4	3	63
Paraguay	2	0	1	0	1	0	0	0	3	0	0	0	7
Peru	7	5	13	7	6	7	9	14	6	1	2	4	81
Venezuela	7	2	2	3	2	4	6	3	5	6	14	8	62
Total	411	243	365	532	610	275	352	265	154	102	176	139	3.624

* Departments of Santa Cruz, Cochabamba, La Paz and Chuquisaca.

TABLE 4. Monthly distribution of the number of cattle affected by vesicular diseases.
South America, 1994

Country/Mont	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	997	3	0	37	0	0	0	0	0	0	0	0	1.037
Bolivia *	58	100	35	8	128	21	4	45	2	6	124	31	562
Brazil	5.518	3.368	14.377	15.340	25.440	3.037	4.250	2.551	982	653	1.213	999	77.728
Colombia	3.187	1.373	1.097	895	1.400	3.292	1.223	1.312	804	681	1.153	529	16.946
Ecuador	3	23	10	121	24	43	160	43	102	25	32	62	648
Paraguay	27	0	25	0	10	0	0	0	68	0	0	0	130
Peru	144	51	215	84	88	159	179	155	68	19	41	30	1.233
Venezuela	35	2	2	9	2	12	51	191	132	11	440	862	1.749
Total	9.969	4.920	15.761	16.494	27.092	6.564	5.867	4.297	2.158	1.395	3.003	2.513	100.033

* Departments of Santa Cruz and Cochabamba.

TABLE 5. Morbidity aspects of vesicular diseases in cattle. South America, 1994

Country	Herds		Population				Rates			
	Total	Affected	Total (x 1000)	In herds affected	Sick	Dead	Herds Affected (0/00)	Morbidity Populational (0/000)	Morbidity Internal (0/0)	Lethality (0/0)
Argentina	273.081	17	55.421,0	16.634	1.037	14	0,06	0,19	6,23	1,35
Bolivia *	46.345	53	1.403,8	4.984	730	10	1,14	5,20	14,65	1,37
Brazil	2.212.263	2.060	157.830,7	429.550	77.720	850	0,93	4,92	18,09	1,09
Colombia	723.753	1.277	22.141,9	102.942	16.946	323	1,76	7,65	16,46	1,91
Ecuador	251.445	63	4.690,0	1.983	648	26	0,25	1,38	32,68	4,01
Paraguay	229.478	7	9.779,3	1.397	130	4	0,03	0,13	9,31	3,08
Peru	...	81	2.520,7	32.258	1.233	124	...	4,89	3,82	10,06
Venezuela	106.535	62	13.586,2	51.181	1.749	11	0,58	1,29	3,42	0,63
Total	3.842.900	3.620	267.373,6	640.929	100.193	1.362	0,92	3,75	15,63	1,36

... Information not available

* Departments of Santa Cruz and Cochabamba

TABLE 6. Morbidity aspects of vesicular diseases in swine. South America, 1994

Country	Population				Rates		
	Total (x 1000)	In herds Affected	Sick	Dead	Morbidity Populational (0/000)	Morbidity Internal (0/0)	Lethality (0/0)
Argentina	3.327,0	282	66	0	0,20	23,40	0,00
Bolivia *	919,4	173	12	0	0,13	6,94	0,00
Brazil	33.623,2	8.411	3.287	917	0,98	39,08	27,90
Colombia	2.187,0	4.544	729	94	3,33	16,04	12,89
Ecuador	2.627,6	97	86	13	0,33	88,66	15,12
Paraguay	1.420,3	0	0	0	0,00	0,00	0,00
Peru	2.395,7	3.494	221	124	0,92	6,33	56,11
Venezuela	2.744,4	181	161	11	0,59	88,95	6,83
Total	49.244,7	17.182	4.562	1.159	0,93	26,55	25,41

* Departments of Santa Cruz and Cochabamba

TABLE 7. Morbidity aspects of vesicular diseases in sheep. South America, 1994

Country	Population				Rates		
	Total (x 1000)	In herds Affected	Sick	Dead	Morbidity Populational (0/000)	Morbidity Internal (0/0)	Lethality (0/0)
Argentina	24.890,0	20.293	1.034	0	0,42	5,10	0,00
Bolivia *	1.377,4	0	0	0	0,00	0,00	0,00
Brazil	20.014,5	4.206	611	45	0,31	14,53	7,36
Colombia	1.527,9	1.799	128	0	0,84	7,12	0,00
Ecuador	1.329,0	0	0	0	0,00	0,00	0,00
Paraguay	385,5	0	0	0	0,00	0,00	0,00
Peru	11.911,6	8.080	109	17	0,09	1,35	15,60
Venezuela	366,2	69	6	0	0,16	8,70	0,00
Total	61.802,1	34.447	1.888	62	0,31	5,48	3,28

* Departments of Santa Cruz and Cochabamba.

TABLE 8. Morbidity aspects of vesicular diseases in goats. South America, 1994

Country	Population				Rates		
	Total (x 1000)	In herds Affected	Sick	Dead	Morbidity Populational (0/000)	Morbidity Internal (0/0)	Lethality (0/0)
Argentina	3.724,0	0	0	0	0,00	0,00	0,00
Bolivia	...	0	0	0	0,00	0,00	0,00
Brazil	11.894,5	137	4	0	0,00	2,92	0,00
Colombia	1.237,3	598	27	0	0,22	4,52	0,00
Ecuador	298,0	0	0	0	0,00	0,00	0,00
Paraguay	122,2	0	0	0	0,00	0,00	0,00
Peru	1.776,3	439	72	3	0,41	16,40	4,17
Venezuela	1.292,9	36	0	0	0,00	0,00	0,00
Total	20.345,1	1.210	103	3	0,05	8,51	2,91

... Information not available

TABLE 9. Morbidity aspects of vesicular diseases in equines. South America, 1994

Country	Population				Rates		
	Total (x 1000)	In herds Affected	Sick	Dead	Morbidity Populational (0/000)	Morbidity Internal (0/0)	Lethality (0/0)
Argentina	1.989,0	0	0	0	0,00	0,00	0,00
Bolivia	...	0	0	0	0,00	0,00	0,00
Brazil	6.121,5	0	0	0	0,00	0,00	0,00
Colombia	2.365,0	3.727	90	0	0,38	2,41	0,00
Ecuador	492,0	0	0	0	0,00	0,00	0,00
Paraguay	370,4	0	0	0	0,00	0,00	0,00
Peru	...	165	10	0	nc	6,06	0,00
Venezuela	586,3	4	0	0	0,00	0,00	0,00
Total	11.924,2	3.896	100	0	nc	2,57	0,00

... Information not available
nc: rate not calculable

TABLE 10. Establishments affected by FMD according to virus type, country and year. South America, 1994

Country	Virus Type	1987	1988	1989	1990	1991	1992	1993	1994
Argentina	O	23	95	103	196	37	108	78	15
	A	486	35	39	115	60	72	4	0
	C	27	5	4	5	2	39	50	2
Bolivia	O	0	0	2	13	2	18	10	24
	A	12	13	0	4	2	0	5	3
	C	1	4	4	0	0	0	0	1
Brazil	O	94	92	71	43	38	158	115	304
	A	161	91	72	43	18	72	182	150
	C	13	19	28	91	64	6	1	9
Colombia	O	100	268	280	83	74	226	137	361
	A	73	153	542	250	113	82	33	40
Ecuador	O	2	2	23	29	19	30	26	23
	A	11	15	9	5	5	0	0	0
Paraguay	O	3	2	30	2	27	23	12	7
	A	0	0	0	0	0	0	0	0
	C	0	0	0	0	0	0	0	0
Peru	O	0	1	0	32	2	12	44	24
	A	10	6	2	0	0	3	1	0
	C	0	0	0	0	0	0	0	0
Venezuela	O	20	6	9	3	6	1	1	0
	A	6	10	34	16	16	7	3	5

TABLE 11. Monthly distribution of properties affected by FMD virus type O. South America, 1994.

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	14	1	0	0	0	0	0	0	0	0	0	0	15
Bolivia	2	1	4	1	0	5	1	3	3	0	4	0	24
Brazil	4	5	29	112	69	19	28	21	9	3	0	5	304
Colombia	76	36	34	18	24	13	43	42	29	6	22	18	361
Ecuador	0	1	1	3	2	5	2	3	1	1	1	3	23
Paraguay	2	0	1	0	1	0	0	0	3	0	0	0	7
Peru	2	2	5	2	2	0	1	7	3	0	0	0	24
Total	100	46	74	136	98	42	75	76	48	10	27	26	758

- Venezuela had no outbreaks of FMD virus type O.

