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**SITUATION OF THE
FOOT-AND-MOUTH DISEASE CONTROL PROGRAMS
SOUTH AMERICA, 1993 AND 1994**



PAN AMERICAN HEALTH ORGANIZATION
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PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

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SOUTH AMERICA, 1993**

Julio 1994

1. SITUATION OF THE FOOT-AND-MOUTH DISEASE CONTROL PROGRAMS, SOUTH AMERICA, 1993

1.1 General Aspects

The veterinary services of the South American countries recorded a total of 3810 establishments clinically affected by vesicular diseases, which meant an increase of 8.5% over the preceding year and of 32.9% in relation to 1991. These figures indicate that in 1992, the behavior of the vesicular diseases on the continent began to change starting in comparison to the 1989-92 three-year period when the tendency was downward. The increase observed in the frequency of diseases was not uniformly distributed among all the countries of the continent, but rather was noticeably concentrated in Bolivia, Brazil and Peru (Table 1).

On the other hand, the number of affected grid squares notified to the continental information system, which is coordinated by the Pan American Foot-and-Mouth Disease Center (PANAFTOSA), declined by 13% when compared to the previous year and by (9%) with respect to 1991. This was a result of the trend toward a decline in the number of gridsquares with vesicular disease presence observed in Argentina, Ecuador and Venezuela. In Bolivia, Brazil and Peru, however, the percentage numbers were up in relation to 1992, by (45%, 9.4% and 238%), respectively.

Likewise, the following countries reported the incidence of vesicular diseases in gridsquares that had not been affected since 1977: Brazil (9), Peru (9), Argentina (5), Bolivia (4), Colombia (1) and Venezuela (1).

With respect to the weekly repetition of affected gridsquares, Colombia and Brazil had the gridsquares with 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 - Buenos Aires, Córdoba and La Pampa (81% of the total); in Bolivia - La Paz, Chuquisaca and Cochabamba (96%); in Brazil - Minas Gerais, Maranhão, São Paulo and Sergipe (58%); in Colombia - Cundinamarca, Córdoba and Antioquia (49%); in Ecuador - Pichincha, Carchi, Cotopaxi, Loja and Napo (84%); in Paraguay - San Pedro, Concepción, Caaguazú, Paraguari and President Hayes, with 11 foci of a total of 14; in Peru - Huancavelica, Apurimac, Piura, Arequipa and Puno (47% of the total) and in Venezuela - Trujillo, Apure and Zulia with 54%.

On the other hand, during 1993 there were larger political-administrative units that showed no episodes of vesicular diseases: Argentina, in 13 of 26; Bolivia, in 3 of 9; Brazil, in 1 of 27; Colombia, in 5 of 32; Ecuador, in 11 of 21; Paraguay, in 9 of 17; Peru, in 5 of 24; and Venezuela, in 13 of 23.

The months reporting higher frequency of establishments affected by vesicular diseases were May, January and December, the first with a high share due to Bolivia and Brazil (82%), the second due to Bolivia (54%) and the third due to Colombia and Brazil (97%) (Table 2).

Of all the species affected - cattle, pigs, sheep, goats, buffalos (Brazil) and equines (Colombia, Ecuador), the greatest number of episodes was reported in cattle (96%). 179,324 head of cattle were affected, representing a morbidity rate (average) of 7.9 per 10,000 in relation to the total of cattle existing in the affected area under coverage of foot-and-mouth disease-control programs (Tables 3,4).

The average rate of affected herds was 0.9 per 1000, with Bolivia and Colombia reporting higher figures.

The internal morbidity on the farms with episodes was 16.5%, but both Argentina and Colombia had rates below that figure (Table 5).

Considering the total pig population, the incidence of disease in pigs was less than in cattle, but the internal morbidity and lethality rates were significantly higher than those for cattle (Table 6).

The indicators of morbidity and gravity were, in general terms, lower in sheep, goats and equines than those recorded in cattle (Tables 7,8,9).

1.2 Foot-and-Mouth Disease

Chile, Guyana, French Guiana, Suriname, the Patagonian region of Argentina south of parallel 42 and the northern region of Choco in Colombia remained free of the disease, and Uruguay was declared by the International Office of Epizootics (OIE) as a country free of foot-and-mouth disease (FMD) with vaccination.

Despite the afore mentioned increase in the number of vesicular diseases foci, 18% less diagnoses than in 1992 were carried out in the rest of the continent, which could be explained by a decrease in the collection of samples. The foot-and-mouth disease/vesicular stomatitis ratio of 2.3/1 is very close to the ratio noted the previous year.

1.2.1 Foot-and-Mouth Disease virus type O

With the exception of Peru, where the number of establishments affected by this type of virus increased, the South American continent overall reported a drop in FMD virus type O episodes as compared to 1992. Nevertheless, the frequency of episodes caused by this type of virus is still the highest. It was 86% greater than the frequency of virus type A, 729% more than virus type C and showed greater geographical spreading (Maps 2,3,4), with a higher concentration (78%) in Colombia, Brazil and Argentina.

Of the total of 423 properties reporting the occurrence of virus O, 94% of them had affected cattle (Tables 11,12).

With respect to distribution over time, the months of highest occurrence were: December (highest in Colombia), May (highest in Brazil), September (highest in Argentina), August and March (highest in Brazil). In 52% of the months the expected levels were exceeded (Table 21).

1.2.2 Foot-and-Mouth Disease virus type A

Of 228 establishments affected by FMD virus type A, 80% were in Brazil, of which 218 (96%) were farms reporting sick cattle (Tables 13,14). The months of highest frequency were December and May. On average, 9% of the monthly frequencies exceeded the levels expected for the respective months (Table 21).

While the frequencies of affected farms in Brazil and Bolivia were higher than in 1992, virus type A did not occur in Ecuador (two years without report of presence) and Paraguay (seven years without presence).

1.2.3 Foot-and-Mouth Disease virus type C

Argentina (50 foci) and Brazil (1) were the only countries on the continent that reported episodes of FMD virus type C.

A marked increase in the frequency of establishments with episodes of virus type C has been noted in Argentina in the past two years, as opposed to Brazil where the activity of this virus type has tended to decrease.

Of 51 properties affected by FMD virus type C, 50 are farms with affected cattle (Tables 15,16). The levels expected for the respective months were exceeded in 5% of the monthly frequencies, with January as the month of highest occurrence.

In addition to Colombia, Ecuador and Venezuela are free of the type C virus, Bolivia (since 1990), Paraguay (since 1986) and

Peru (since 1984) recorded no occurrences of this virus type (Table 10).

1.2.4 Magnitude and geographic expansion

The characterization of foot-and-mouth disease frequency on the continent is based on the countries diagnostic laboratory records. Reoccuracy of the information, therefore, is determined by the final capacity for diagnostic confirmation and the coverage of the epidemiological surveillance systems of each country.

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),

Sporadic frequency

Occurrence characterized as sporadic was recorded in Formosa, Chaco and San Luis.

Regular frequency

The provinces of Buenos Aires, Córdoba, La Pampa, Santa Fé and Santiago del Estero recorded frequencies within the expected levels.

Epidemic frequency

Epidemic situations were recorded in western and southern Buenos Aires, southern Córdoba, northeastern La Pampa, Salta and Río Negro.

BOLIVIA

Absence

Pando, Oruro, Potosí and Tarija did not report any presence of the disease.

Sporadic frequency

There were no departments in which the disease could be considered as sporadic.

Regular frequency

Beni and Santa Cruz recorded the disease within the usual levels.

Epidemic frequency

Chuquisaca, La Paz and Cochabamba recorded frequencies that by far exceeded the expected levels.

BRAZIL

Absence

Paraíba was the only state that did not record any notification of FMD presence.

Sporadic frequency

Sporadic frequency was reported in Amapá, Roraima, Amazonas, Piauí, Ceará, Rio Grande do Norte, Alagoas and the Federal District.

Regular frequency

Frequencies at the usual levels were reported in Acre, Tocantins, Pernambuco, Bahia, Rio de Janeiro, Mato Grosso and Mato Grosso do Sul.

Epidemic Frequency

Minas Gerais, São Paulo,, Goiás, Sergipe, Maranhão, Para, Rondonia, Paraná and Espírito Santo recorded frequencies well above the expected levels.

An episode in Santa Catarina was traced to swine brought in from outside the state; they were detected and sacrificed at a packing plant. 11 foci from the same source were likewise detected in the state of Rio Grande do Sul.

COLOMBIA

Absence

No FMD presence was reported in Amazonas, Atlántico, Caldas, Caquetá, Cauca, Chocó, Guaviare, Huila, Quindio, San Andrés, Providencia, Risaralda, Sucre, Vaupés and Vichada.

Sporadic Frequency

Frequencies falling within the band of sporadic were reported in Casanare, Córdova, Guainía, Magdalena, Norte de Santander, Tolima and Valle.

Regular frequency

Antioquia and Meta recorded episodes within the habitual levels.

Epidemic frequency

Occurrences epidemiologically defined as epidemic were reported in: southern Bolívar, southern Cesar, southern La Guajira, plains of Bogotá, Ubaté Valley in Cundinamarca, Boyacá, southern Santander, the north of Arauca, southeastern Nariño and southwestern Putumayo.

ECUADORAbsence

Galápagos, Imbabura, Tungurahua, Chimborazo, Bolívar, Cañar, Azuay, Esmeraldas, Manabí, Guayas, Los Ríos, El Oro, Pastaza, Morona Santiago, Zamora Chinchipe and Sucumbíos.

Sporadic frequency

No sporadic frequency was reported in any of the provinces.

Regular frequency

No frequencies that could be considered as usual or regular were reported.

Epidemic frequency

Carchi, Cotopaxi, Loja, Pichincha and Napo.

PARAGUAYAbsence

No presence of the disease was reported in Boquerón, Alto Paraguay, Central, Cordillera, Guairá, Misiones, Itapúa, Neembucú and Amambay.

Sporadic frequency

Disease frequencies which fall into this category were reported in Presidente Hayes, Caaguazú, Concepción, Alto Paraná, Canendiyú and Caazapá.

Regular frequency

Frequencies considered as usual were reported in San Pedro and Paraguari.

Epidemic frequency

No departament reported this category of presence.

PERUAbsence

The disease's presence was not recorded in Huancavelica, Ica, Loreta, Madre de Dios, Moquegua, San Martín, Tumbes and Ucayali.

Sporadic frequency

Ayacucho, Cajamarca and Lambayeque reported presence that could be characterized as sporadic.

Regular frequency

In comparison to the last few years, Junín and Lima recorded usual frequencies.

Epidemic frequency

According to the history of occurrences of FMD, the frequencies reported in the following areas may be considered as epidemic: Amazonas, Ancash, Apurímac, Arequipa, Cuzco, Huanuco, La Libertad, Pasco, Piura, Puno and Tacna.

VENEZUELAAbsence

No FMD was reported in the Federal District, Anzoátegui, Aragua, Barinas, Bolívar, Carabobo, Cojedes, Falcón, Guárico, Lara, Miranda, Monagas, Nueva Esparta, Portuguesa, Sucre, Táchira, Amazonas Federal Territory, Trujillo, Yaracuy, Zulia and Federal Territory Delta Amacuro.

Sporadic frequency

No States reported frequencies within this range.

Endemic frequency

Mérida reported frequencies within the usual levels.

Epidemic frequency

Apure reported the disease with epidemic characteristics.

1.2.5 Virus subtypes

All of the countries within the FMD-affected area identified virus subtype O₁. Subtype A₂₄ was identified in Argentina, Brazil, Colombia, Peru and Venezuela; additionally, subtypes A79 and A81 were reported in Argentina. With respect to virus type C both Argentina and Brazil identified subtype C₃ (Table 22).

1.3 Vesicular stomatitis

309 diagnoses were conducted on as many farms during the year in South America, which meant a 25% drop in relation to 1992. Contrary to the numbers for FMD, this appear to indicate a real decline.

1.3.1 New Jersey vesicular stomatitis virus

The countries of the Andean region - Colombia, Ecuador, Peru and Venezuela - were the only ones reporting presence of the disease. As in preceding years, Colombia still has the highest percentage of farms diagnosed with this disease.

90% of the properties affected reported cattle afflicted by the disease (Tables 17,18), while 18% of the monthly frequencies exceeded the frequencies expected for the respective months (Table 21).

1.3.2 Indiana vesicular stomatitis virus

In addition to Colombia, Ecuador and Venezuela, countries of the Andean region, Brazil, with its characteristic of sporadic occurrence, also reported the disease in cattle. As with the New Jersey type vesicular stomatitis virus, Colombia recorded the highest frequency of affected properties.

As in the previous year, the Indiana type recorded much lower frequencies of occurrence than the New Jersey type: the

monthly frequencies exceeded the expected levels by 13% (Table 21).

98% of the properties reporting presence of the disease recorded diseased cattle (Tables 19,20).

1.3.3 Vesicular stomatitis in Mesoamerica and Mexico

Of 383 properties affected by vesicular disease, diagnostic confirmation of New Jersey vesicular stomatitis virus was achieved in 50% of the cases, and of Indiana virus in 3%. The remaining 47% related to negative findings in laboratory results or clinical-epidemiological diagnosis.

The disease showed a 7% increase over the previous year, thus maintaining its uptrend noticed since 1991.

Mexico, El Salvador and Honduras were the countries recording the highest numbers of episodes (Table 23).

2. SITUATION OF THE FOOT-AND-MOUTH DISEASE-CONTROL PROGRAMS IN SOUTH AMERICA, 1993

2.1 Geographic and populational coverage

The FMD-control programs encompass 70.4% of the geographical surface of the continent of South America and 90% of the cattle herds, which corresponds to 91% of the population (Table 24).