TABLE 12. Monthly distribution of properties with cattle affected by FMD virus type O. South America, 1994.

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	13	1	0	0	0	0	0	0	0	0	0	0	14
Bolivia	0	0	4	1	0	1	6	3	3	0	4	0	22
Brazil	4	5	29	111	69	19	28	21	9	3	0	5	303
Colombia	75	35	32	18	23	13	42	39	28	4	19	17	345
Ecuador	0	1	1	3	2	5	2	3	1	1	1	3	23
Paraguay	2	0	1	0	1	0	0	0	3	0	0	0	7
Peru	2	2	5	2	2	0	0	1	4	3	0	0	21
Total	96	44	72	135	97	38	78	67	48	11	24	25	735

- Venezuela register no outbreaks of FMD virus type O.

TABLE 13. Monthly distribution of properties affected by FMD virus type A. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Bolivia	2	0	0	1	0	0	0	0	0	0	0	0	3
Brazil	32	11	26	17	27	6	3	2	3	2	9	12	150
Colombia	1	1	6	4	1	1	0	4	4	3	6	9	40
Venezuela	0	0	0	0	1	1	1	0	0	1	1	0	5
Total	35	12	32	22	29	8	4	6	7	6	16	21	198

- Argentina, Ecuador, Paraguay and Peru register no outbreaks of FMD virus type A.

TABLE 14. Montly distribution of properties with cattle affected by FMD virus type A. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Bolivia	2	0	0	1	0	0	0	0	0	0	0	0	3
Brazil	32	11	26	17	27	6	3	2	3	2	9	12	150
Colombia	1	1	6	4	1	1	0	4	3	3	5	8	37
Venezuela	0	0	0	0	1	1	1	0	0	1	1	0	5
Total	35	12	32	22	29	8	4	6	6	6	15	20	195

- Argentina, Ecuador, Paraguay and Peru register no outbreaks of FMD virus type A.

TABLE 15. Monthly distribution of properties affected by FMD virus type C. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	0	0	0	2	0	0	0	0	0	0	0	0	2
Bolivia	0	0	0	0	1	0	0	0	0	0	0	0	1
Brazil	0	0	1	5	1	1	0	1	0	0	0	0	9
Total	0	0	1	7	2	1	0	1	0	0	0	0	12

- Paraguay and Peru register no outbreaks of FMD virus type C.
- Colombia, Ecuador and Venezuela are free of FMD virus type C.

TABLE 16. Monthly distrbution of properties with cattle affected by FMD virus type C. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	0	0	0	2	0	0	0	0	0	0	0	0	2
Bolivia	0	0	0	0	1	0	0	0	0	0	0	0	1
Brazil	0	0	1	4	1	1	0	1	0	0	0	0	8
Total	0	0	1	6	2	1	0	1	0	0	0	0	11

- Paraguay and Peru registered no outbreaks of FMD virus type C.
- Colombia, Ecuador and Venezuela are free of FMD virus type C.

TALBE 17. Monthly distribution of properties affected by vesicular stomatitis, New Jersey virus. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colombia	35	40	26	10	7	15	6	5	12	11	14	13	194
Peru	0	1	0	0	0	0	0	0	0	0	0	1	2
Venezuela	0	0	1	0	1	0	0	0	0	1	4	1	8
Total	35	41	27	10	8	15	6	5	12	12	18	15	204

- Chile, Suriname, Guyana, French Guayana and Uruguay are free of vesicular diseases.
- Argentina, Bolivia, Ecuador and Paraguay register no cases of vesicular stomatitis, New Jersey virus.

TABLE 18. Monthly distribution of properties with cattle affected by vesicular stomatitis, New Jersey virus. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colombia	34	39	24	10	7	15	6	5	11	11	14	12	188
Peru	0	1	0	0	0	0	0	0	0	0	0	1	2
Venezuela	0	0	1	0	1	0	0	0	0	1	4	1	8
Total	34	40	25	10	8	15	6	5	11	12	18	14	198

- Chile, Suriname, Guyana, French Guayana and Uruguay are free of vesicular diseases.
- Argentina, Bolivia, Ecuador and Paraguay registered no oubreaks of vesicular stomatitis, New Jersey virus.

TABLE 19. Monthly distribution of properties affected by vesicular stomatitis, Indiana virus.
South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colombia	4	3	0	0	3	2	2	8	7	6	6	10	51
Peru	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	4	3	0	0	3	2	2	8	7	7	6	10	52

- Chile, Suriname, Guyana, French Guayana and Uruguay are free of vesicular diseases.
- Argentina register a case in equines during 1986.
- Bolivia, Brazil, Ecuador, Paraguay and Venezuela registered no cases of vesicular stomatitis, Indiana virus.

TABLE 20. Monthly distribution of properties with cattle affected by vesicular stomatitis, Indiana virus.
South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colombia	4	3	0	0	3	2	2	8	7	5	6	9	49
Peru	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	3	0	0	3	2	2	8	7	5	6	9	49

- Chile, Suriname, Guyana, French Guayana and Uruguay are free of vesicular diseases.
- Argentina, Bolivia, Brazil, Ecuador, Paraguay and Venezuela register no cases of vesicular stomatitis, Indiana virus.

TABLE 21. Months in wich the registered frequency exceeded expected frequency. South America, 1994.

Month/Country	Argentina	Bolivia	Brazil	Colombia	Ecuador	Paraguay	Peru	Venezuela
January				X				
February								
March			X					
April			X					
May			X					
June								
July			X		X			
August			X				X	
September								
October								
November								
December								X

TABLE 22. FMD virus subtypes identified in South America, 1994

Country	Virus	subtypes	
Argentina	O1	------	C3
Brazil	O1	A24	C3
Colombia	O1	A24	------
Ecuador	O1	------	------
Paraguay	O1	------	------
Peru	O1	------	------

- Bolivia and Venezuela did not send samples to Reference laboratory.

TABLE 23. Number of properties affected by vesicular stomatitis according to country and virus type. Central America and Mexico, 1994 (*)

	Vesicular Stomatitis		Without	
Country	New Jersey	Indiana	Diagnosis (**)	Total
Belice	12	0	6	18
Costa Rica	6	1	2	9
El Salvador	53	11	96	160
Guatemala	2	0	8	10
Honduras	19	1	10	30
Mexico	50	0	79	129
Nicaragua	3	0	1	4
Panama	2	3	2	7
Total	147	16	204	367

* Data until september.

** With clinical-epidemiological diagnosis or negative laboratory results.

TABLE 24. Coverage of FMD control programs. South America, 1994

Country	Surface (Km)		Cattle herds		Cattle population (x 1000)	
	Total	Under program	Total	Under program	Total	Under program
Argentina	2.779.892	2.779.892	273.081	273.081	55.421,0	55.421,0
Bolivia	1.098.581	426.252	98.139	46.345	5.619,3	1.403,8
Brazil	8.510.909	4.700.192	2.212.263	1.847.544	157.830,7	128.516,4
Chile	756.618	756.618	189.044	189.044	3.460,5	3.460,5
Colombia	1.141.748	846.154	726.609	723.753	22.301,7	22.141,9
Ecuador	274.168	274.168	251.445	251.445	4.690,0	4.690,0
Paraguay	406.752	406.752	229.478	229.478	9.779,3	9.779,3
Peru	...	...	...	...	3.351,4	2.520,7
Uruguay	174.486	174.486	54.079	54.079	9.736,4	9.736,4
Venezuela	912.050	912.050	106.535	106.535	13.586,2	13.586,2
Total	16.055.204	11.276.564	4.140.673	3.721.304	285.776,5	251.256,2