The following are the only countries that do not yet have full coverage programs in the fight against the disease: Bolivia, with 51% of the cattle ranches and 49% of the cattle population; Peru, with 60% of its national cattle herd; Brazil (84% of the ranches or farms and 86% of the cattle population) and Colombia (99.6% of the farms and ranches and 99% of the cattle herd).

2.2 Human resources

When compared to 1992, there was an 8% drop in the number of personnel participating in the FMD-control programs in 1993. The personnel reduction was especially significant in Peru (75%) and Venezuela (43%), but less in Brazil (7%). Offsetting the general loss of personnel, Argentina and Paraguay reported a slight personnel increase of 5% and 3%, respectively, while the other countries reported no change in available human resources.

Changes have occurred in the distribution of human resources. While there was a 32% average increase at the central level, laboratory personnel declined by 61% and field personnel by 5% (Tables 25,26).

2.3 Physical resources

Brazil and Paraguay expanded their motor-vehicle fleets by 42% and 24%, respectively, while Argentina (1%) and Uruguay (0.4%) cut theirs only slightly. Chile, Colombia and Ecuador maintained the same number of vehicles while no information was forthcoming from the other countries (Table 27).

2.4 Field units

Brazil and Argentina expanded their field units by 10% and 2% respectively while the other countries remained unchanged. Peru and Paraguay did not provide information (Table 25).

2.5 Private and public expenditures

The public and private funds spent on carrying out the campaign on the continent amounted to US\$ 244,984,900.00, of which the private sector provided 84% (Paraguay is excluded, as it provided only partial information, as is Peru, which provided no information).

2.5.1 Private expenditures

The US\$ 202,298,600.00 provided by the private sector were spent on vaccine purchases and, in some countries, on performing the vaccination (Table 28).

The 2% drop (in US\$) in the funds provided by the private sector in comparison with 1992 was due to the fact that the Argentine allocation dropped by 9% and, in Chile, by 25% (resulting from the lower stock of monovalent FMD vaccine maintained at PANAFTOSA). In the rest of the countries the private allocation actually increased.

2.5.2 Public expenditures

With the exception of Argentina, Paraguay and Peru, that have no comparable 1992 basis, the average public expenditures on the continent increased by 0.9%. However, Bolivia (3%), Brazil (20%) and Venezuela (71%) all reduced their funding to the FMD-control programs.

2.6 Laboratory confirmation of vesicular diseases

In the South American countries, only 27% of the establishments affected by vesicular diseases had etiological confirmation. Peru with 22%, Brazil with 21%, Venezuela with 15% and Bolivia with 2% are all below this average (Table 29).

In Mesoamerica and Mexico there was positive confirmation of vesicular stomatitis on 53% of the establishments affected. Mexico with 42% and Honduras with 32% were both below this percentage (Table 29).

2.7 Vaccination against foot-and-mouth disease

2.7.1 Production strains

The type O virus strain utilized to produce FMD vaccine in South America was the strain O₁-Campos Br/58; additionally, Argentina used the O₁ Caseros-Arg/67 strain.

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 A₂₄-Cruzeiro-Br/55.

With respect to the type C virus strain, Brazil utilized C₃ Indaial-Br/71, Paraguay and Uruguay used C₃ Resende-Br/55 and Argentina used C₃ Arg/85 (Table 30).

2.7.2 Availability of foot-and-mouth disease vaccine

2.7.2.1 Vaccine produced

Brazil (50.9%), Argentina (32.8%), Colombia (6.3%), Uruguay (5.8%), Paraguay (2.4%) and Venezuela (1.8%) produced 344,580,100 doses of aqueous and oil vaccines. Vaccines with aqueous coadjuvant were produced only by Brazil (99.3%) and Uruguay (0.7%), totalling 108,300,300 doses.

2.7.2.2 Vaccine controlled and approved

All the vaccines produced were controlled by the respective official agencies; 95% of the aqueous and 86% of the oil-adjuvanted vaccines were passed for use (Table 31).

Colombia, Brazil and Argentina each had, respectively, 96%, 94% and 77% of their vaccine production approved; they used the foot-pad generalization protection test for their quality control.

Paraguay, Uruguay and Venezuela approved all their vaccine production, utilizing mouse protection and seroneutralization tests for quality control purposes.

2.7.2.3 International commercialization

Brazil exported 1.3% of its approved output (2,115,000 oil-adjuvanted doses) to Venezuela, Peru and Bolivia; Colombia sold 2% of its approved vaccines (400,000 doses) to Venezuela; Uruguay shipped out 1,224,500 doses to Bolivia, Peru and Paraguay, equal to 6.4% of its oil-adjuvanted vaccine production, and 454,200 doses (58%) of its aqueous vaccine production to the Philippines, while Paraguay exported to Bolivia 70,000 doses and imported from Uruguay 200,000 doses of oil-adjuvanted vaccine.

Bolivia, Ecuador and Peru, which are devoid of their own FMD vaccines, supplied their markets by importing from Brazil, Uruguay and PANAFTOSA; Venezuela had to import 35% of the vaccine available for the year from Brazil and Colombia (Table 31).

2.7.2.4 Systematic vaccination

187,307,000 head of cattle were vaccinated in systematic vaccinations of one or two doses per year, which was an overall increase of 12% over the total reached in 1992. Peru, Ecuador, Colombia and Brazil posted increases over 1992 higher than the average recorded in 1993 (Table 32).

2.8 Commercialization of animals and their byproducts

The countries of the continent imported from each other and from foreign countries 263,791 cattle, 1,975,06 doses of bovine semen, 6919 bovine embryos, 44,808 tons of beef and 85,051 tons of milk (Table 33).

Regarding swine, 2926 animals, 25,209 doses of semen and 1020 tons of pork were imported from outside the continent (Table 34).

Regarding sheep, 8010 animals, 3178 doses of semen and 1047 tons of mutton were imported (Table 35).

With regard to goats, only 27 animals and 918 doses of semen were imported (Table 36) whereas 8079 equines and 293 doses of equine semen were brought in (Table 37); Uruguay, which did not provide data, is excluded.

To their sister countries, and to countries outside the continent, the South American countries exported 60,263 head of cattle, 15,833 doses of bovine semen, 411 bovine embryos, 77,888 tons of beef and 13,079 tons of milk (Table 38); 398 pigs and 3421 tons of pork (Table 39); 155,764 sheep, 260 doses of sheep semen, 10,653 tons of mutton and two tons of milk (Table 40); 4182 equines, 190 doses of equine semen and 5025 tons of horsemeat (Brazil and Bolivia failed to report) (Table 42).

2.9 Highlights

ARGENTINA

- The 1990-1992 National Control Plan was consolidated and the 1993-1997 National Eradication Plan was drafted.

- Sanitary barriers were implemented in the Mesopotamic region to support the sanitary achievements in this area and in the basin of the Rio de la Plata.

- The Program of Modernization of Livestock and Agriculture Services got underway, which led to partial renewal of the motorvehicle fleet.

- Two mobile laboratories were implemented for quick diagnosis and attention in sanitary emergencies.

- All the national territory north of the 42nd parallel was included in systematic vaccination by means of 357 local plans and use of oil-adjuvanted vaccines.

BOLIVIA

- The government and national livestock federations signed agreements oriented toward animal-health control.

- Animal-health border agreements were signed with Brazil, Chile and Peru.

BRAZIL

- The states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Mato Grosso, Mato Grosso do Sul, Goiás and Minas Gerais adopted and started to develop the Master Plan.

- 1007 pigs in the lot wherein FMD was detected at a packing plant in Santa Catarina were sacrificed.

- The industrial and rural producers of the State of Paraná set up an indemnization fund to pay for the animals sacrificed due to the FMD epidemic.

COLOMBIA

- A law was promulgated to create a livestock and agriculture protection fund that will facilitate animal-health action.

- Authorities are petitioning the OIE to recognize the Urabá-Antioquia region as an FMD-free area with vaccination.

ECUADOR

- The decisions were taken and resources provided for the importation of the FMD vaccines required.

PARAGUAY

- The inter-institutional commission of the Alto Paraguay and Boquerón departamentos conducted studies and undertook action

to secure FMD-free areas in the western half of the Alto Paraguay and northern half of Boquerón.

- A strategic plan was set up in the lower Chaco (primary endemic area) similar to the one developed in the departamento of Neembucú.

URUGUAY

- The OIE acknowledged the country as free of FMD with vaccination, following a visit by experts including personnel from PANAFTOSA.

VENEZUELA

- The Ministry of Agriculture, the Autonomous Livestock and Agriculture Health Service and the Federation of Livestock Raisers signed an agreement to strengthen the Nation's production support and development activities and to defend its animal-health and agricultural policies.

3. CONTINENTAL VESICULAR DISEASES SURVEILLANCE AND INFORMATION SYSTEM: FUNCTIONING AND RESULTS

3.1 Introduction

At the first general meeting of the South American Commission for the Control of Foot-and-Mouth Disease (COSALFA) in 1973 the countries considered it necessary to establish a dynamic and homogeneous foot-and-mouth disease surveillance system channeled through PANAFTOSA.

That system, which started to function fully in April 1977 by resolution taken at COSALFA IV, deploys a reduced number of indicators to characterize and interpret the disease's behavior and that of the various types of virus active in time and space.

3.2 Functioning in South America

Analysis of the functioning of the Continental Vesicular Diseases Epidemiological Surveillance and Information System in South America, especially with respect to the two-way flows of data and information from the national animal-health services to PANAFTOSA, and vice-versa, reveals the existence of problems concerning the timeliness and coherence of the information.

This situation, repeatedly stressed in Reports since 1986, has noticeably worsened in the last three years, reaching levels that seriously jeopardize the achievement of the proposed goals.

It has become therefore a priority to revise, remodel and update the system in line with the administrative and epidemiological realities facing the countries of South America.

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 grid squares in which occurrence has not been recorded for long periods of time.

The alert system operates independently of the weekly communications, in order to permit the adoption of pertinent action with the haste required by a given situation.

In 1993 PANAFTOSA sent 105 warnings of alert to the countries, distributed as follows:

- 10 to Argentina, originating in Bolivia (1), Brazil (5), and Paraguay (4);
- 20 to Bolivia, originating in Brazil (14) and Peru (6);
- 2 to Brazil, originating in Paraguay;
- 13 to Colombia, originating in Ecuador (9) and Venezuela (4);
- 5 to Chile, originating in Bolivia (2) and Peru (3);
- 11 to Ecuador, originating in Colombia (9) and Peru (2);
- 15 to Paraguay, originating in Argentina (4), Bolivia (1) and Brazil (10);
- 9 to Peru, originating in Bolivia (3), Brazil (1) and Ecuador (5), and
- 20 to Venezuela, originating in Colombia.

The vital timeliness of the alert message has been altered mainly because the affected countries have been delaying their communication of the fact to PANAFTOSA. In 1993, their delays averaged 15 days, ranging from a minimum delay of 0 (zero) days to a maximum of 46 days.

Because those delays have become excessive, it behoves all concerned to rethink the procedures utilized in order to make them compatible with the objectives proposed.

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 located on maps divided into grid squares based on geographic coordinates and sent weekly to PANAFTOSA. There the information is fed into a data base that generates the Weekly Epidemiological Report. This in turn is distributed to international agencies on and off the continent; the purpose is to provide information that enables epidemiological surveillance to be maintained.

In 1993 the countries sent in 99.4% of the information required, which kept the reporting at levels comparable to those of the last 5 years. But the delays in forwarding the data to PANAFTOSA increased to levels deemed critical to the suitable functioning of the system.

The 1992 Report ranked the countries as having "long delays" when they let an average of 10 days elapse between closing the week and forwarding the communication to PANAFTOSA. In 1993 all the countries recorded similar or longer delays (Table 43).

On the continental level, the 14-day time lapse existing in 1992 between the close of the epidemiological week and the publication of the Weekly Epidemiological Report by PANAFTOSA was considered to be "incompatible with the handling of epidemiological information in a swift, simple and periodical manner, as required for the surveillance and monitoring of an acute, easily transmitted disease." The time lapse observed in 1993 was 20 days.

Analysis of the shortest timespans noticed between the end of the week reported and the reception of the communication by PANAFTOSA clearly reveals that the delays in forwarding the information derive from the fact that the countries are accumulating various weeks of data before sending it on to PANAFTOSA. This practice is contrary to the very purpose of this valuable tool for swift epidemiological surveillance and action.

This attitude has become routine in some countries, like Bolivia and Peru (with 6 or 8 communications per year); when compounded with the not insignificant delays encountered in the mechanism of distributing the Report, the whole epidemiological reporting system is adversely affected.

3.2.3 Monthly Epidemiological Report

This Report, conceived as complementary to the Weekly Report, encompasses the quantity of affected herds, episodes with collection of blood samples and material, and type of virus, according to the political and administrative division of each country.

The level of information reception in 1993 continued to improve in comparison with preceding years, as 95.4% of the information was provided (Table 44). But the same was not true with respect to the length of the delay between the close of the month and the receiving of the information by PANAFTOSA; the maximum time elapsed was 194 days, the overall average was 37 days (Table 45). Just as with the situation of the weekly report, these facts seriously jeopardize the epidemiological usefulness of the Reports.

Another problem worth highlighting are the frequent disparities between the data supplied by the countries when compared to the information furnished for the weekly and monthly reports.

3.2.4 The Countries' Annual Report to COSALFA

The annual information that the countries prepare to submit at the COSALFA meeting should reflect an orderly

consolidation of the common elements gathered by the weekly and monthly reporting systems. It should also show continuity and coherence with respect to the Report submitted in the year before.

Nevertheless, there are often striking differences between the data contained in this Report and the information furnished during the year through the weekly, monthly and special reporting systems. Within the Report itself there are discrepancies between the information shown in a figure and the same data in another figure (for example, the total of episodes and monthly distribution thereof). There are likewise out-of-date populational figures, or they may be incomplete or vary greatly with respect to the previous year. All of this breeds doubt about the Report's reliability.

In view of these circumstances, the Continental Epidemiological Surveillance and Information System must face the fact that for the calculation of certain indicators or a simple description of the reality, there are three different data (sometimes 4, if special reports are taken into account) theoretically emanating from the same source. All of this leads one to suppose that one of the basic problems affecting the satisfactory functioning of the system is a high turnover of personnel entrusted with handling the information at the country level.

At least in appearance, it seems that the system is undergoing a process of "bureaucratization" that threatens its usefulness and, consequently, its continuity. PANAFTOSA and the countries of the region must take steps to set up the instruments required to recoup this support tool for one of the programs that constitutes one of the animal-health sector's most important achievements in South America.

3.3 Functioning in Central America and Mexico

Analysis of the functioning of the Continental Epidemiological Information System in Central America and Mexico points out problems involving the information timeliness, similar to the situation in South America.

3.3.1 Weekly Epidemiological Report

The reporting system has functioned suitably in Costa Rica, El Salvador, Guatemala, Mexico and Panama. In 1993 those countries sent in 98% of the required information, a marked increase over the reporting rate of 84% in 1992. Belice and Honduras continue not to provide information for the system, while Nicaragua ceased to participate from week 26 in 1993.

The delay in communicating the data continues to be a critical factor in the effective functioning of the system. Only El Salvador improved its performance over the preceding year. All the other countries lengthened the timespan between the close of the week reported and reception of the report by PANAFTOSA to an average of 30 days (as opposed to 13 days in 1992). Compared to 1992, the overall minimum delay jumped from zero days to 9 days and the maximum delay went from 173 to 244 days (Table 46).

Just as in South America, analysis of the shortest timespans observed between the close of the week reported and reception of the information by PANAFTOSA clearly shows that the delays in forwarding the information are caused by the fact that the countries are waiting to accumulate data for several weeks before forwarding it to PANAFTOSA.

3.3.2 Monthly Epidemiological Report

The basic information for this report is taken from the monthly reports from the Vesicular Diseases Diagnosis Laboratory (LADIVES) located in Panama. Mexico also provides information forwarded directly to PANAFTOSA.

In 1993 PANAFTOSA received 100% of the informative reports required by the system; the average delay was 20 days for Mexico and 46 days for LADIVES. Their minimum and maximum delays were, respectively, 9 and 59 days and 17 and 135 days. At the beginning of the year LADIVES experienced problems caused by changes in the format of the questionnaires, and the system was adversely affected.

3.4 Utilization of the Continental Vesicular Diseases Surveillance and Information System by other diseases

As in previous years the infrastructure set up for the vesicular diseases was utilized for the publication of information about cholera-like diseases in swine and syndromes compatible with infectious equine encephalomyelitis.

3.4.1 System for notification of diseases clinically similar to hog cholera. PANAFTOSA/PAHO/IICA

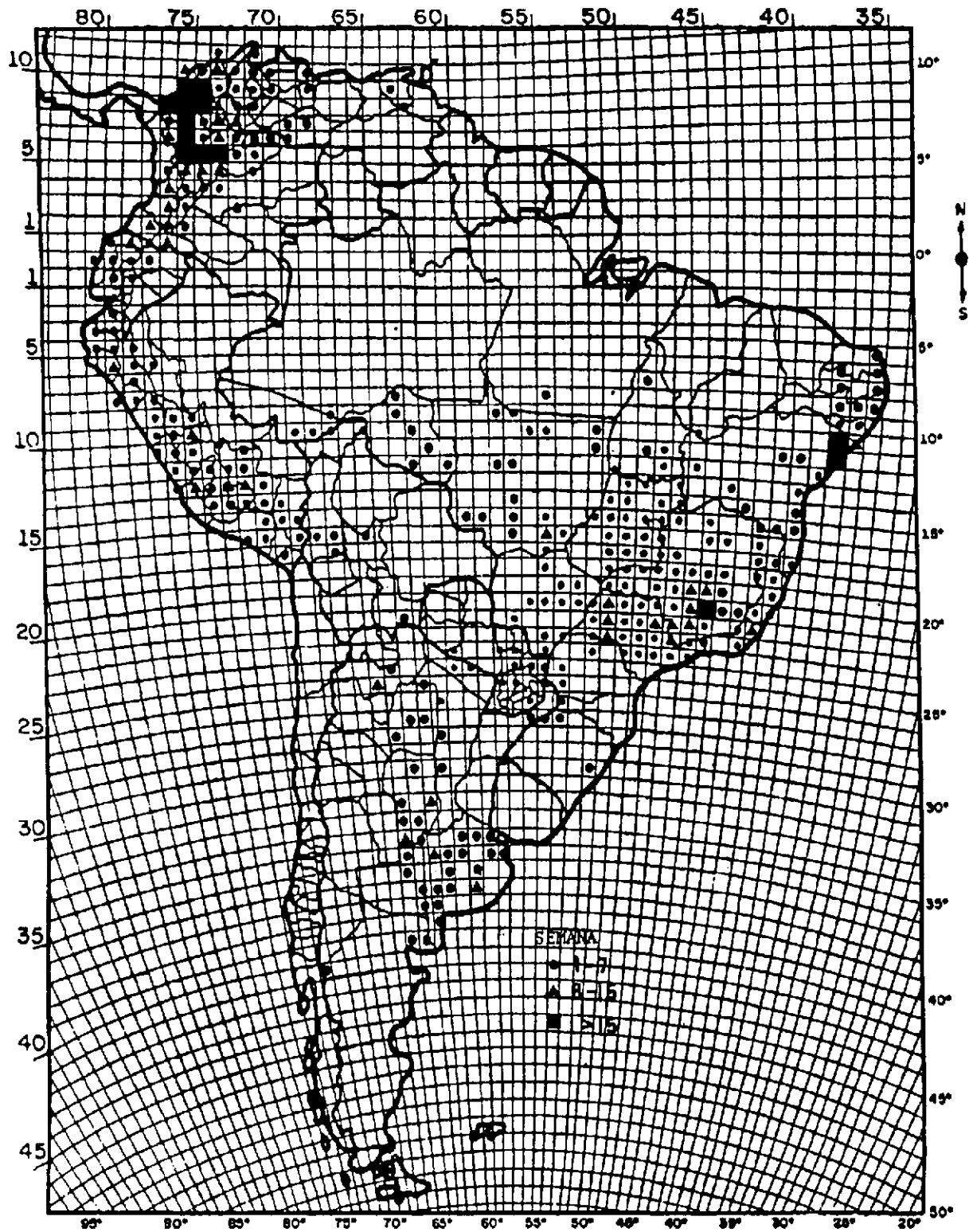
A joint PANAFTOSA/PAHO/IICA study is completing the gathering and dissemination of information related to hog cholera. The system is gradually improving as the various countries implement their own programs. It is functioning suitably in South America, except in Argentina, Peru and Uruguay, and also performing correctly in Guatemala, El Salvador and Mexico. The IICA publishes an annual report with the pertinent information.

3.4.2 System for notification of syndromes compatible with equine encephalomyelitis. INPPAZ/PANAFTOSA/PAHO

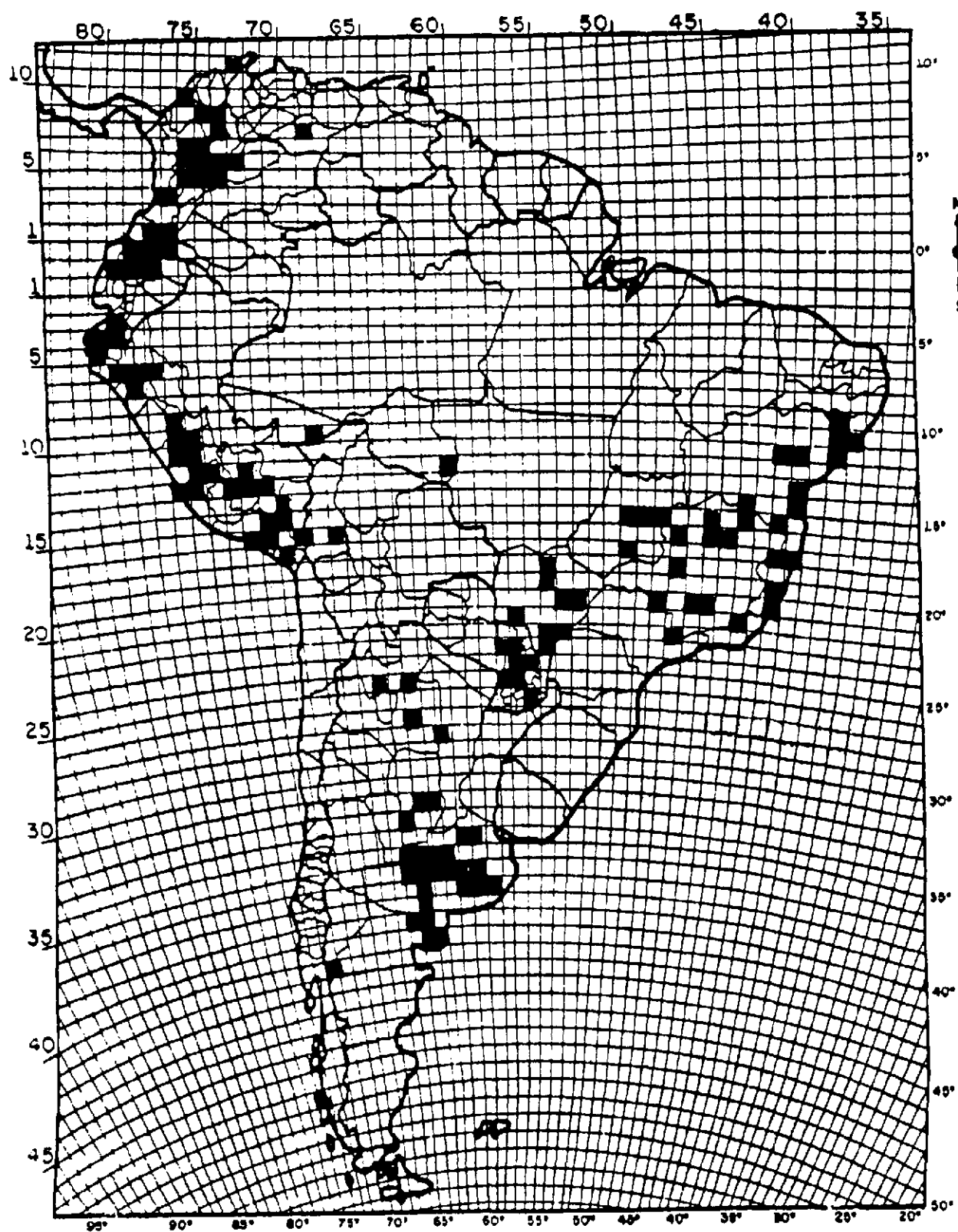
Cooperation between PANAFTOSA and the Pan American Institute for Food Protection and Zoonoses (INPPAZ) is producing information on equine encephalomyelitis. The countries feed this report together with the weekly communication on vesicular diseases using the same procedures.

Now on its fifth year, the system has been extended to Bolivia, Brazil, Colombia, Ecuador, Guatemala, Honduras, Paraguay y Venezuela. Recently, it has been proposed that the system be transferred entirely to INPPAZ.

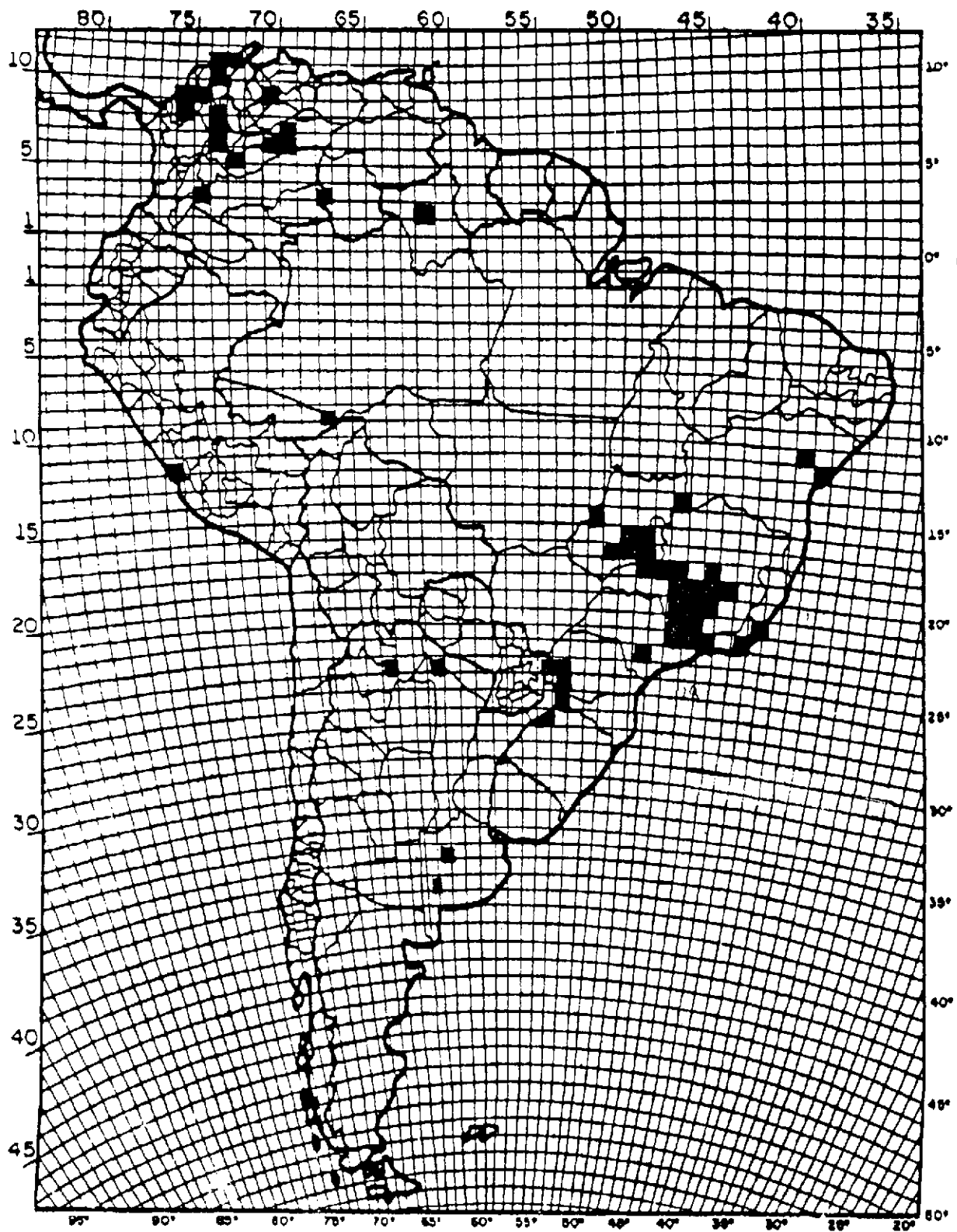
MAPA 1. DISTRIBUICION DE LA CANTIDAD DE SEMANAS CON OCURRENCIA DE ENFERMEDADES VESICULARES. POR COORDENADAS SUDAMERICA, 1993.