... Information not available

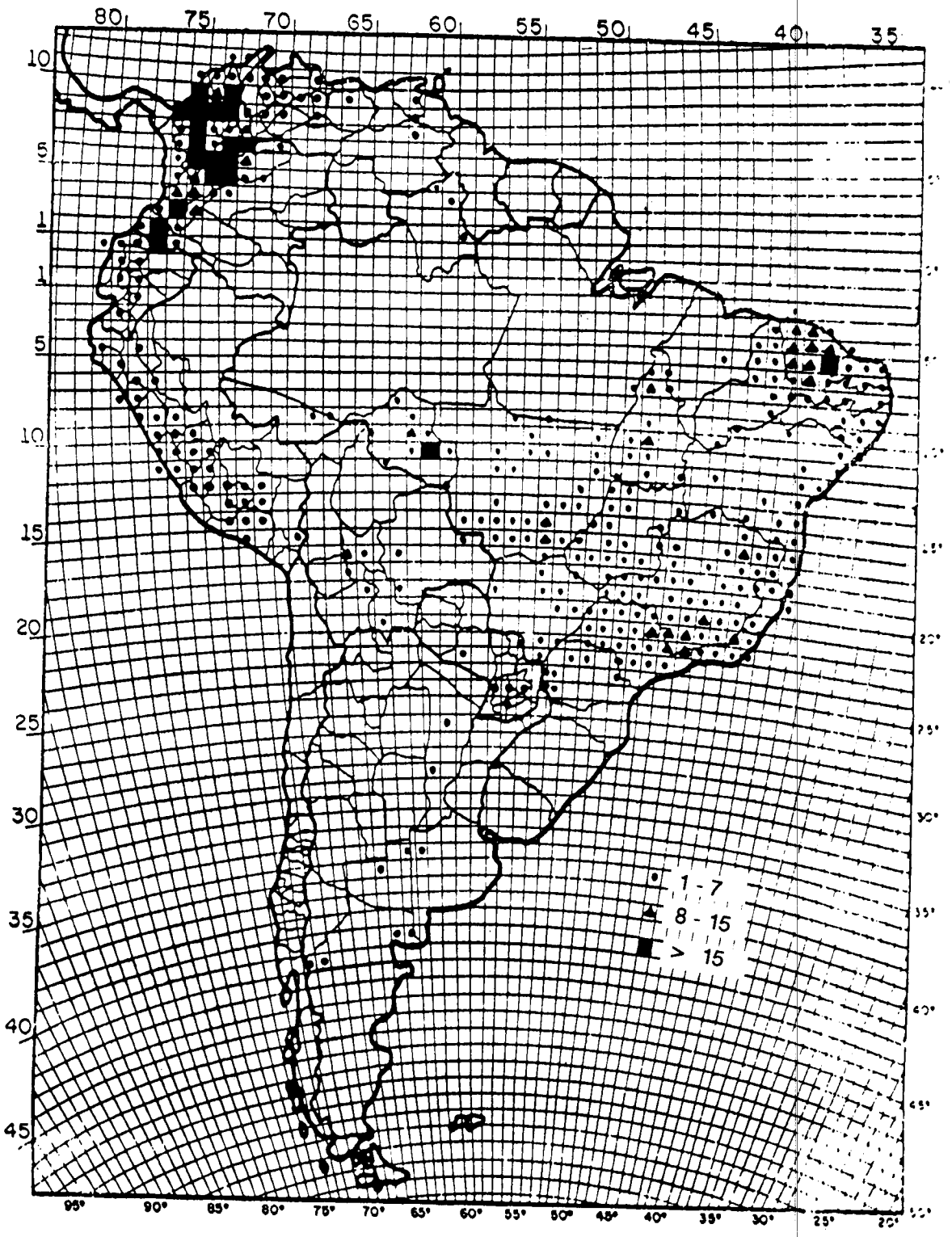
TABLE 25. Resources of the FMD control programs by levels. South America, 1994

Country	Field Units	Recursos Humanos					
		Professionals			Others		
		Central	Laborat.	Field	Central	Laborat.	Field
Argentina	297	14	29	203	18	33	697
Bolivia	16	...	21	30	...	20	65
Brazil *	1.895	29	26	2.050	15	69	8.225
Chile	55	2	2	33	1	3	53
Colombia	123	11	7	127	12	9	468
Ecuador	57	6	...	51	22	...	78
Paraguay	67	60	32	77	132	35	271
Perú	24	13	7	52	8	14	158
Uruguay	42	6	8	77	3	6	396
Venezuela	156	13	20	157	8	45	111
Total	2.732	154	152	2.857	219	234	10.522

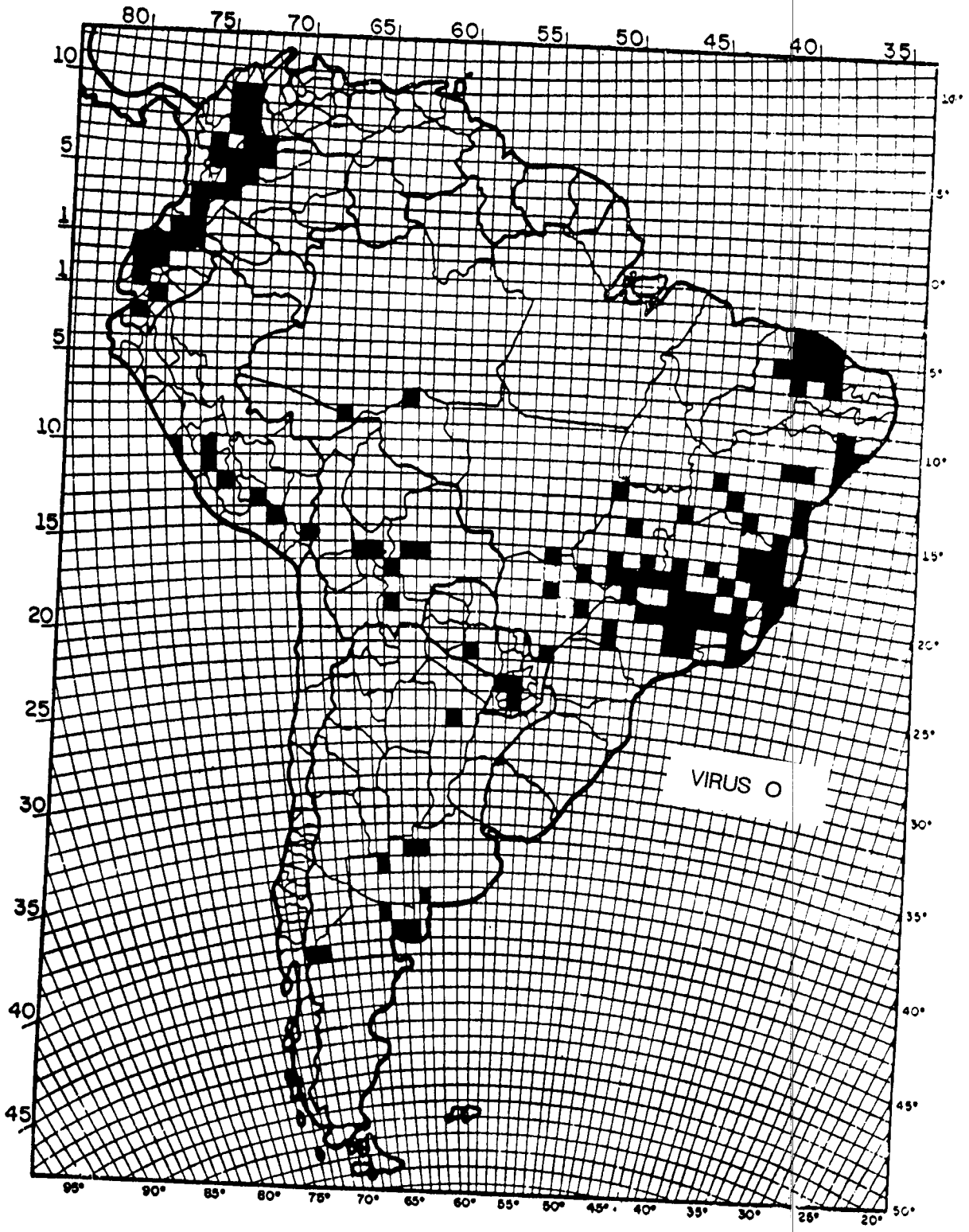
* Includes 2.281 eventual workers.

... Information not available.