MAPA 2. GEOGRAPHICAL DISTRIBUTION OF FOOT-AND-MOUTH DISEASE VIRUS TYPE O.
SOUTH AMERICA, 1993.



MAPA 3. GEOGRAPHICAL DISTRIBUTION OF FOOT-AND-MOUTH DISEASE VIRUS TYPE A.
SOUTH AMERICA, 1993.



MAPA 4. GEOGRAPHICAL DISTRIBUTION OF FOOT-AND-MOUTH DISEASE VIRUS TYPE C.
SOUTH AMERICA, 1993.

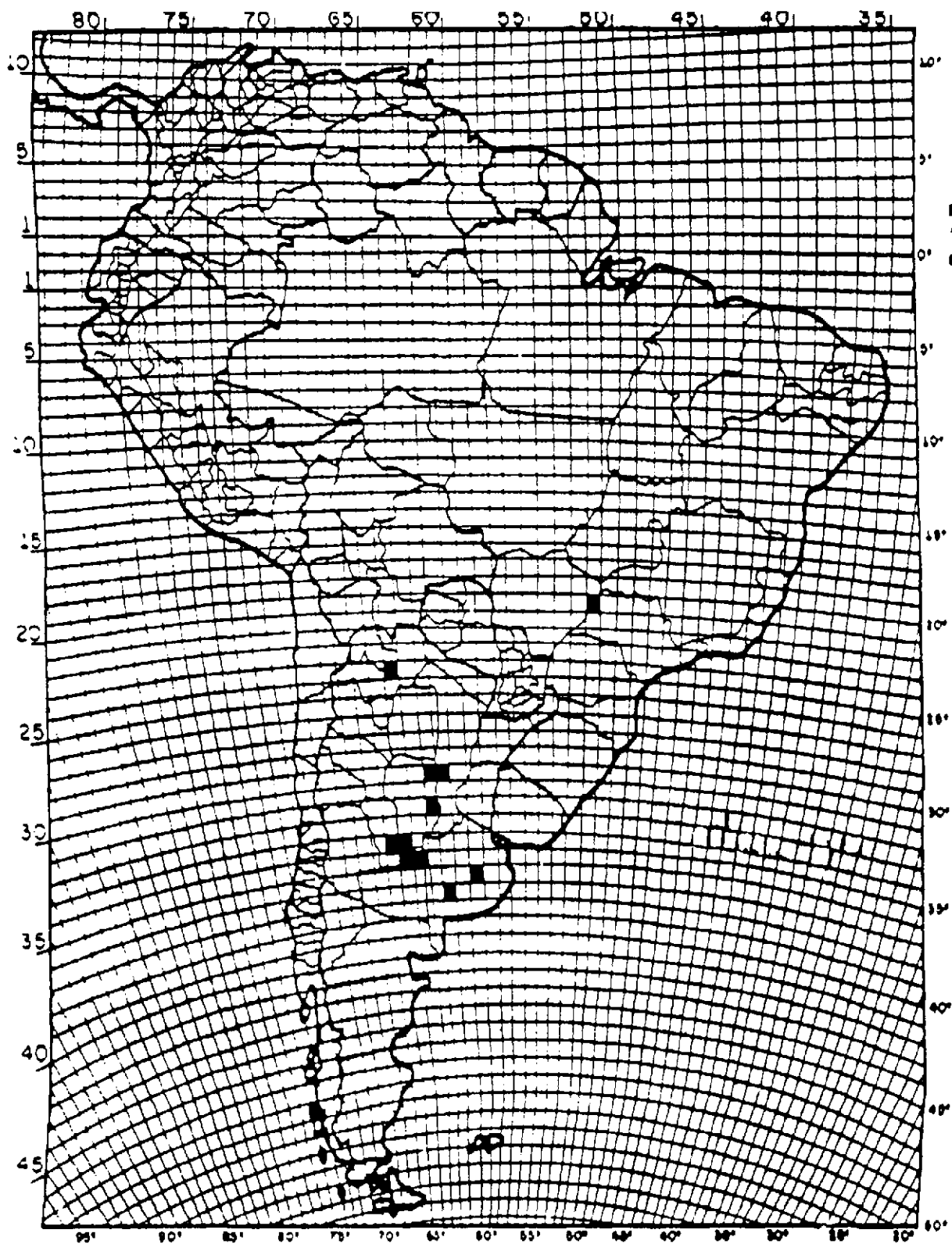


TABLE 1. Number of establishments affected by vesicular diseases, by causal agent. South America, 1993.

Country	Establi. Affected	Establi. Affected w/Samples	Diagnoses				
			F M D			Ves. Stomatitis	
			O	A	C	New Jersey	Indiana
Argentina	196	172	78	4	50	0	0
Bolivia/1	843	30	10	5	0	0	0
Brazil	1,417	463	115	182	1	0	3
Colombia/2	1,016	707	137	33	0	213	83
Ecuador	63	36	26	0	0	3	1
Paraguay	14	14	12	0	0	0	0
Peru	209	77	44	1	0	2	0
Venezuela	52	26	1	3	0	3	1
Total	3,810	1,525	423	228	51	221	88

Notes: Chile, Suriname, Guyana and French Guiana are countries free of vesicular diseases. Uruguay is free of vesicular diseases and foot-and-mouth disease with vaccination since 1993.

/1 - Includes 643 episodes occurring in the area not covered by the program.

/2 - Includes 42 episodes without identification of the affected species.

TABLE 2. Monthly distribution of properties affected by vesicular diseases. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	32	27	31	21	14	10	6	17	23	7	4	4	196
Bolivia/1	216	32	5	225	307	3	49	0	1	0	4	1	843
Brazil/2	52	96	139	87	247	97	140	158	74	65	96	166	1,417
Colombia/3	77	93	38	17	83	80	94	93	89	59	97	196	1,016
Ecuador	8	21	6	6	6	7	4	3	0	1	1	0	63
Paraguay	6	1	0	1	0	0	0	1	0	2	3	0	14
Peru	3	7	9	8	14	27	26	37	11	39	24	4	209
Venezuela	6	9	14	2	1	4	1	5	1	5	1	3	52
Total	400	286	242	367	672	228	320	314	199	178	230	374	3,810

Notes: Chile, Suriname, Guyana and French Guiana are countries free of vesicular diseases.

Uruguay is free of vesicular diseases and foot-and-mouth disease with vaccination since 1993.

/1 - Includes 643 episodes occurring in the area not covered by the program.

/2 - Does not include information from the North and Northeast regions for December.

/3 - Includes 42 episodes without identification of the affected species.

TABLE 3. Monthly distribution of properties with cattle affected by vesicular diseases. South America, 1993.

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	30	23	31	21	14	9	3	17	22	6	3	4	183
Bolivia	206	32	5	225	307	3	46	0	1	0	4	1	830
Brazil/1	52	96	139	86	240	95	138	157	73	64	94	156	1 390
Colombia	71	80	35	15	77	70	91	89	84	54	90	181	937
Ecuador	6	21	6	5	5	7	3	3	0	1	1	0	58
Paraguay	6	1	0	1	0	0	0	1	0	2	3	0	14
Peru	3	7	9	8	14	27	26	37	11	39	24	4	209
Venezuela	6	9	14	2	1	4	1	5	1	5	1	3	52
Total	380	269	239	363	658	215	308	309	192	171	220	349	3 673

Notes: Chile, Suriname, Guyana and French Guiana are countries free of vesicular diseases.
Uruguay is free of vesicular diseases and foot-and-mouth disease with vaccination since 1993.
/1 - Does not include information from the North and Northeast regions for December.

TABLE 4. Monthly distribution of the number of cattle affected by vesicular diseases. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	2,194	704	1,934	1,533	1,136	787	104	847	1,170	146	148	125	10,828
Bolivia	3,250	1,095	81	1,517	3,995	109	158	0	75	0	63	0	10,346
Brazil/1	2,601	9,120	7,892	2,746	5,840	1,732	11,421	3,862	2,814	1,907	3,439	1,482	54,856
Colombia	1,648	765	1,033	299	2,042	1,348	1,680	1,280	1,048	355	903	2,112	14,473
Ecuador	87	281	243	28	50	54	54	19	0	24	12	0	852
Paraguay	423	25	0	94	0	0	0	...	0	163	15	0	720
Peru	...	...	...	...	...	...	...	...	...	...	...	...	85,331
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	918
Total	10,203	11,990	11,183	6,217	13,066	4,030	13,397	5,988	5,107	2,595	4,580	3,719	179,324

Notes: Chile, Suriname, Guyana and French Guiana are countries free of vesicular diseases.
Uruguay is free of vesicular disease and foot-and-mouth disease with vaccination since 1993.
... Information not available.

TABLE 5. Morbidity aspects of vesicular diseases in cattle. South America, 1993.

Country	Herds/a		Population/a				Rates			
	Total	Affected	Total (x 1000)	In Herds Affected	Sick	Dead	Herds Affected (0/00)	Morbidity Population (0/000)	Morbidity Internal (0/0)	Lethality (0/0)
Argentina	280.740	183	55.664,0	208.532	10.828	39	0,65	1,95	5,19	0,36
Bolivia	50.021	200	2.656,7	31.991	10.346	109	4,00	38,94	32,34	1,05
Brazil	1.736.104	1.390	123.882,8	200.630	54.856	421	0,80	4,43	27,34	0,77
Colombia	723.753	937	22.141,9	112.116	14.473	177	1,29	6,54	12,91	1,22
Ecuador	251.445	58	4.690,0	3.790	852	16	0,23	1,82	22,48	1,88
Paraguay	114.169	14	6.046,2	3.761	720	0	0,12	1,19	19,14	0,00
Peru	...	209	1.955,0	...	86.331	199	NC	441,59	NC	0,23
Venezuela	106.535	52	10.831,0	4.360	918	2	0,49	0,85	21,06	0,22
Total	3.262.767	3.043	227.867,6	565.180	179.324	963	0,87	7,87	16,45	0,54

Notes: a/ - Covered by program.

Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

Uruguay is free of vesicular diseases and FMD with vaccination since 1993.

... Information not available.

NC Rate not calculable.

TABLE 6. Morbidity aspects of vesicular diseases in swine. South America, 1993.

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	6.062	1.049	461	3,15	17,30	43,95
Bolivia	2.225,5	115	13	11	0,06	11,30	84,62
Brazil	33.015,0	13.048	5.530	171	1,67	42,38	3,09
Colombia	2.187,0	6.120	1.053	180	4,81	17,21	17,09
Ecuador	2.423,0	121	52	2	0,21	42,98	3,85
Paraguay	1.261,7	945	120	0	0,95	12,70	0,00
Peru	1.301,4 /1	0	0	0	0,00	0,00	0,00
Venezuela	2.639,5	20	14	6	0,05	70,00	42,86
Total	48.380,1	26.431	7.831	831	1,62	29,63	10,61

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.
Uruguay since 1993, is free of vesicular diseases and FMD with vaccination.
/1 - Partial figure; includes only 11 of the country's 27 provinces.

TABLE 7. Morbidity aspects of vesicular diseases in sheep. South America, 1993.

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	9.914	53	2	0,02	0,53	3,77
Bolivia	7.472,9	0	0	0	0,00	0,00	0,00
Brazil	20.658,3	1.740	40	3	0,02	2,30	7,50
Colombia	1.527,9	1.920	146	0	0,96	7,60	0,00
Ecuador	1.564,0	20	20	0	0,13	100,00	0,00
Paraguay	378,0	2	0	0	0,00	0,00	0,00
Peru	9.500,4 /1	0	0	0	0,00	0,00	0,00
Venezuela	363,8	0	0	0	0,00	0,00	0,00
Total	66.355,3	13.596	259	5	0,04	1,90	1,93

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.
Since 1993, Uruguay is free of vesicular diseases and FMD with vaccination.
/1 - Partial figure; includes only 11 of the country's 27 provinces.