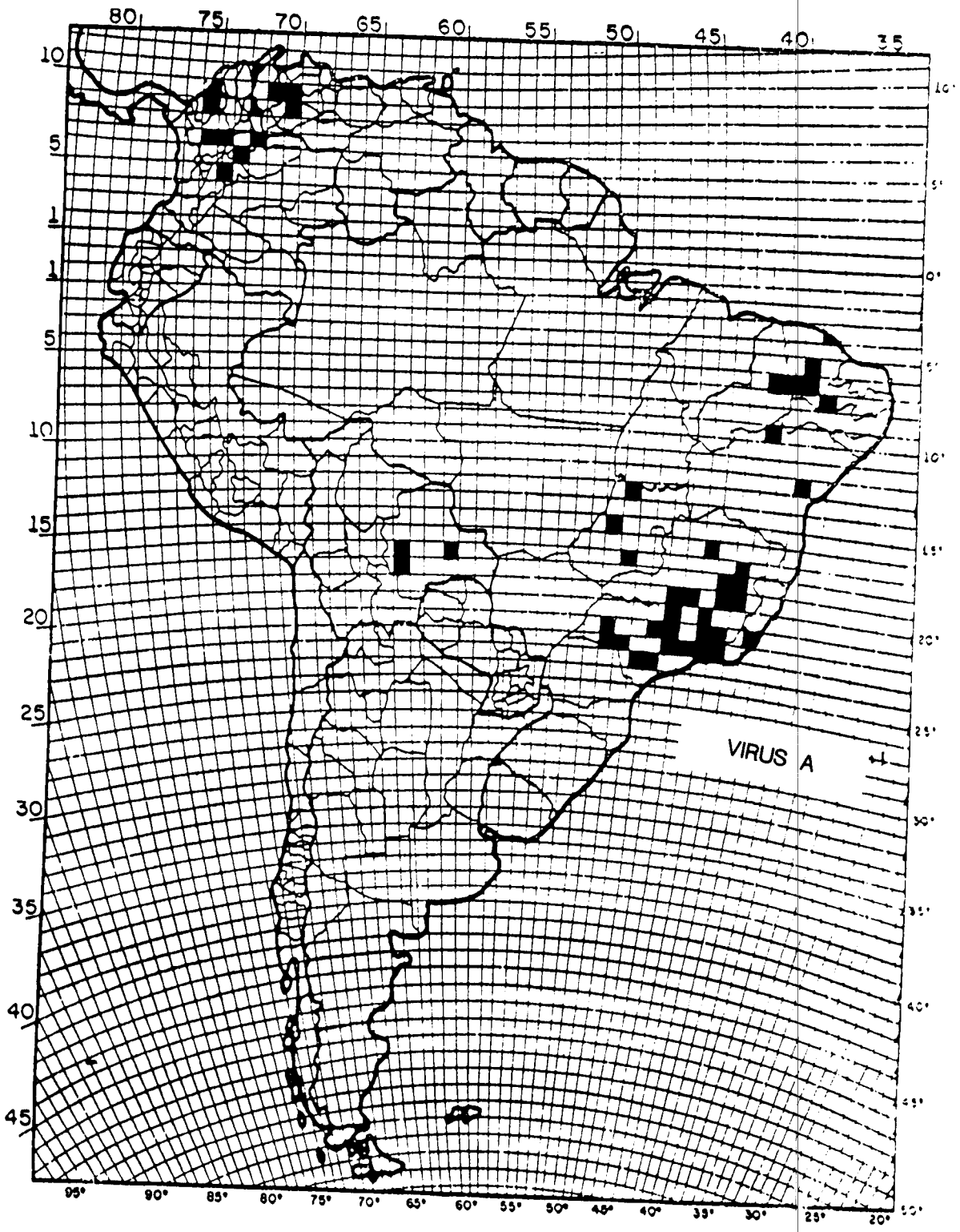
MAP 1. Distribution of the number of weeks with occurrence of vesicular disease by coordinates. South America, 1994



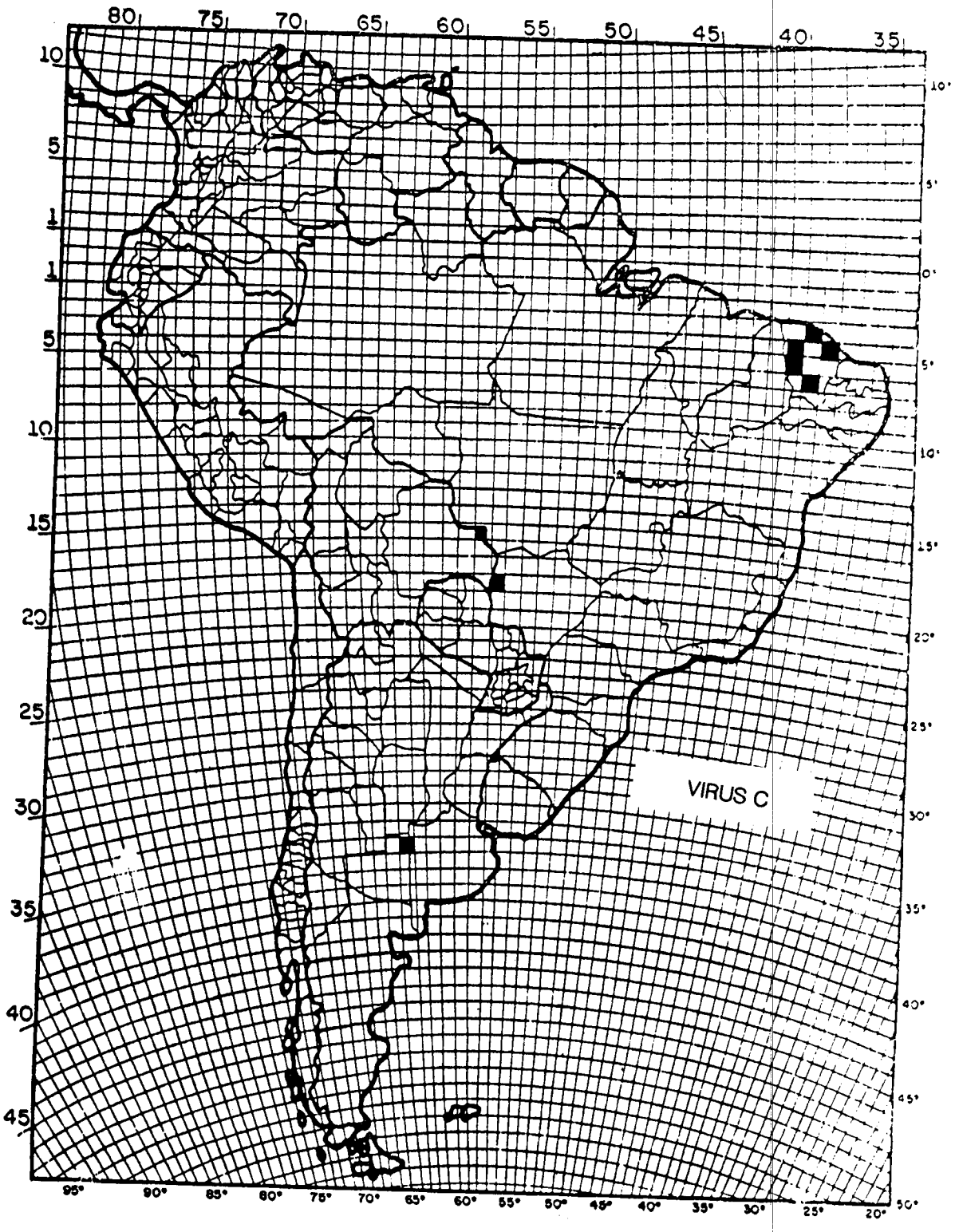
MAP 2. Geographical distribution of foot-and-mouth disease virus type O. South America, 1994



MAP 3. Geographical distribution of foot-and-mouth disease virus type A. South America, 1994



MAP 4. Geographical distribution of foot-and-mouth disease virus type C. South America, 1994



MAP 5. Grids at border between countries with presence of vesicular disease. South America, 1994