TABLE 8. Morbidity aspects of vesicular diseases in goats. South America, 1993.

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	422	17	0	0,05	4,03	0,00
Bolivia	1.498,0	0	0	0	0,00	0,00	0,00
Brazil	11.669,0	179	17	15	0,01	9,50	88,24
Colombia	1.237,3	586	61	0	0,49	10,41	0,00
Ecuador	330,0	150	26	4	0,79	17,33	15,38
Paraguay	118,6	0	0	0	0,00	0,00	0,00
Peru	853,9 /1	0	0	0	0,00	0,00	0,00
Venezuela	1.285,4	0	0	0	0,00	0,00	0,00
Total	20.716,2	1.337	121	19	0,06	9,05	15,70

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

Since 1993, Uruguay is free of vesicular diseases and FMD with vaccination.

/1 - Partial figure; includes only 16 of the country's 27 provinces.

TABLE 9. Morbidity aspects of vesicular diseases in equines. South America, 1993.

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	384,4	0	0	0	0,00	0,00	0,00
Brazil	6.097,8	0	0	0	0,00	0,00	0,00
Colombia	2.365,0	4.618	91	0	0,38	1,97	0,00
Ecuador	925,0	1	1	0	0,01	100,00	0,00
Paraguay	338,8	0	0	0	0,00	0,00	0,00
Peru	179,4 /1	0	0	0	0,00	0,00	0,00
Venezuela	571,7	0	0	0	0,00	0,00	0,00
Total	12.851,1	4.619	92	0	0,07	1,99	0,00

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.
 Uruguay has been free of vesicular diseases and FMD with vaccination since 1993.
 /1 -Partial figure; includes only 5 of the country's 27 provinces.

TABLE 10. Establishments affected by FMD, according to virus type, by country and year. South America, 1993.

Country	Virus Type	1987	1988	1989	1990	1991	1992	1993
Argentina	O	23	95	103	196	37	108	78
	A	486	35	39	115	60	72	4
	C	27	5	4	5	2	39	50
Bolivia	O	0	0	2	13	2	18	10
	A	12	13	0	4	2	0	5
	C	1	4	4	0	0	0	0
Brazil	O	94	92	71	43	38	158	115
	A	161	91	72	43	18	72	182
	C	13	19	28	91	64	6	1
Colombia /1	O	100	268	280	83	74	226	137
	A	73	153	542	250	113	82	33
	C							
Ecuador /1	O	2	2	23	29	19	30	26
	A	11	15	9	5	5	0	0
	C							
Paraguay	O	3	2	30	2	27	23	12
	A	0	0	0	0	0	0	0
	C	0	0	0	0	0	0	0
Peru	O	0	1	0	32	2	12	44
	A	10	6	2	0	0	3	1
	C	0	0	0	0	0	0	0
Uruguay /2	O	2	2	17	13	0	0	0
	A	115	0	0	11	0	0	0
	C	5	6	24	1	0	0	0
Venezuela /1	O	20	6	9	3	6	1	1
	A	6	10	34	16	16	7	3
	C							

Notes: /1 - Colombia, Ecuador and Venezuela are free of FMD virus C.

/2 - Uruguay has been free of FMD, with vaccination, since 1993.

TABLE 11. Monthly distribution of properties affected by FMD virus type O. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	7	10	10	6	2	5	4	7	18	5	1	3	78
Bolivia	2	1	1	1	3	1	0	0	1	0	0	0	10
Brazil/1	4	5	16	14	26	8	5	15	4	2	11	5	115
Colombia	11	13	7	1	9	8	4	9	10	3	9	53	137
Ecuador	1	6	4	3	4	4	2	1	0	1	0	0	26
Paraguay	5	1	0	1	0	0	0	1	0	1	3	0	12
Peru	0	0	0	4	3	7	10	6	6	3	2	3	44
Venezuela	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	30	36	39	30	47	33	25	39	39	15	26	64	423

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

Uruguay has been free of vesicular diseases and FMD since 1993, with vaccination.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 12. Monthly distribution of properties with cattle affected by FMD virus type O. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	7	8	10	6	2	4	1	7	18	4	1	3	71
Bolivia	2	1	1	1	3	1	0	0	1	0	0	0	10
Brazil/1	4	5	16	14	26	8	5	15	4	2	11	5	115
Colombia	10	12	7	1	7	6	4	7	9	2	9	48	122
Ecuador	1	6	4	2	4	4	1	1	0	1	0	0	24
Paraguay	5	1	0	1	0	0	0	1	0	1	3	0	12
Peru	0	0	0	4	3	7	10	6	6	3	2	3	44
Venezuela	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	29	33	39	29	45	30	21	37	38	13	26	59	399

Notes: Chile, Suriname, Guyana and French Guiana are free of FMD.

Uruguay has been free of FMD, with vaccination, since 1993.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 13. Monthly distribution of properties affected by FMD virus type A. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	1	0	1	1	0	0	0	0	0	1	0	0	4
Bolivia	1	0	0	3	1	0	0	0	0	0	0	0	5
Brazil/1	4	7	10	7	37	14	11	16	6	23	7	40	182
Colombia	2	2	3	1	1	6	3	2	3	3	6	1	33
Ecuador	0	0	0	0	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	1	0	0	0	0	0	0	0	0	0	1
Venezuela	2	1	0	0	0	0	0	0	0	0	0	0	3
Total	10	10	15	12	39	20	14	18	9	27	13	41	228

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

Uruguay has been free of vesicular diseases and FMD, with vaccination, since 1993.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 14. Monthly distribution of properties with cattle affected by FMD virus type A. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	1	0	1	1	0	0	0	0	0	1	0	0	4
Bolivia	1	0	0	3	1	0	0	0	0	0	0	0	5
Brazil/1	4	7	10	7	37	14	11	16	6	22	6	34	174
Colombia	2	2	3	1	1	6	3	2	2	2	6	1	31
Ecuador	0	0	0	0	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	1	0	0	0	0	0	0	0	0	0	1
Venezuela	2	1	0	0	0	0	0	0	0	0	0	0	3
Total	10	10	15	12	39	20	14	18	8	25	12	35	218

Notes: Chile, Suriname, Guyana and French Guiana are free of FMD.

Uruguay has been free of FMD, with vaccination, since 1993.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 15. Monthly distribution of properties affected by FMD virus type C. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	12	5	6	8	9	1	1	4	1	0	3	0	50
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil/1	0	0	0	1	0	0	0	0	0	0	0	0	1
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	5	6	9	9	1	1	4	1	0	3	0	51

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

Uruguay has been free of FMD, with vaccination, since 1993.

Colombia, Ecuador and Venezuela are free of FMD virus type C.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 16. Monthly distribution of properties with cattle affected by FMD virus type C. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	12	5	6	8	9	1	1	4	1	0	2	0	49
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil/1	0	0	0	1	0	0	0	0	0	0	0	0	1
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	5	6	9	9	1	1	4	1	0	2	0	50

Notes: Chile, Suriname, Guyana and French Guiana are free of FMD.

Uruguay has been free of FMD, with vaccination, since 1993.

Colombia, Ecuador and Venezuela are free of FMD virus type C.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 17. Monthly distribution of properties affected by vesicular stomatitis, New Jersey virus. South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil/1	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	21	25	15	4	24	14	21	19	22	15	17	16	213
Ecuador	0	0	1	0	2	0	0	0	0	0	0	0	3
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	1	0	0	0	1	0	0	0	0	0	0	2
Venezuela	0	0	1	0	0	1	0	1	0	0	0	0	3
Total	21	26	17	4	26	16	21	20	22	15	17	16	221

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 18. Monthly distribution of properties with cattle affected by vesicular stomatitis, New Jersey.
South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil/1	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	19	20	13	2	21	13	21	19	21	14	15	14	192
Ecuador	0	0	1	0	1	0	0	0	0	0	0	0	2
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	1	0	0	0	1	0	0	0	0	0	0	2
Venezuela	0	0	1	0	0	1	0	1	0	0	0	0	3
Total	19	21	15	2	22	15	21	20	21	14	15	14	199

Notes: Chile, Suriname, Guyana, French Guiana and Uruguay are free of vesicular diseases.
/1 - Does not include information on the North and Northeast regions for December.

TABLE 19. Monthly distribution of properties affected by vesicular stomatitis, Indiana virus.
South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil/1	0	0	0	0	3	0	0	0	0	0	0	0	3
Colombia	7	4	2	0	5	5	8	12	8	11	18	3	83
Ecuador	0	0	0	0	0	1	0	0	0	0	0	0	1
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	7	4	2	0	8	6	8	12	8	11	18	4	88

Notes: Chile, Suriname, Guyana, French Guiana and Uruguay are free of vesicular diseases.

Argentina reported an episode in equines in 1986.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 20. Monthly distribution of properties with cattle affected by vesicular stomatitis, Indiana virus.
South America, 1993.

Country/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil/1	0	0	0	0	3	0	0	0	0	0	0	0	3
Colombia	7	4	1	0	5	4	8	12	8	11	18	3	81
Ecuador	0	0	0	0	0	1	0	0	0	0	0	0	1
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	7	4	1	0	8	5	8	12	8	11	18	4	86

Notes: Chile, Suriname, Guyana, French Guiana and Uruguay are free of vesicular diseases.

Argentina reported an episode in equines in 1986.

/1 - Does not include information on the North and Northeast regions for December.

TABLE 21. Types of virus for which the recorded monthly frequency of herds affected by vesicular diseases exceeded the expected frequency. South America, 1993.

Country/month	Argentina	Bolivia	Brazil	Colombia	Ecuador	Paraguay	Peru	Venezuela
January	O,C	O,A		O,NJ,I	O	O		A
February	O,C	O		O,NJ	O	O	NJ	A
March	O,C	O		O,NJ,I	O		A	O,NJ
April	O,C	O,A		NJ	O	O	O	
May		O,A	O,A	O,NJ,I	O,NJ		O	
June		O		O,A,NJ,I	O,I		O,NJ	
July				NJ,I	O		O	
August	O,C			NJ,I	O	O	O	NJ
September	O	O		O,NJ,I			O	
October	O		A	NJ,I	O	O	O	
November	C		O	O,NJ,I		O	O	
December	O		A	O,NJ,I			O	I

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.
Since 1993 Uruguay has been free of FMD, with vaccination, and of vesicular diseases.

TABLE 22. FMD-virus subtypes identified in 1993.

Country		Virus subtypes			
Argentina	01	A24	A79	A81	C3
Bolivia	01	---	---	---	---
Brazil	01	A24	---	---	C3
Colombia	01	A24	---	---	---
Ecuador	01	---	---	---	---
Paraguay	01	---	---	---	---
Peru	01	A24	---	---	---
Venezuela	01	A24	---	---	---

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.
Uruguay has been free of FMD, with vaccination, since 1993.

TABLE 23. Number of properties affected by vesicular stomatitis, by country and type of virus. Central America and Mexico, 1993.

Country	Vesicular Stomatitis		Without Diagnosis(a)	Total
	New Jersey	Indiana		
Belize	0	0	1	1
Costa Rica	13	3	7	23
El Salvador	77	1	25	103
Guatemala	13	3	10	26
Honduras	18	2	42	62
Mexico	59	0	83	142
Nicaragua	7	0	4	11
Panama	6	2	7	15
Total	193	11	179	383

Notes: (a) With NEGATIVE clinical-epidemiological diagnosis or laboratory results.

TABLE 24. Coverage of the FMD-control programs. South America, 1993.

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	280.740	280.740	55.664,0	55.664,0
Bolivia	1.098.581	487.266	98.139	50.021	5.475,9	2,656,7
Brazil	8.508.832	4.663.476	2.071.459	1.736.104	143.623,7	123,882,8
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	9.861,2	9,861,2
Peru	1.285.215	1.285.215	...	...	3.259,9	1,955,0
Uruguay	156.657	156.657	53.696	53.696	9.180,4	9,180,4
Venezuela	912.050	912.050	106.535	106.535	10.831,0	10,831,0
Total	17.320.513	12.568.248	4.007.145	3.620.816	268.348,3	244,323,5

... Information not available.

TABLE 25. Resources of the FMD-control programs, by levels. South America, 1993*.

Country	Field Units**	Human Resources					
		Professionals			Others		
		Central	Laborat.	Field	Central	Laborat.	Field
Argentina	308	21	11	213	30	14	665
Bolivia	15	...	...	...	...	...	...
Brazil	1.876	37	23	1.899	16	82	7.423 /1
Chile /2	53	2	2	33	2	3	52
Colombia	140	10	7	165	12	9	674
Ecuador	64	10	...	75	25	...	215
Paraguay	...	37	38	80	162	29	261
Peru	...	...	...	...	...	...	...
Uruguay	42	6	8	71	3	6	373
Venezuela	152	11	...	139	4	...	89
Total	2.650	134	89	2.675	254	143	9.752

Notes: * In some countries personnel are not full-time.

** Refers to offices informing about zoonitary events.

/1 - Includes 2291 vaccinators contracted when required.

/2 - Includes veterinary doctors and agriculture technicians hired for activities in the highland summer pastures (veranadas).

Excludes the technical staff who handle control of imports at ports, airports and border stations.

... Information not available.

TABLE 26. Comparison of Human Resources engaged in FMD-Control Programs. South America, 1992-1993*.