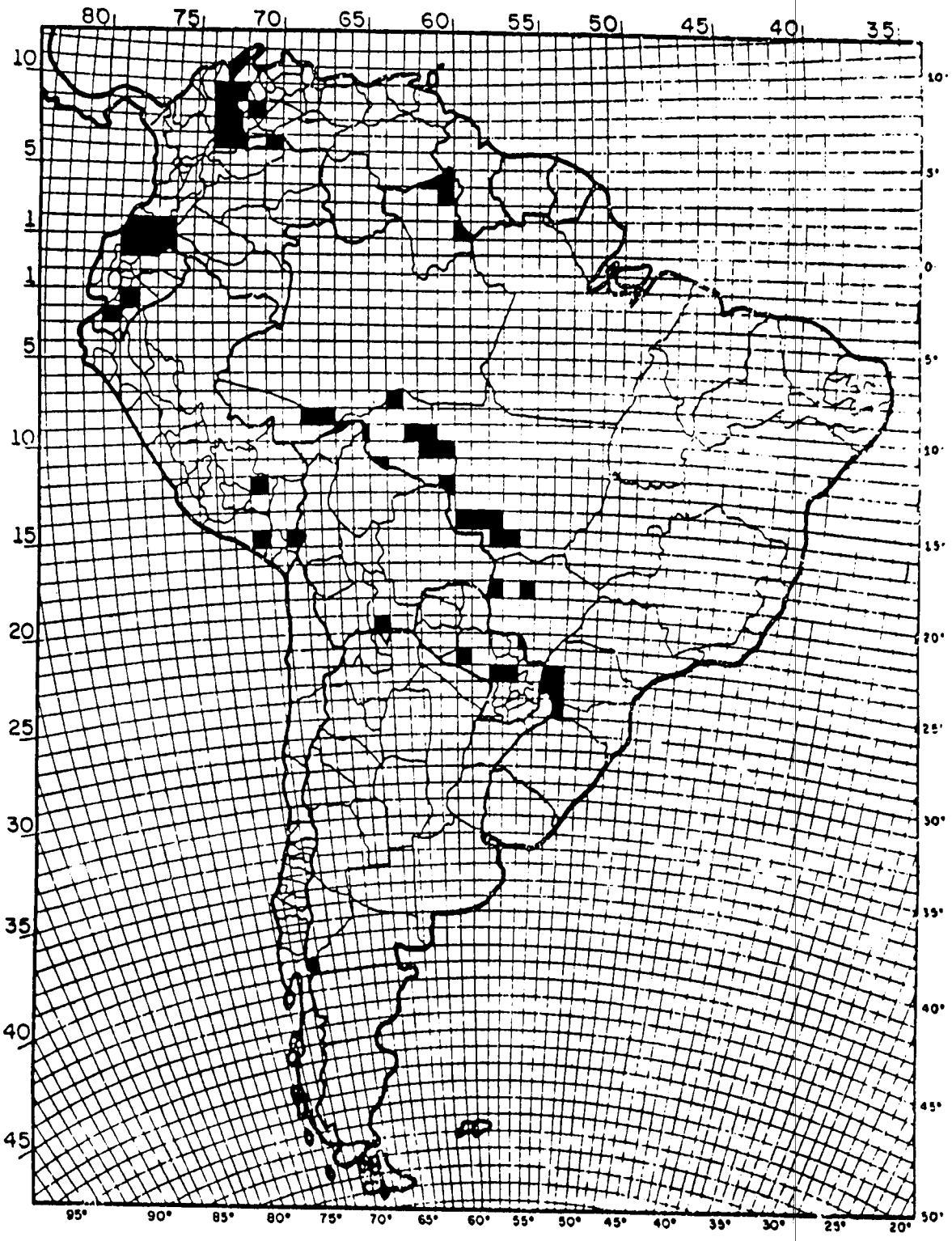


TABLE 26. Comparison of human resources engaged in FMD control programs. South America, 1993 - 1994.

Country	1993				1994			
	Total	Central	Laboratory	Field	Total	Central	Laboratory	Field
Argentina	954	51	25	878	994	32	62	900
Bolivia	...	...	...	...	136	...	41	95
Brazil *	9.480	53	105	9.322	10.414	44	95	10.275
Chile	95	4	5	86	94	3	5	86
Colombia	877	22	16	839	634	23	16	595
Ecuador	325	35	...	290	157	28	...	129
Paraguay	607	199	67	341	607	192	67	348
Peru	85	...	...	...	252	21	21	210
Uruguay	467	9	14	444	496	9	14	473
Venezuela	230	15	...	215	354	21	65	268
Total	13.120	388	232	12.415	14.138	373	386	13.379

* Includes 2.281 eventual workers in 1994.

... Information not available.

TABLE 27. Inventory of motor vehicles engaged in FMD control programs. South America, 1993 - 1994.

Country	1993				1994			
	Area under program Km	Total	Aut.	Moto.	Area under program Km	Total	Aut.	Moto.
Argentina	2.779.892	673	673	0	2.779.892	685	685	0
Bolivia	487.266	...	...	...	426.252	33	25	8
Brazil	4.663.476	2.397	2.339	58	4.700.192	2.434	2.414	20
Chile	756.618	18	18	0	756.618	18	18	0
Colombia	846.154	428	162	266	846.154	408	126	282
Ecuador	274.168	36	...	...	274.168	43	43	0
Paraguay	406.752	107	69	38	406.752	134	68	66
Peru	...	...	...	...	...	119	13	106
Uruguay	174.486	242	77	165	174.486	242	77	165
Venezuela	912.050	...	...	...	912.050	...	...	...
Total	11.300.862	3.901	3.338	527	11.276.564	4.116	3.469	647

... Information not available.

TABLE 28. Public and private expenditures in FMD control programs (in US$ thousands). South America, 1994

Country	Total	Public			Private
		Operating	Capital	Total	
Argentina .1	127.000,0	19.000,0	8.000,0	27.000,0	100.000,0
Bolivia	471,4	234,8	0,0	234,8	236,6
Brazil .2	120.167,1	17.108,0	8.969,1	26.077,1	94.089,9
Chile	848,8	712,5	136,3	848,8	0,0
Colombia	16.358,9	5.633,3	588,1	6.221,3	10.137,6
Ecuador	1.912,0	1.293,6	18,4	1.312,0	600,0
Paraguay	11.733,7	3.626,8	324,7	3.951,5	7.782,2
Peru	...	289,0	17,5	306,5	...
Uruguay .2	11.800,0	300,0	2.500,0	2.800,0	9.000,0
Venezuela	8.157,1	2.997,6	209,5	3.207,1	4.950,0
Total	298.449,1	51.195,7	20.763,6	71.959,3	226.796,3

.1 Operating and capital expenditures at provinces not included.

.2 Vaccine application costs not considered.

... Sin información

TABLE 29. Collection of samples and laboratory confirmation on establishments affected by vesicular diseases. South America, 1994

Country	Estab. Affected			Percentage		
	Total	With Collection	W/Diag. Positive	With Collection(1)	W/positive Result (2)	Final Pos. Diag (3)
Argentina	18	18	17	100	94	94
Bolivia	59	35	27	59	77	46
Brazil	2.084	740	463	36	63	22
Colombia	1.452	959	646	66	67	44
Ecuador	63	29	23	46	79	37
Paraguay	7	7	7	100	100	100
Peru	89	35	27	39	77	30
Venezuela	67	50	13	75	26	19
Total	3.839	1.873	1.223	49	65	32

1) Ratio of establishments with collection to total of establishments affected.
2) Ratio of establishments with positive diagnosis to establishments with collection.
3) Ratio of positive diagosis to total of establishments affected.

TABLE 30. Virus strains utilized in production of FMD vaccines.
South America, 1994

Country	Virus strains		
	O	A	C
Argentina	O1 Caseros-Arg/67	A79 - Arg/79 A81 - Arg/87	C3 Arg/85
Brazil	O1 Campos-Br/58	A24 Cruzeiro - Br/55	C3 Indaial - Br/71
Colombia	O1 Campos-Br/58	A24 Cruzeiro - Br/55	------
Paraguay	O1 Campos-Br/58	A24 Cruzeiro - Br/55	C3 Resende - Br/55
Uruguay	O1 Campos-Br/58	A24 Cruzeiro - Br/55	C3 Resende - Br/55
Venezuela	O1 Campos-Br/58	A24 Cruzeiro - Br/55	------

- Bolivia, Ecuador and Perú didn't produce vaccines during 1994.
- Uruguay stopped vaccine production since june 1994.

TABLE 31. Production, control and availability of FMD vaccines by country. (dose x 1000). South America, 1994

Country	Vaccine Type	Produced	Controlled	Approved	Exported	Imported	Available
Argentina	Oil	119.905,0	119.905,0	105.594,0	0,0	0,0	105.594,0
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	119.905,0	119.905,0	105.594,0	0,0	0,0	105.594,0
Bolivia	Oil	0,0	0,0	0,0	0,0	1.200,0	1.200,0
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	0,0	0,0	0,0	0,0	0,0	1.200,0
Brazil	Oil	99.972,5	99.972,5	87.485,4	3.496,0	0,0	83.989,4
	Aqueous	109.948,5	109.948,5	102.902,5	0,0	0,0	102.902,5
	Total	209.921,0	209.921,0	190.387,9	3.496,0	0,0	186.891,9
Colombia	Oil	17.550,1	12.263,5	12.263,5	200,0	4,3	12.067,8
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	17.550,1	12.263,5	12.263,5	200,0	4,3	12.067,8
Ecuador	Oil	0,0	0,0	0,0	0,0	1.160,1	1.160,1
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	0,0	0,0	0,0	0,0	1.160,1	1.160,1
Paraguay	Oil	9.359,2	9.359,2	9.359,2	100,0	1.440,0	10.699,2
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	9.359,2	9.359,2	9.359,2	100,0	1.440,0	10.699,2
Peru	Oil	0,0	0,0	0,0	0,0	1.269,8	1.269,8
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	0,0	0,0	0,0	0,0	1.269,8	1.269,8
Uruguay	Oil	20.108,0	20.108,0	19.493,0	3.327,0	0,0	16.166,0
	Aqueous	...	...	1.064,0	750,5	0,0	313,5
	Total	20.108,0	20.108,0	20.557,0	4.077,5	0,0	16.479,5
Venezuela	Oil	6.133,0	6.133,0	6.133,0	0,0	2.600,0	8.733,0
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	6.133,0	6.133,0	6.133,0	0,0	2.600,0	8.733,0
Total	Oil	273.027,8	267.741,2	240.328,1	7.123,0	7.674,2	240.929,3
	Aqueous	109.948,5	109.948,5	103.966,5	750,5	0,0	103.216,0
	Total	382.976,2	377.689,7	344.294,6	7.873,5	6.474,2	344.145,3

TABLE 32. Number of animals vaccinated against FMD. South America, 1994.