Country	1992				1993			
	Total	Central	Laboratory	Field	Total	Central	Laboratory	Field
Argentina	911	45	35	831	954	51	25	878
Bolivia	126	28	38	60	...	...	...	...
Brazil	10.233	45	394	9.794 /1	9.480	53	105	9.322 /1
Chile /2	95	4	5	86	95	4	5	86
Colombia	877	22	16	839	877	22	16	839
Ecuador	325	35	...	290	325	35	...	290
Paraguay	588	118	129	341	607	199	67	341
Peru	348	3	...	345	85	...	...	...
Uruguay	467	9	14	444	467	9	14	444
Venezuela	400	15	...	385	230	15	...	215
Total	14.370	324	631	13.415	13.120	388	232	12.415

Notes: * In some countries personnel are not full-time staff.

/1 - Includes 2632 (1992) and 2291 (1993) vaccinators hired when required.

/2 - Includes veterinarians and agricultural technicians hired for activities in the highland summer pastureslands (veranadas).

... Excludes the technical staff who handle control of imports at ports, airports and border stations.

... Information not available.

TABLE 27. Inventory of motor vehicles engaged in FMD-Control Programs. South America, 1992-1993.

Country	1992				1993			
	Area Total Km	Total	Auto.	Moto.	Area Total Km	Total	Auto.	Moto.
Argentina	2,779,892	680	680	0	2,779,892	673	673	0
Bolivia	487,266	26	25	1	487,266	...	...	...
Brazil	4,583,812	1,685	1,647	38	4,663,476	2,397	2,339	58
Chile	757,120	18	18	0	756,618	18	18	0
Colombia	846,154	428 /1	162	266	846,154	428 /1	162	266
Ecuador	274,168	36	...	...	274,168	36	...	...
Paraguay	406,752	84	48	36	406,752	107	69	38
Peru	1,285,215	288	60	228	1,285,215	...	...	...
Uruguay	156,657	243	110	133	156,657	242	77	165
Venezuela	912,050	314	314	0	912,050	...	...	...
Total	12,489,086	3,802	3,064	702	12,568,248	3,901	3,338	527

Notes: /1 - Of which 60 are pickups and 204 motorcycles are assigned to the ICA-USDA Cooperative Program. The rest of the motor vehicle pool is the property of the employees participating in the FMD Campaign.
... Information not available.

TABLE 28. Public and private expenditures in the FMD-Control Programs.
(in US\$ thousands) South America, 1993.

Country	Total	Public		Total	Private
		Operating	Capital		
Argentina	120.000,0	16.000,0	4.000,0	20.000,0 /1	100.000,0
Bolivia	252,9	...	...	178,8	74,1 /#
Brazil	84.188,1	5.707,8	2.597,5	8.305,3	75.882,8 /#
Chile	1.280,5	1.136,9 /2	128,6	1.265,5	15,0 /3
Colombia	16.720,4	3.764,9	708,3	4.473,2	12.247,2 /*
Ecuador	2.027,7	1.484,8	75,0	1.559,8	467,9
Paraguay	3.985,7	...	...	...	...
Peru	...	...	...	...	...
Uruguay	11.900,0	300,0	2.500,0	2.800,0	9.100,0 /#
Venezuela	4.629,6	...	...	118,0 /1	4.511,6 /*
Total	244.984,9	28.394,4	10.008,4	38.700,6	202.298,6

- Notes: /* - Refers to expenses of vaccine acquisition and application.
 /# - Vaccine acquisition; cost of application unknown.
 /1 - Includes only contributions from central government.
 /2 - Includes US\$ 582,600.00 allocated to indemnify owners of "veranadas" for the prohibition of use and cancelation of wages to personnel hired to oversee and control those pasture lands.
 /3 - Value of a stock of 50,000 doses of monovalent FMD vaccine stored at the PANAFTOSA.
 ... Information not available.

TABLE 29. Collection of samples and laboratory confirmation on establishments affected by vesicular diseases. South America, 1993.

Country	Estab. Affected			Percentage		
	Total	With Collection	W/Diag. Positive	With Collection(1)	W/positive Response(2)	Final Pos. Diag.(3)
Argentina	196	172	132	88	77	67
Bolivia	843	31	14	4	45	2
Brazil	1.417	463	301	33	65	21
Colombia	1.016	707	466	70	66	46
Ecuador	63	36	30	57	83	48
Paraguay	14	14	12	100	86	86
Peru	209	77	47	37	61	22
Venezuela	52	26	8	50	31	15
Total	3.810	1.526	1.010	40	66	27

Notes: (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 diagnoses to total of establishments affected.

TABLE 30. Virus strains utilized in production of FMD vaccines. South America, 1993.

Country	Virus Strains		
	O	A	C
Argentina	01 Caseros - Arg/67 or 01 Campos - Br/58	A79 - Arg/79 A81 - Arg/87	C3 Arg/85
Brazil	01 Campos - Br/58	A24 Cruzeiro - Br/55	C3 Indaial - Br/71
Colombia	01 Campos - Br/58	A24 Cruzeiro - Br/55	-----
Paraguay	01 Campos - Br/58	A24 Cruzeiro - Br/55	C3 Resende - Br/55
Uruguay	01 Campos - Br/58	A24 Cruzeiro - Br/55	C3 Resende - Br/55
Venezuela	01 Campos - Br/58	A24 Cruzeiro - Br/55	-----

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.
Bolivia, Ecuador and Peru did not produce vaccine in 1993.

TABLE 31. Production, control, international trade and availability of FMD vaccine by country (dose x 1000). South America, 1993.

Country	Vaccine Type	Production	Controlled	Approved	Exported	Imported	Available
Argentina	Oil	113.058,6	113.058,6	86.519,6	0,0	0,0	100.012,3 /1
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	113.058,6	113.058,6	86.519,6	0,0	0,0	100.012,3
Bolivia	Oil	0,0	0,0	0,0	0,0	500,0	500,0
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	0,0	0,0	0,0	0,0	500,0	500,0
Brazil	Oil	67.944,8	67.944,8	62.858,9	2.115,0	0,0	60.743,9
	Aqueous	107.518,7	107.518,7	102.275,2	0,0	0,0	102.275,2
	Total	175.463,5	175.463,5	165.134,1	2.115,0	0,0	163.019,1
Colombia	Oil	21.570,3	21.570,3	20.649,3	420,0	4,4	20.233,7
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	21.570,3	21.570,3	20.649,3	420,0	4,4	20.233,7
Ecuador	Oil	0,0	0,0	0,0	0,0	1.430,0	1.430,0
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	0,0	0,0	0,0	0,0	1.430,0	1.430,0
Paraguay	Oil	8.120,1	8.120,1	8.120,1	70,0	200,0	8.250,1
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	8.120,1	8.120,1	8.120,1	70,0	200,0	8.250,1
Perú	Oil	0,0	0,0	0,0	0,0	...	...
	Aqueous	0,0	0,0	0,0	0,0	...	...
	Total	0,0	0,0	0,0	0,0	...	...
Uruguay	Oil	19.253,5	19.253,5	19.253,5	1.224,5	0,0	18.029,0
	Aqueous	781,6	781,6	781,6	454,2	0,0	327,4
	Total	20.035,1	20.035,1	20.035,1	1.678,7	0,0	18.356,4
Venezuela	Oil	6.332,5	6.332,5	6.332,5	0,0	3.400,0	9.732,5
	Aqueous	0,0	0,0	0,0	0,0	0,0	0,0
	Total	6.332,5	6.332,5	6.332,5	0,0	3.400,0	9.732,5
Total	Oil	236.279,8	236.279,8	203.733,9	3.829,5	5.534,4	218.981,5 *
	Aqueous	108.300,3	108.300,3	103.056,8	454,2	0,0	102.602,6
	Total	344.580,1	344.580,1	306.790,7	4.283,7	5.534,4	321.584,1

Notes: /* - Includes stock of 50,000 doses stored at PANAFTOSA for emergency use in Chile.

/1 - Includes 13,492,676 doses of vaccine produced, controlled and approved, left over from preceding year.

... Information not available.

TABLE 32. Number of animals vaccinated against FMD. South America, 1993.

Country	Systematic Vaccination						Strategic-Tactical Vaccinations			
	Cattle (x 1000)			Sheep/Goats			Cattle	Swine	Sheep or Goats	
	Three Doses	Two Doses	One Dose	Nr. of Animals (x 1000)	Fraction of Dose					
Argentina	0,0	54.707,0	0,0	0,0	-	4.616.000	20.000	137.500		
Bolivia	0,0	91,4	143,7 /1	0,0	-	11.344 /2	0	246.391		
Brazil	0,0	79.780,8	21.111,7	6,2	...	333.069	56.352	93		
Colombia	0,0	9.300,0	4,5	0,0	-	...	...	...
Ecuador	0,0	256,3	598,1	0,0	-	0	0	0		
Paraguay	0,0	1.511,6	4.534,6	0,0	-	44.887	0	0		
Peru	0,0	0,0	1.063,5	0,0	-	...	...	...
Uruguay	0,0	3.508,8	5.838,4	0,0	-	0	0	0		
Venezuela	0,0	4.699,6	0,0	0,0	-	...	...	...

Notes: Chile, Suriname, Guyana and French Guiana are free of vesicular diseases.

/1 - Includes 26,126 cattle vaccinated in the area not covered by the Program.

/2 - Includes 6,344 cattle vaccinated in the area not covered by the Program..

... Information not available.

TABLE 33. Imports of cattle, meat, milk, semen and embryos.
South America, 1993.

Importing Country	Country of Origin	Nr of Head	Semen in doses	Embryos	Meat (MT)	Milk (MT)
Argentina	GERMANY	-	2.050	27	-	-
	AUSTRALIA	-	4.200	83	-	-
	BRAZIL	1.014 /1	-	-	-	-
	BELGIUM	-	100	-	-	-
	CANADA	22	4.250	145	-	-
	CHILE	397	-	-	-	-
	SPAIN	-	15.580	-	-	-
	USA	29	468.198	603	-	-
	NEW ZEALAND	-	5.500	-	-	-
	URUGUAY	1.402	-	-	-	-
Bolivia	BRAZIL	2.300	-	-	-	-
	CANADA	-	300	-	-	-
	USA	2	150	-	-	-
Brazil	GERMANY	1.410	65.140	282	-	-
	ARGENTINA	23.002	10.230	264	-	-
	AUSTRIA	-	29.400	45	-	-
	BELGIUM	-	1.250	3	-	-
	BOLIVIA	14.959	-	-	-	-
	CANADA	523	174.647	3.484	-	-
	USA	556	596.606	1.176	-	-
	FRANCE	289	24.024	543	-	-
	ISRAEL	-	3.000	-	-	-
	ITALY	-	25.282	160	-	-
	NEW ZEALAND	-	-	53	-	-
	PARAGUAY	149.501	-	-	-	-
	U.K.	-	7.050	-	-	-
	SWITZERLAND	-	7.700	18	-	-
	URUGUAY	41.281	1.535	-	-	-
Chile	GERMANY	-	-	-	-	1173,0
	ARGENTINA	-	-	-	15998,0	636,0
	AUSTRALIA	-	-	-	36,0	256,0
	BELGIUM	-	-	-	-	2862,0
	BRAZIL	-	-	-	-	656,0
	CANADA	5	15.944	-	-	-
	CHECOSLOVAKIA	-	-	-	950,0	-
	USA	38	172.409	-	0,4	2500,0
	ESTONIA	-	-	-	-	1112,0
	SPAIN	-	-	-	-	1,2
	FRANCE	-	-	-	-	1988,0
	HOLLAND	-	-	-	0,0	1501,0
	ENGLAND	-	-	-	-	14289,0
	IRELAND	-	-	-	-	2597,0
	NEW ZEALAND	-	-	-	-	3810,0
	PARAGUAY	-	-	-	10318,0	-
	PANAMA	-	-	-	-	500,0

Notes: /1 - Includes 1.013 buffalos.

Continued

TABLE 33. Imports of cattle, meat, milk, semen and embryos.
South America, 1993.

Continuation						
Importing Country	Country of Origin	Nr. of Head	Semen in doses	Embryos	Meat (MT)	Milk (MT)
Chile (cont.)	POLAND	-	-	-	-	2.229,0
	SOUTH AFRICA	-	-	-	37,6	-
	SWITZERLAND	-	-	-	-	984,5
	URUGUAY	-	-	-	10.528,0	2,6
Colombia	GERMANY	75	4.400	-	-	-
	BRAZIL	91	42.330	-	-	-
	CANADA	211	42.071	-	-	-
	DENMARK	-	-	-	-	145,0
	ECUADOR	5.902	-	-	-	218,0
	USA	923	162.811	-	2,8	-
	FRANCE	8	5.900	-	-	-
	HOLLAND	-	-	-	-	192,0
	NEW ZEALAND	-	2.500	-	-	-
	PANAMA	1.400	-	-	-	-
	UKRAINE	-	-	-	-	16,0
	VENEZUELA	1.057	-	-	-	20,0
Ecuador	ARGENTINA	-	-	-	26,3	-
	COLOMBIA	23	-	-	20,0	-
	COSTA RICA	51	-	-	-	-
	SPAIN	14	-	-	-	-
	USA	96	-	-	5,4	-
	JAPAN	-	170	-	-	-
	PERU	21	-	-	-	-
Paraguay	GERMANY	-	26.950	-	-	-
	ARGENTINA	6.908	-	33	-	-
	BRAZIL	43	-	-	-	-
	CANADA	-	6.718	-	-	-
	FRANCE	-	3.000	-	-	-
	USA	-	20.931	-	-	-
Peru	URUGUAY	1.309	-	-	-	-
	GERMANY	-	-	-	-	770,6
	AUSTRALIA	-	-	-	64,6	268,0
	ARGENTINA	-	-	-	1.206,0	530,2
	BELGIUM	-	-	-	-	1.823,6
	BRAZIL	-	-	-	711,9	1.705,4
	CANADA	-	2.260	-	31,4	406,5
	COLOMBIA	35	-	-	-	-
	CHILE	-	-	-	0,7	342,6
	DENMARK	-	-	-	-	160,0
	ECUADOR	4.800	-	-	-	-
	USA	-	20.620	-	3.177,0	857,6
	SPAIN	-	-	-	-	552,5
	FRANCE	-	-	-	40,1	1.337,5
	HOLLAND	-	-	-	-	2.182,5

Continued

TABLE 33. Imports of cattle, meat, milk, semen and embryos.
South America, 1993.

Continuation

Importing Country	Country of Origin	Nr. of Head	Semen in doses	Embryos	Meat (MT)	Milk (MT)
Peru (cont.)	ENGLAND	-	-	-	-	175.0
	IRELAND	-	-	-	104.8	1.648.9
	ITALY	-	-	-	4.9	790.0
	MALTA	-	-	-	-	100.0
	NEW ZEALAND	-	-	-	85.3	15.505.6
	PARAGUAY	-	-	-	353.8	8.5
	POLAND	-	-	-	-	15.0
	SWITZERLAND	-	-	-	-	196.5
	URUGUAY	-	-	-	809.6	4.689.5
Uruguay	...	...	...	...	...	...
Venezuela	GERMANY	-	-	-	-	21.4
	AUSTRALIA	-	-	-	-	500.0
	COLOMBIA	4.022	-	-	42.4	-
	DENMARK	-	-	-	-	1.680.3
	USA	72	-	-	204.9	412.0
	FRANCE	-	-	-	48.0	432.8
	HOLLAND	-	-	-	-	87.1
	NEW ZEALAND	-	-	-	-	10.113.3

... Information not available.

TABLE 34. Imports of swine, semen and pork. South America, 1993.

Importing Country	Country of Origin	Nr. of Head	Semen in Doses	Pork (m.t.)
Argentina	BRAZIL	964	-	-
	CHILE	64	-	-
Bolivia	-	-	-	-
Brazil	GERMANY	-	890	-
	CANADA	70	-	-
	FRANCE	-	24	-
	UNITED KINGDOM	69	-	-
Chile	CANADA	-	-	94,4
	DENMARK	-	-	100,0
	USA	-	-	15,9
Colombia	USA	978	1.080	1,6
	VENEZUELA	-	-	99,7
Ecuador	COLOMBIA	400	-	56,6
	PERU	21	-	-
Paraguay	BRAZIL	7	-	-
Peru	GERMANY	-	/?	-
	BRAZIL	-	-	20,0
	CANADA	-	-	1,7
	CHINA	-	-	22,7
	USA	-	-	161,7
Uruguay	...	...	...	...
Venezuela	CANADA	353	-	47,9
	DENMARK	-	-	257,0
	USA	-	23.215	104,2
	SWEDEN	-	-	86,6

Notes: /? - Country's report shows inconsistent data.

... Information not available.

TABLE 35. Imports of sheep, semen, embryos and milk. South America, 1993.

Importing Country	Country of Origin	Nr. of Head	Semen in Doses	Embryos	Meat (m.t.)	Milk (m.t.)
Argentina	AUSTRALIA	.	2.788	-	-	-
	URUGUAY	2.611	-	-	-	-
Bolivia	URUGUAY	5	-	-	-	-
Brazil	AUSTRALIA	2	-	-	-	-
	CANADA	184	-	-	-	-
	USA	-	190	-	-	-
	FRANCE	51	200	-	-	-
	NEW ZEALAND	25	-	-	-	-
Chile	ARGENTINA	2.394	-	-	-	-
	AUSTRALIA	-	-	-	0,04	-
	MALVINAS	1.186	-	-	-	-
Colombia	-	-	-	-	-	-
Ecuador	COLOMBIA	200	-	-	-	-
	USA	60	-	-	-	-
Paraguay	ARGENTINA	81	-	-	-	-
	BRAZIL	125	-	-	-	-
	CANADA	220	-	-	-	-
	USA	202	-	-	-	-
	URUGUAY	377	-	-	-	-
	VENEZUELA	287	-	-	-	-
Peru	ARGENTINA	-	-	-	17,7	-
	AUSTRALIA	-	-	-	313,5	-
	BRAZIL	-	-	-	3,0	-
	CHILE	-	-	-	43,0	-
	USA	-	-	-	189,2	-
	ENGLAND	-	-	-	0,7	-
	NEW ZEALAND	-	-	-	168,3	-
	URUGUAY	-	-	-	311,9	-
Uruguay	...	...	...	...	...	...
Venezuela	-	-	-	-	-	-

... Information not available.

TABLE 36. Imports of goats and semen. South America, 1993.

Importing Country	Country of Origin	Nr. of Head	Semen in Doses
Argentina	-	-	-
Bolivia	-	-	-
Brazil	FRANCE	-	918
Chile	-	-	-
Colombia	-	-	-
Ecuador	-	-	-
Paraguay	BRAZIL	6	-
	CANADA	21	-
Peru	-	-	-
Uruguay	...	...	...
Venezuela	-	-	-

... Information not available.

TABLE 37. Imports of equines, semen, and meat. South America, 1993.

Importing Country	Country of Origin	Nr. of Head	Semen in Doses	Meat (m.t.)
Argentina	BRAZIL	27	-	-
	BELGIUM	32	-	-
	CHILE	9	-	-
	USA	123	-	-
	FRANCE	6	-	-
	ENGLAND	15	-	-
	PARAGUAY	7	-	-
	URUGUAY	4.500	-	-
Bolivia	GERMANY	3	-	-
Brazil	GERMANY	20	25	-
	ARGENTINA	70	-	-
	BELGIUM	18	-	-
	CHILE	7	-	-
	DENMARK	1	-	-
	SPAIN	30	-	-
	USA	201	-	-
	FRANCE	8	-	-
	HOLLAND	5	-	-
	PORTUGAL	72	-	-
	U.K.	19	-	-
	SWITZERLAND	3	-	-
	URUGUAY	63	-	-
Chile	ARGENTINA	52	-	-
	BRAZIL	6	-	-
	USA	3	-	-
	U.K.	21	-	-
	MEXICO	2	-	-
Colombia	GERMANY	34	-	-
	ARGENTINA	262	-	-
	BOLIVIA	4	-	-
	BRAZIL	26	-	-
	CHILE	4	-	-
	ECUADOR	8	-	-
	USA	69	-	-
	FRANCE	5	-	-
	HOLLAND	3	-	-
	MEXICO	20	268	-
	PANAMA	1	-	-
	PUERTO RICO	8	-	-
	DOM. REPUBLIC	33	-	-
	VENEZUELA	1394	-	-

Continued

TABLE 37. Imports of equines, semen, and meat. South America, 1993.

continuation

Importing Country	Country of Origin	Nr. of Head	Semen in Doses	Meat (m.t.)
Ecuador	GERMANY	3	-	-
	CHILE	9	-	-
	COSTA RICA	4	-	-
	USA	9	-	-
	PERU	8	-	-
	VENEZUELA	1	-	-
Paraguay	GERMANY	2	-	-
	ARGENTINA	35	-	-
	BRAZIL	8	-	-
	USA	6	-	-
	URUGUAY	128	-	-
Peru	CHILE	15	-	-
	BOLIVIA	4	-	-
	USA	323	-	-
	VENEZUELA AND COLOMBIA	4	-	-
Uruguay	...	...	...	...
Venezuela	COLOMBIA	145	-	-
	USA	181	-	-

... Information not available.

TABLE 38. Exports of cattle, beef, milk, semen and embryos.
South America, 1993.

Exporting Country	Destination	Nr. of Head	Semen in Doses	Embryos	Meat (m.t.)	Milk (m.t.)
Argentina	BOLIVIA	1.571	-	-	-	-
	BRAZIL	3.409	8.040	311	-	-
	PARAGUAY	4210	-	33	-	-
	URUGUAY	69	7.203	67	-	-
Bolivia	...	...	...	...	...	...
Brazil	...	...	...	...	...	...
Chile	ARGENTINA	386	-	-	15,0	1.044,0
	BOLIVIA	-	-	-	-	875,2
	BRAZIL	-	-	-	-	1.163,0
	CANADA	-	-	-	-	0,1
	CUBA	-	-	-	-	5,0
	HOLLAND	-	-	-	7,0	-
	NEW CALEDONIA	-	-	-	-	3,5
	PERU	-	-	-	-	162,0
	PARAGUAY	-	-	-	-	33,7
	TAHITI	-	-	-	2,0	-
Colombia	ARUBA	-	-	-	24,0	-
	CURAÇAO	-	-	-	1.019,0	-
	ECUADOR	-	230	-	-	-
	PERU	23	-	-	-	-
	RUSSIA	-	-	-	17,0	-
	VENEZUELA	4.680	-	-	75,0	-
Ecuador	PERU	365	-	-	-	-
	COLOMBIA	24	-	-	-	-
Paraguay	GERMANY	-	-	-	916,3	-
	SAUDI ARABIA	-	-	-	335,4	-
	DUTCH ANTILLES	-	-	-	117,8	-
	ARGENTINA	-	-	-	4.281,9	-
	BELGIUM	-	-	-	20,0	-
	BRAZIL	36.264	-	-	3.392,0	-
	BOLIVIA	46	-	-	-	-
	CHILE	-	-	-	8.361,4	-
	CHINA	-	-	-	40,9	-
	SPAIN	-	-	-	665,6	-
	FRANCE	-	-	-	73,4	-
	HOLLAND	-	-	-	472,7	-
	ENGLAND	-	-	-	68,7	-
	ISRAEL	-	-	-	945,0	-
	ITALY	-	-	-	32,1	-
	KUWAIT	-	-	-	34,3	-
	NIGERIA	-	-	-	34,3	-
	PERU	-	-	-	119,9	-
	PORTUGAL	-	-	-	166,8	-

Continued

TABLE 38. Exports of cattle, beef, milk, semen and embryos.
South America, 1993.

continuation

Exporting Country	Destination	Nr. of Head	Semen in Doses	Embryos	Meat (m.t.)	Milk (m.t.)
PARAGUAY (cont.)	SWITZERLAND	-	-	-	20,4	-
	URUGUAY	-	-	-	20,0	-
	USA	-	-	-	0,0	-
	ZAIRE	-	-	-	167,3	-
Peru	ECUADOR	8	-	-	-	-
Uruguay	GERMANY	-	-	-	4.307,3	-
	ARGENTINA	479	-	-	1.385,2	260,1
	BELGIUM	-	-	-	-	-
	BOLIVIA	19	-	-	-	-
	BRAZIL	7.378	-	-	2.900,4	72,1
	CANADA	-	-	-	-	10,0
	CHILE	-	-	-	9.842,7	47,5
	COLOMBIA	-	-	-	-	400,5
	USA	-	-	-	2.835,2	-
	SPAIN	-	-	-	847,4	-
	FRANCE	-	-	-	975,7	-
	CANARY ISLANDS	-	-	-	1.042,9	-
	ISRAEL	-	-	-	17.367,6	-
	ITALY	-	-	-	1.092,8	-
	JAPAN	-	-	-	275,0	-
	LUXEMBURG	-	-	-	10,0	-
	MEXICO	-	-	-	-	7.616,4
	LOW COUNTRIES	-	-	-	1.113,4	-
	PARAGUAY	1.323	-	-	-	-
	PERU	-	-	-	-	977,9
	U.K.	-	-	-	7.848,2	-
	VENEZUELA	-	-	-	-	408,0
	OTHERS	-	-	-	4.595,6	-
Venezuela	ARUBA	7	360	-	-	-

... Information not available.

TABLE 39. Exports of hogs and pork. South America, 1993.

Exporting Country	Destination	Nr. of Head	Meat (m.t.)
Argentina	-	-	-
Bolivia	...	...	...
Brazil	...	...	...
Chile	ARGENTINA	-	2.887,0
	BOLIVIA	16	-
	PERU	55	142,0
	URUGUAY	-	20,0
	VENEZUELA	-	210,0
Colombia	ECUADOR	-	128,0
Ecuador	-	-	-
Paraguay.	-	-	-
Peru	BOLIVIA	306	-
	ECUADOR	21	-
Uruguay	-	-	-
Venezuela	COLOMBIA	-	34,0

... Information not available.

TABLE 40. Exports of sheep, semen, mutton and milk. South America, 1993.

Exporting Country	Destination	Nr. of Head	Semen in Doses	Meat (m.t.)	Milk (m.t.)
Argentina	SAUDI ARABIA	65.006	-	-	-
	BRAZIL	-	260	-	-
	CHILE	2.452	-	-	-
	PARAGUAY	331	-	-	-
	URUGUAY	93	-	-	-
Bolivia	...	...	...	...	...
Brazil	...	...	...	...	...
Chile	GERMANY	-	-	98	-
	ARGENTINA	9.000	-	758,0	-
	SAUDI ARABIA	619	-	-	-
	SPAIN	-	-	312,0	-
	FRANCE	-	-	153,0	-
	HOLLAND	-	-	153,0	-
	MALVINAS	-	-	-	2,0
	PERU	-	-	33,0	-
	PORTUGAL	-	-	32,0	-
Colombia	CURAÇAO	-	-	251,0	-
Ecuador	-	-	-	-	-
Paraguay	-	-	-	-	-
Peru	-	-	-	-	-
Uruguay	GERMANY	-	-	1.561,6	-
	ARGENTINA	11	-	1.303,7	-
	BRAZIL	77,949	-	3.168,1	-
	CHILE	-	-	15,8	-
	USA	-	-	33,2	-
	FRANCE	-	-	496,1	-
	ISRAEL	-	-	150,9	-
	ITALY	-	-	11,0	-
	LUXEMBURG	-	-	66,8	-
	LOW COUNTRIES	-	-	271,3	-
	PARAGUAY	303	-	-	-
	U.K.	-	-	105,8	-
	OTHERS	-	-	1.678,6	-
Venezuela	-	-	-	-	-

... Information not available.