Country	Sistematic vaccination					Strategic - Tactical Vaccinations		
	Cattle (X 1000)			Sheep / Goats				
	Three Doses	Two Doses	One Dose	N° of Animals (x 1000)	Fraction of Dose	Cattle	Swine	Sheep or Goats
Argentina	----	54.736,0	----	----	----	798.000	2.600	*******
Bolivia /1	----	----	478,9	----	----	2.125	----	----
Brazil	----	70.847,0	46.485,8	----	----	815.487	23.606	1.277
Colombia /2	----	5.963,3	4,3	----	----	----	----	----
Ecuador	----	286,7	669,0	----	----	----	----	----
Paraguay	----	1.800,2	4.847,4	----	----	91.038	----	----
Peru	----	----	953,8	----	----	----	----	----
Uruguay		3.188,0	4.876,3	----	----	----	----	----
Venezuela	----	4.727,2	----	----	----	----	----	----

/1 Departments of Santa Cruz, Tarija and Cochabamba.

/2 Partial registration due to ongoing vaccination at moment of report.

TABLE 33. Imports of cattle, meat, milk, semen and embryos. South America, 1994

Importing Country	Country of origin	Nr of Heads	Semen in doses	Embryos	Meat (Tm)	Milk (Tm)
Argentina	AUSTRALIA	10	------	------	24	...
	BRAZIL	------	12.385	------	------	...
	CANADA	105	48.278	310	------	...
	CHILE	710	------	------	40	...
	USA	131	507.834	464	1.976	...
	ITALY	------	3.900	98	2	...
	NEW ZELAND	------	12.385	------	------	...
	PARAGUAY	10	------	------	988	...
	URUGUAY	435	2.000	------	3.796	...
Bolivia	GERMANY	------	40	------	-----	------
	ARGENTINE	995	511	------	105,9	6,5
	BOSNIA	------	------	------	-----	404,6
	BRAZIL	1.447	484	------	------	1279,6
	COLOMBIA	------	------	------	-----	3,5
	CHILE	------	------	------	-----	1331,4
	USA	17	34.172	50	0,2	1,6
	HOLLAND	------	------	------	-----	748,4
	ENGLAND	------	1.000	------	-----	------
	ITALY	------	218	------	-----	------
	NEW ZELAND	------	------	------	-----	370,2
	PARAGUAY	261	------	------	0,1	------
	SWITZERLAND	------	------	------	-----	1279,6
Brazil	...	...	...	...	...	...
Chile	GERMANY	------	------	------	------	222,0
	ARGENTINE	------	------	------	23890,0	10,6
	BELGIUM	------	------	------	------	1044,0
	CHECOSLOVAKIA	------	------	------	------	397,0
	DENMARK	------	------	------	------	95
	USA	------	52.096	------	------	173,0
	FRANCE	------	------	------	------	206,0
	HOLLAND	------	------	------	------	468,0
	ENGLAND	------	------	------	------	312,0
	IRELAND	------	------	------	------	380,0
	NEW ZELAND	------	600	------	------	3935,0
	PARAGUAY	------	------	------	4735,0	------
	POLAND	------	------	------	------	609
	URUGUAY	------	------	------	11.349,0	------
Colombia	GERMANY	60	1.600	------	------	9,6
	AUSTRIA	------	550	------	------	------
	BRAZIL	335	21.408	------	------	------
	CANADA	229	41.855	42	------	------
	DENMARK	------	------	------	------	399,8
	ECUADOR	2.605	------	------	------	213,0
	SPAIN	191	------	------	------	218,0

continued

TABLE 33. (cont.)

Importing Country	Country of origin	Nr of Heads	Semen in doses	Embryos	Meat (Tm)	Milk (Tm)
Colombia (Cont.)	USA	437	143.640	118	0,0	------
	FRANCE	------	20.710	------	------	19,2
	ITALY	------	5.000	------	------	------
	MEXICO	45	------	------	------	------
	PERU	121	------	------	------	192,0
	REP. DOMINICANA	------	------	------	0,0	------
	SWITZERLAND	------	------	------	------	44,0
	VENEZUELA	36.690	------	------	20,4	2,0
Ecuador	COSTA RICA	102	------	------	------	------
	USA	80	20.130	------	------	------
	NEW ZELAND	------	1.200	------	------	------
Paraguay	ARGENTINE	170.578	------	------	4.772,0	------
	BRAZIL	9	------	------	------	------
	CANADA	------	12.750	------	------	------
	USA	------	31.048	------	------	------
	URUGUAY	1.758	------	------	227,0	------
	GERMANY	------	9.080	------	------	------
Perú	ARGENTINE	------	------	------	813,0	------
	BOLIVIA	------	------	------	403,0	------
	CANADA	------	680	------	------	------
	ECUADOR	------	30	------	------	------
	USA	------	31.210	------	232,0	------
	FRANCE	------	------	------	------	366,0
	HOLLAND	------	------	------	------	1.100,0
	IRELAND	------	------	------	------	811,0
	NEW ZELAND	------	1.500	------	------	7.074
	PANAMA	20	------	------	------	
	URUGUAY	------	------	------	703,0	740,0
	OTHERS	------	------	------	445,0	1538,0
Uruguay	GERMANY	------	------	------	------	248,0
	ARGENTINE	------	16.383	145	------	65,0
	AUSTRALIA	------	500	------	------	------
	BELGIUM	------	------	------	------	53,0
	CANADA	------	52.925	561	------	------
	DENMARK	------	------	------	------	219,0
	USA	------	106.928	41	------	51,0
	FRANCE	------	------	------	------	153,0
	HOLLAND	------	------	------	------	66,0
	ITALY	------	------	------	------	0,9
	SWITZERLAND	------	------	------	------	0,4
	NEW ZELAND	------	3.110	------	------	------

continued

Table 33. (cont.)

Importing Country	Country of origin	Nr of Heads	Semen in doses	Embryos	Meat (Tm)	Milk (Tm)
Venezuela	GERMANY	------	------	------	------	25,0
	BELGIUM	------	------	------	------	48,0
	COLOMBIA	34	------	------	------	------
	DENMARK	------	------	------	------	6.521,0
	USA	16	9.533	------	------	------
	FRANCE	------	------	------	------	657,0
	HOLLAND	------	------	------	------	2.604,0
	IRELAND	------	------	------	------	66,0
	NEW ZELAND	------	------	------	------	144,0
	POLAND	------	------	------	------	355,0

TABLE 34. Imports of swine, semen and pork. South America, 1994

Importing Country	Country of Origin	Nr of Heads	Semen in doses	Pork (Tm)
Argentina	GERMANY	------	------	242,0
	BRAZIL	------	------	********
	CHILE	900	------	5.140,0
	DENMARK	------	------	7.392,0
	SPAIN	321	------	968,0
	USA	------	------	612,0
	FRANCE	------	------	122,0
	HUNGARY	------	------	287,0
	ITALY	------	------	1.874,0
	SWEDEN	------	------	2.161,0
Bolivia	BRASIL	10	------	------
	PERU	140	------	------
Brasil	...	...	...	...
Chile	DENMARK	------	------	48,0
Colombia	GERMANY	50	------	------
	DENMARK	------	------	2,5
	USA	672	------	1,7
	HOLLAND	------	------	2,4
	ENGLAND	40	------	------
	PANAMA	200	------	------
	VENEZUELA	4.980	------	1.748,0
Ecuador	CHILE	15	------	------
Paraguay	BRAZIL	86	------	------
Perú	BRAZIL	------	------	47,0
	CHILE	------	------	258,0
	USA	------	------	34,0
	OTHERS	------	------	1,0
Uruguay	ARGENTINE	------	------	0,9
	BELGIUM	9	------	2.070,0
	CHILE	------	------	140,0
Venezuela	------	------	------	------

TABLE 35. Imports of sheep, semen, embryos and meat. South America, 1994.

Importing Country	Country of Origin	Nr of Head	Semen in doses	Embryos	Meat (Tm)
Argentina	AUSTRALIA	30	------	------	365,0
	CHILE	8853	------	------	1264,0
	USA	------	------	------	11,0
	FRANCE	------	------	------	12,0
	ITALY	------	------	------	41,0
	NEW ZELAND	6	------	------	------
	SOUTH AFRICA	------	------	------	137,0
	URUGUAY	------	------	------	1329,0
Bolivia	------	------	------	------	------
Brasil	...	...	...	...	...
Chile	MALVINAS	400	------	------	------
Colombia	USA	------	------	------	0,7
Ecuador	------	------	------	------	------
Paraguay	ARGENTINE	32	------	------	------
	BRAZIL	11	------	------	------
	URUGUAY	861	------	------	20,0
Perú	AUTRALIA	------	------	------	126,0
	CANADA	4	------	------	------
	CHILE	10	------	------	------
	US	------	------	------	766,0
	URUGUAY	------	------	------	127,0
	OTHERS	------	------	------	171,0
Uruguay	ARGENTINE	2	-----	------	------
	AUSTRALIA	2	1.650	------	------
	NEW ZELAND	1	-----	------	------
Venezuela	USA	10	-----	------	------
	COLOMBIA	38	-----	------	------

TABLE 36. Imports of goats, semen and meat. South America, 1994

Importing Country	Country of Origin	Nr of Heads	Semen in dose	Meat (Tm)
Argentina	SOUTH AFRICA	------	------	9,0
Bolivia	------	------	------	------
Brasil	...	...	...	...
Chile	------	------	------	------
Colombia	------	------	------	------
Ecuador	------	------	------	------
Paraguay	------	------	------	------
Perú	------	------	------	------
Uruguay	BELGIUM	95	------	------
Venezuela	------	------	------	------

TABLE 37. Imports of equines, semen and meat. South America, 1994.

Importing Country	Country of Origin	Nr of Heads	Semen in doses	Meat (Tm)
Argentina	BELGIUM	46	------	------
	BOLIVIA	1	------	------
	BRAZIL	88	------	------
	CHILE	24	------	------
	USA	45	------	------
	FRANCE	12	120	------
	HOLLAND	3	------	------
	MEXICO	6	------	------
	PARAGUAY	6	------	------
	PERU	5	------	------
	URUGUAY	3.337	------	------
Bolivia	BRAZIL	23	------	------
	URUGUAY	------	------	0,8
Brasil	...	...	...	...
Chile	------	------	------	------
Colombia	GERMANY	25	------	------
	ARGENTINA	633	------	------
	BRAZIL	29	------	------
	CANADA	1	------	------
	ECUADOR	5	------	------
	SPAIN	9	------	------
	USA	168	------	------
	FRANCE	9	------	------
	HOLLAND	3	------	------
	MEXICO	7	------	------
	PANAMA	6	------	------
	PERU	12	------	------
	PORTUGAL	6	------	------
	VENEZUELA	498	------	------
Ecuador	USA	11	------	------
	CHILE	48	------	------
	FRANCE	3	------	------
	PERU	39	------	------
Paraguay	ARGENTINA	47	------	------
	BRAZIL	12	------	------
	USA	2	------	------
	URUGUAY	129	------	------

continued

TABLE 37. (cont.)

Importing Country	Country of Origin	Nr of Heads	Semen in doses	Meat (Tm)
Perú	ARGENTINA	27	------	------
	CHILE	5	------	------
	ECUADOR	17	------	------
	USA	27	------	------
	HONDURAS	1	------	------
	PANAMA	19	------	------
Uruguay	ARGENTINA	74	------	------
	SPAIN	6	------	------
Venezuela	ARGENTINA	16	------	------
	USA	98	------	------
	FRANCE	11	------	------
	DOMINICAN REP.	8	------	------

TABLE 38. Exports of cattle, beef, milk, semen and embryos. South America, 1994.

Exporting Country	Destination	Nr of Heads	Semen in doses	Embryos	Beef (Tm)	Milk (Tm)
Argentina	BRAZIL	12.802	20481	803	43.502,0	...
	BOLIVIA	6.928	-----	-----	468,0	...
	COLOMBIA	------	------	------	721,0	...
	CHILE	------	------	------	26.364,0	...
	ECUADOR	------	------	------	106,0	...
	PARAGUAY	112.547	------	------	4.648,0	...
	PERU	------	------	------	9.535,0	...
	URUGUAY	------	6.000	59	3.581,0	...
	CANADA	------	------	------	1.509,0	...
	USA	------	------	------	30.498,0	...
	MEXICO	------	------	------	1.241,0	...
	ANGUILA	------	------	------	15,0	...
	FRENCH ANTILLES	------	------	------	14,0	...
	DUTCH ANTILLES	------	------	------	13,0	...
	ARUBA	------	------	------	660,0	...
	BAHAMAS	------	------	------	130,0	...
	BARBADOS	------	------	------	85,0	...
	BONAIRE	------	------	------	25,0	...
	COSTA RICA	------	------	------	17,0	...
	CURAÇAO	------	------	------	653,0	...
	DOMINICA	------	------	------	34,0	...
	GRENADA	------	------	------	30,0	...
	JAMAICA	------	------	------	535,0	...
	MARTINICA	------	------	------	44,0	...
	PUERTO RICO	------	------	------	79,0	...
	DOMINICAN REP.	------	------	------	497,0	...
	SAINT ANDREWS	------	------	------	7,0	...
	SAINT KITTS & NEVIS	------	------	------	65,0	...
	SAINT LUCIA	------	------	------	45,0	...
	SAINT VINCENT & GREN	------	------	------	16,0	...
	TRINIDAD & TOBAGO	------	------	------	62,0	...
	AFRICA	------	------	------	5.555,0	...
	ASIA	------	------	------	62.094,0	...
	EUROPE	------	------	------	131.323,0	...
	OCEANIA	------	------	------	1.745,0	...
Bolivia	...	...	...	...	...	...
Brazil	...	...	...	...	...	...
Chile	ARGENTINA	1.950	------	------	1,3	122,8
	BOLIVIA	------	------	------	------	1.708,0
	BRAZIL	------	------	------	0,7	1.887,9
	COLOMBIA	------	------	------	------	160,5
	ECUADOR	------	------	------	------	775,3
	PERU	------	------	------	------	1.162,5
	URUGUAY	------	------	------	------	38,0
	CANADA	------	------	------	------	3,9
	MEXICO	------	------	------	------	995,0
	ESPAÑA	------	------	------	0,6	------

continued

TABLE 38. (cont.)

Exporting Country	Destination	Nr of Heads	Semen in doses	Embryos	Beef (Tm)	Milk (Tm)
Colombia	VENEZUELA	84	------	------	------	------
	ARUBA	64	142,0	------	------	------
	CURAÇAO	------	136,6	------	------	------
Ecuador	...	...	...	...	...	...
Paraguay	ARGENTINA	5	------	------	724,0	------
	BOLIVIA	261	------	------	------	------
	BRAZIL	82.429	------	------	13,9	------
	CHILE	------	------	------	4.814,0	------
	PERU	------	------	------	89,0	------
	URUGUAY	------	------	------	17,0	------
	USA	------	------	------	104,0	------
	DUTCH ANTILLES	------	------	------	93,0	------
	BAHAMAS	------	------	------	34,0	------
	BARBADOS	------	------	------	152,0	------
	CUBA	------	------	------	34,0	------
	JAMAICA	------	------	------	118,0	------
	PUERTO RICO	------	------	------	51,0	------
	TRINIDAD	------	------	------	50,0	------
	AFRICA	------	------	------	653,0	------
	ASIA	------	------	------	3.182,0	------
	EUROPE	------	------	------	3.594,0	------
	OCEANIA	------	------	------	20,0	------
Perú	------	------	------	------	------	------
Uruguay	ARGENTINA	707	2000	------	3.923,0	57,0
	BRASIL	89.851	------	------	------	1.304,0
	CHILE	------	------	------	11.000,0	1.066,0
	PARAGUAY	1.377	------	------	------	------
	PERU	------	------	------	1.003,0	38,0
	VENEZUELA	------	------	------	------	184,0
	CANADA	------	------	------	------	4,0
	MEXICO	------	------	------	------	5.400,0
	ISLAS CANARIAS	------	------	------	200,0	------
	ARABIA SAUDITA	------	------	------	810,0	------
	EUROPA	------	------	------	4.702,0	------
Venezuela	COLOMBIA	24.216	------	------	23,0	------

TABLE 39. Exports of swines and pork. South America, 1994.

Exporting Country	Destination	Nr of Heads	Pork (Tm)
Argentina	BOLIVIA	------	3.455,0
	BRAZIL	------	27,0
	CHILE	------	31,0
	URUGUAY	------	24,0
	HONG KONG	------	45,0
	SPAIN	------	18,0
Bolivia	------	------	------
Brazil	...	...	...
Chile	ARGENTINA	1369	3.342,0
	ECUADOR	466	------
	PERU	------	160,0
	USA	------	0,1
Colombia	ECUADOR	6784	22,4
Ecuador	...	...	...
Paraguay	------	------	------
Peru	BOLIVIA	160	------
Uruguay	------	------	------
Venezuela	COLOMBIA	*******	989,0

... Information not available

TABLE 40. Exports of sheep, semen and mutton. South America, 1994.

Exporting Country	Destination	Nr of Heads	Semen in doses	Meat (Tm)
Argentina	BRAZIL	------	------	180,0
	CHILE	555	------	18,0
	PARAGUAY	280	------	------
	URUGUAY	------	------	91,0
	USA	------	------	21,0
	ASIA	------	------	1.459,0
	EUROPE	------	------	2.792,0
Bolivia	------	------	------	------
Brazil	...	...	...	...
Chile	ARGENTINA	17.284	------	1.251
	BOLIVIA	------	------	11,1
	PERU	10	------	137,7
	MEXICO	------	------	1.082,6
	EUROPE	------	------	1312,9
Colombia	VENEZUELA	38	------	------
	ARUBA	460	------	------
Ecuador	...	...	...	...
Paraguay	------	------	------	------
Peru	------	------	------	------
Uruguay	ARGENTINA	2.600	------	2.982,0
	BRAZIL	68.913	------	------
	CHILE	------	------	8,0
	PERU	------	------	168,0
	ISRAEL	------	------	76,0
	AFRICA	------	------	3.030,0
Venezuela	ARUBA	80	------	------

... Information not available

TABLE 41. Exports of goats and meat. South America, 1994.

Exporting Country	Destination	Nr of Heads	Meat (Tm)
Argentina	BRAZIL	------	43,0
	COLOMBIA	------	1,0
	CHILE	------	10,0
	PERU	------	8,0
	URUGUAY	------	2,0
	USA	------	2,0
Bolivia	------	------	------
Brazil	...	...	...
Chile	------	------	------
Colombia	ARUBA	232	------
Ecuador	...	...	
Paraguay	------	------	------
Peru	------	------	
Uruguay	------	------	
Venezuela	------	------	

... Information not available

TABLE 42. Exports of equines, embryos, semen and meat. South America, 1994.

Exporting Country	Destination	Nr of Heads	Embryos	Semen in doses	Meat (Tm)
Argentina	BRAZIL	105	------	------	6,0
	COLOMBIA	132	------	------	------
	CHILE	162	------	------	290,0
	ECUADOR	46	------	------	------
	PARAGUAY	6	------	------	24,0
	PERU	2	------	------	22,0
	URUGUAY	103	------	------	106,0
	VENEZUELA	4	------	------	------
	USA	257	------	------	------
	MEXICO	10	------	------	------
	GUATEMALA	11	------	------	------
	PANAMA	23	------	------	------
	DOMINICAN REP.	34	------	------	10,0
	ASIA	88	------	------	6.149,0
	EUROPE	1477	------	------	7.682,0
	SOUTH AFRICA	6	------	------	------
Bolivia	------	------	------	------	...
Brazil	...	...	...	...	...
Chile	------	------	------	------	------
Colombia	BRAZIL	25	------	------	------
	ECUADOR	17	------	------	------
	VENEZUELA	36	------	------	------
	USA	73	------	------	------
	MEXICO	12	------	------	------
	COSTA RICA	1	------	------	------
	PANAMA	12	20	------	------
	DOMINICAN REP.	4	------	------	------
	FIDJI	1	------	------	------
Ecuador	...	...	...	...	...
Paraguay	ARGENTINA	8	------	------	------
	BRAZIL	8	------	------	------
	URUGUAY	2	------	------	------
Peru	ARGENTINA	10	------	------	------
	CHILE	3	------	------	------
	ECUADOR	70	------	------	------
	VENEZUELA	1	------	------	------
	USA	19	------	------	------
	EL SALVADOR	1	------	------	------
	GUATEMALA	12	------	------	------

continued

TABLE 42 (cont.)

Exporting Country	Destination	Nr of Heads	Embryos	Semen in doses	Meat (Tm)
Uruguay	ARGENTINA	2700	------	------	------
	BRAZIL	28	------	------	------
	CHILE	4	------	------	------
	PARAGUAY	108	------	------	------
	USA	1	------	------	------
	EUROPE	22	------	------	------
Venezuela	COLOMBIA	445	------	------	------
	MEXICO	11	------	------	------
	ARUBA	23	------	------	------
	DOMINICAN REP.	4	------	------	------

... Information not available

TABLE 43. Continental Epidemiological Surveillance and Information System of Vesicular Diseases in Cattle. Delay and reception level of the weekly communications about presence. South America, 1994

Country	Weekly Communications					Delay expressed id days /c								
	Recieved		Published		/a	Length of delay /b			Rec.-Publication			Total		
	No.	%	No.	%		Mn	Md	Mx	Mn	Md	Mx	Mn	Md	Mx
Argentina	51	98	51	100		5	10	34	0	3	12	5	13	34
Bolivia	42	81	42	100		9	33	67	1	2	10	13	36	76
Brazil	52	100	52	100		13	16	27	0	4	10	13	20	34
Colombia	52	100	52	100		12	13	29	0	3	8	13	19	37
Ecuador	52	100	52	100		9	12	25	0	2	21	13	13	41
Paraguay	51	98	51	100		9	12	69	0	2	10	13	13	69
Peru	51	98	51	100		6	33	61	1	2	11	13	34	62
Uruguay	51	98	51	100		8	10	24	0	3	10	13	13	27
Venezuela	52	100	52	100		18	48	100	1	4	7	20	53	104

/a - Number of weeks published in relation to nember of weeks recieved.

/b - Timespan between last day of week informed and reception at PANAFTOSA.

/c - Md = Median; Mx = Maximum; Mn = Minimum.

TABLE 44. Continental Epidemiological Surveillance and Information System of Vesicular Diseases. Delay and reception levels of the monthly communications. South America, 1994

Country	Reports recieved	Reports published	Reports not recieved
Argentina	12	12	-
Bolivia	12	12	-
Brazil	11	11	1
Colombia	11	11	1
Ecuador	12	12	-
Paraguay	12	12	-
Peru	12	12	-
Uruguay	12	12	-
Venezuela	12	12	-

TABLE 45. Continental Epidemiological Surveillance and Information System of Vesicular Diseases in Cattle.
Days of delay in transmission and reception of monthly reports. South America, 1994

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Median	RANGE
Argentina	25	30	29	17	16	6	19	25	1	9	7	4	16	4 - 30
Bolivia	Sent only two reports													
Brazil	27	76	61	54	36	22	39	44	28	28	14	...	36	14 - 76
Colombia	45	58	41	41	32	25	38	30	46	49	47	...	41	25 - 58
Ecuador	35	171	140	110	107	77	46	141	101	70	40	9	89	9 - 171
Paraguay	18	38	20	26	86	56	45	21	47	42	34	...	38	18 - 56
Peru	18	71	40	17	30	32	22	16	7	42	12	8	20	8 - 71
Uruguay	9	8	5	11	7	8	10	4	4	22	6	4	7	4 - 22
Venezuela	64	46	49	19	79	48	71	40	39	8	27	19	43	8 - 79
Median	27	58	41	26	36	48	45	30	39	42	27	9		

... Not recieved.

TABLE 46. Continental Epidemiological Surveillance and Information System of Vesicular Diseases in Cattle.
Days of delay in transmission and reception of weekly communications. Central America and Mexico, 1994

Country	Weekly Comunications					Days of delay								
	Recieved		Published		/a	Length of delay /b			Rec.-Publication			Total /d		
	No.	%	No.	%		Mn	Md	Mx	Mn	Md	Mx	Mn	Md	Mx
Belice /e	-	-	-	-		-	-	-	-	-	-	-	-	-
Costa Rica	52	100	52	100		9	34	58	1	4	25	13	41	62
El Salvador	51	98	51	100		10	30	122	0	3	22	13	34	128
Guatemala	50	96	50	100		12	32	276	0	3	8	13	34	279
Honduras/e	-	-	-	-		-	-	-	-	-	-	-	-	-
México	49	94	49	100		16	39	80	1	3	21	20	41	83
Nicaragua	52	100	52	100		12	41	181	0	3	10	13	41	188
Panamá	52	100	52	100		10	12	24	0	2	10	13	13	27

/a - Number of weeks published in relation to number of weeks recieved.

/b - Timespan between last day of week informed and reception at PANAFTOSA.

/c - Md = Median; Mx = Maximum; Mn = Minimum.

/d - Average number of days between closing date of week informed and publication of the information.

/e - Does not forward this communication.

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