TABLE 41. Exports of goats. South America, 1993.

Exporting Country	Destination	Nr. of Head
Argentina	-	-
Bolivia
Brazil
Chile	-	-
Colombia	-	-
Ecuador	-	-
Paraguay	-	-
Peru	-	-
Uruguay	-	-
Venezuela	-	-

TABLE 42. Exports of equines, embryos, semen and meat. South America, 1993.

Exporting Country	Destination	Nr. of Head	Embryos	Semen in Doses	Milk (m.t.)
Argentina	GERMANY	162	-	-	-
	SAUDI ARABIA	2	-	-	-
	BELGIUM	24	-	-	-
	BOLIVIA	10	-	-	-
	BRAZIL	60	-	-	-
	BRUNEI	122	-	-	-
	CHILE	86	-	-	-
	CYPRUS	3	-	-	-
	COLOMBIA	217	-	-	-
	COSTA RICA	41	-	-	-
	DUBAI	3	-	-	-
	ARAB EMIRATES	2	-	-	-
	SPAIN	53	-	-	-
	USA	325	-	-	-
	FRANCE	97	-	-	-
	GUATEMALA	38	-	-	-
	HOLLAND	4	-	-	-
	ENGLAND	117	-	-	-
	ITALY	942	-	-	-
	KUWAIT	38	-	-	-
	MALASIA	22	-	-	-
	PARAGUAY	41	-	-	-
	PERU	4	-	-	-
	PORTUGAL	8	-	-	-
	SOUTH AFRICA	2	-	-	-
	SWITZERLAND	3	-	-	-
	URUGUAY	11	-	-	-
	VENEZUELA	6	-	-	-
Bolivia	...	...	...	...	...
Brazil	...	...	...	...	...
Chile	ARGENTINA	9	-	-	-
	BOLIVIA	3	-	-	-
	COLOMBIA	4	-	-	-
	ECUADOR	9	-	-	-
	USA	11	-	-	-
	MEXICO	2	-	-	-
	PERU	26	-	-	-
Colombia	USA	-	-	186	-
	JAPAN	-	-	-	247,0
	PERU	-	-	4	-
Ecuador	BOLIVIA	28	-	-	-
	COLOMBIA	20	-	-	-

Continued

TABLE 42. Exports of equines, embryos, semen and meat. South America, 1993.

Continuation

Exporting Country	Destination	Nr. of Head	Embryos	Semen in Doses	Milk (m.t.)
Paraguay	ARGENTINA	11	-	-	-
	BOLIVIA	2	-	-	-
	BRAZIL	1	-	-	-
	FRANCE	5	-	-	-
Peru	ARGENTINA	8	-	-	-
	BOLIVIA	4	-	-	-
	CHILE	47	-	-	-
	ECUADOR	104	-	-	-
	USA	71	-	-	-
	GUATEMALA	4	-	-	-
	MEXICO	1	-	-	-
	NICARAGUA	11	-	-	-
	PANAMA	6	-	-	-
	VENEZUELA	20	-	-	-
Uruguay	GERMANY	25	-	-	0,3
	ARGENTINA	225	-	-	-
	BRAZIL	34	-	-	-
	BELGIUM	4	-	-	-
	SPAIN	12	-	-	-
	USA	5	-	-	-
	ARAB EMIRATES	5	-	-	-
	FRANCE	-	-	-	150,2
	GUATEMALA	3	-	-	-
	ITALY	20	-	-	391,1
	ISRAEL	20	-	-	-
	JAPAN	-	-	-	104,0
	LUXEMBURG	-	-	-	3.010,7
	PARAGUAY	127	-	-	-
	LOW COUNTRIES	-	-	-	1.115,7
	OTHERS	-	-	-	6,2
Venezuela	CURAÇAO	8	-	-	-
	COLOMBIA	840	-	-	-
	DOMINICAN REPUBLIC	4	-	-	-

... Information not available.

TABLE 43. Continental Epidemiological Surveillance and Information System of Vesicular Diseases in Cattle and Livestock: Delays and Reception Levels of the Weekly Communications about the presence of these diseases. South America, 1993.

Country	Weekly Communications				Delay Expressed in Days										
	Received		Published /a		Length of Delay /b				Rec.-Publication				Total /d		
	No.	%	No.	%	Av	Mx	Mn	Av	Mx	Mn	Av	Mx	Mn		
Argentina	52	100	52	100	19	53	9	3	9	0	25	58	13		
Bolivia	49	94	49	100	26	135	9	2	10	1	31	139	13		
Brazil	52	100	52	100	17	40	10	4	7	0	20	41	13		
Colombia	52	100	52	100	13	51	12	3	10	0	20	55	13		
Ecuador	52	100	52	100	18	59	13	4	7	0	20	62	20		
Paraguay	52	100	52	100	10	24	9	3	7	1	13	27	13		
Perú	52	100	52	100	66	226	11	9	11	0	71	237	13		
Uruguay	52	100	52	100	10	17	6	3	8	1	13	23	13		
Venezuela	52	100	52	100	31	367	12	2	7	0	34	373	13		

Notes: /a - Number of weeks published in relation to number of weeks received.

/b - Timespan between last day of week informed and reception by PANAFOTSA.

/c - Av = Average; Mx = Maximum; Mn = Minimum. All delays expressed in days.

/d - Average number of days (timespan) computed between the closing date of the week informed and publication of the information. This calculation includes only the delays in the weeks published in the Weekly Report on Occurrences of Vesicular Diseases.

TABLE 44. Continental Epidemiological Surveillance and Information System of Vesicular Diseases in Cattle and Livestock: Delays and Reception Levels of the Monthly Communications about herds affected and diagnosis, by countries of South America, 1993.

Country	Reports Received	Reports Published	Reports Not Received
Argentina	11	11	1
Bolivia	10	10	2
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 System of Information and Surveillance of Vesicular Diseases in Livestock. Days of delay in transmission and reception of the monthly reports. South America, 1993.

City/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	RANGE
Argentina	47	50	27	19	78	19	10	10	18	12	13	...	19	10 - 50
Bolivia	134	106	76	46	39	...	...	64	34	22	48	17	47	17 - 134
Brazil	18	12	84	41	25	21	45	15	74	38	8	...	33	8 - 84
Colombia	45	77	47	37	31	34	32	36	34	38	38	...	37	31 - 77
Ecuador	106	78	48	37	18	28	79	49	42	72	58	27	48	18 - 106
Paraguay	29	29	28	25	22	23	18	27	39	24	23	38	26	18 - 39
Peru	194	166	136	106	76	46	17	29	61	31	29	25	53	17 - 194
Uruguay	9	10	7	3	8	8	10	8	8	10	7	3	8	3 - 10
Venezuela	87	59	50	74	65	35	89	58	56	25	55	24	57	25 - 89
Average	47	59	48	37	31	25	25	29	39	25	29	24		

... Not received.

TABLE 46. Continental Epidemiological Surveillance and Information System of Vesicular Diseases in Livestock. Days of delay in transmission and reception of the weekly communications of presence of these diseases. Central America and Mexico, 1993.

Country	Weekly Communications				Days of Delay /c					
	Received		Published /a		Length of Delay /b			Rec.-Publication		
	No.	%	No.	%	Av	Mx	Mn	Av	Mx	Mn
Belize /e	-	-	-	-	-	-	-	-	-	-
Costa Rica	48	92	48	100	33	244	9	3	25	1
El Salvador	51	98	51	100	40	101	16	3	5	1
Guatemala	51	98	51	100	26	116	13	2	7	0
Honduras /e	-	-	-	-	-	-	-	-	-	-
Mexico	52	100	52	100	30	68	17	3	10	0
Nicaragua	26	50	26	100	32	75	12	2	10	0
Panama	52	100	52	100	24	108	13	3	14	1

Notes: /a - Number of weeks published in relation to number of weeks received.

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

/c - Av = Average; Mx = Maximum; Mn = Minimum. All delays expressed in days.

/d - Average number of days (timespan) computed between the closing date of the week informed and publication of the information. This calculation includes only the delays in the weeks published in the Weekly Report on Occurrences of Vesicular Diseases.

/e - Does not forward this communication.

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PAN AMERICAN HEALTH ORGANIZATION

Pan American Sanitary Bureau, Regional Office of the

WORLD HEALTH ORGANIZATION



PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

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



PAN AMERICAN HEALTH ORGANIZATION

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PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

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

April 1995

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

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 21).

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 0.9×1000 , 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, Neembucú, Caazapá, Alto Paraná, Concepción and San Pedro: no disease was reported in these areas.

Sporadic Frequency. Amambay, Presidente Hayes, Caaguazú, Canindeyú and Paraguari 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 O₁ subtype was identified in all the countries of the area that were affected by foot-and-mouth disease. Brazil and Colombia identified the A₂₄ subtype. Venezuela and Bolivia did not forward samples to PANAFTOSA for characterization. Both Argentina and Brazil identified the C₃ 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 O₁ Campos-Br/58, with the exception of the O₁ 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 A₂₄ Cruzeiro-Br/55.

With respect to the type C virus strain, Brazil utilized C₃ Indaial-Br/71, Paraguay and Uruguay used C₃ 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-mouth disease/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 weekly 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 initiated 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 O₁ 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 O₁ identified), and 1558 and 1657 (no samples collected), represented the greatest risk for the frequencies of episodes observed during the year. Virus type C₃ 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 O₁ 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 O₁) 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 C₃ 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 O₁ and NJ) which showed 13 weeks of occurrences, and 0873 (virus O₁) with 14 weeks of occurrences, as well as grid 0672N (virus O₁ 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

Cooperation 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	229.476	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. Monthly 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 distribution 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 outbreaks 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 which 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 (*)

Country	Vesicular Stomatitis		Without Diagnosis (**)	Total
	New Jersey	Indiana		
Belize	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

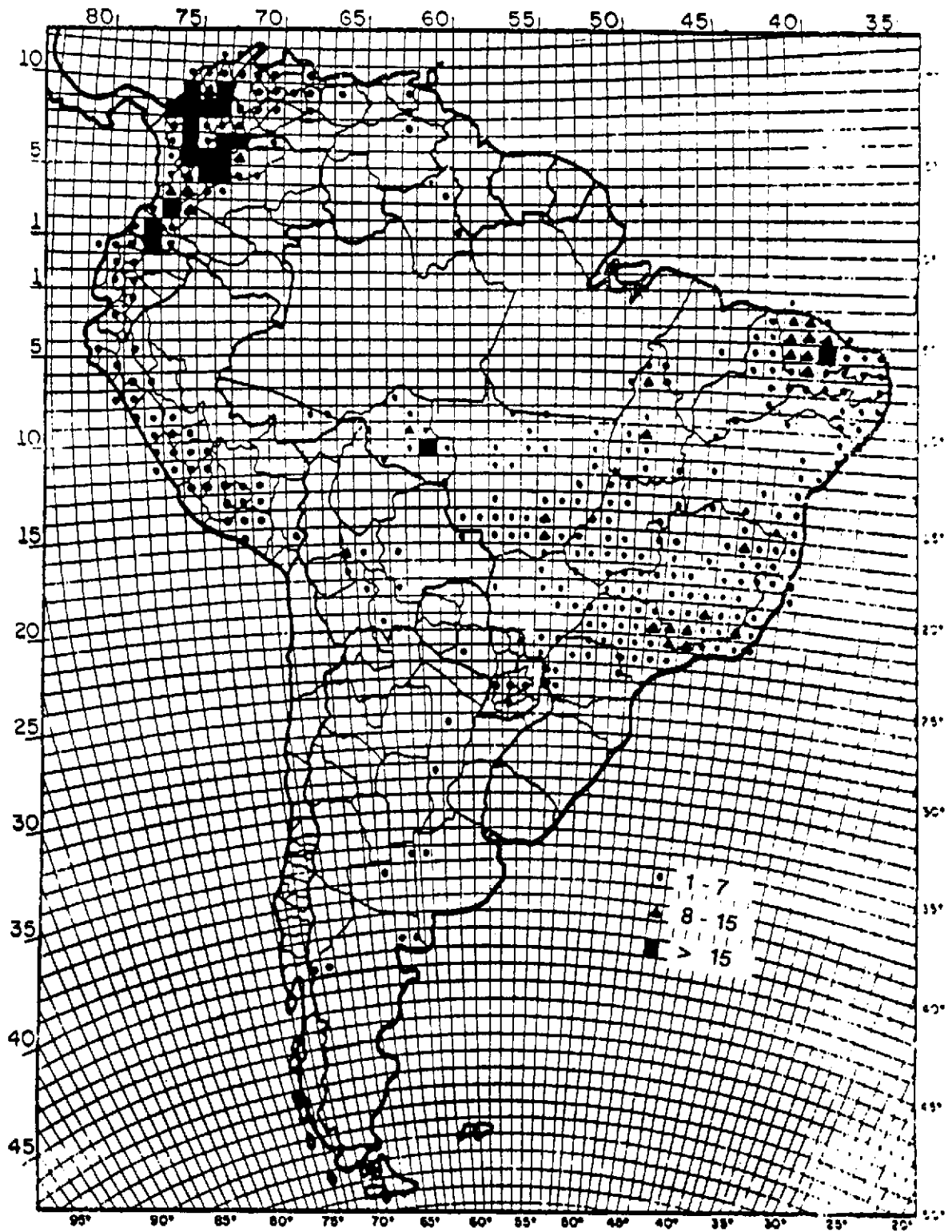
TABLE 25. Resources of the FMD control programs by levels. South America, 1994

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

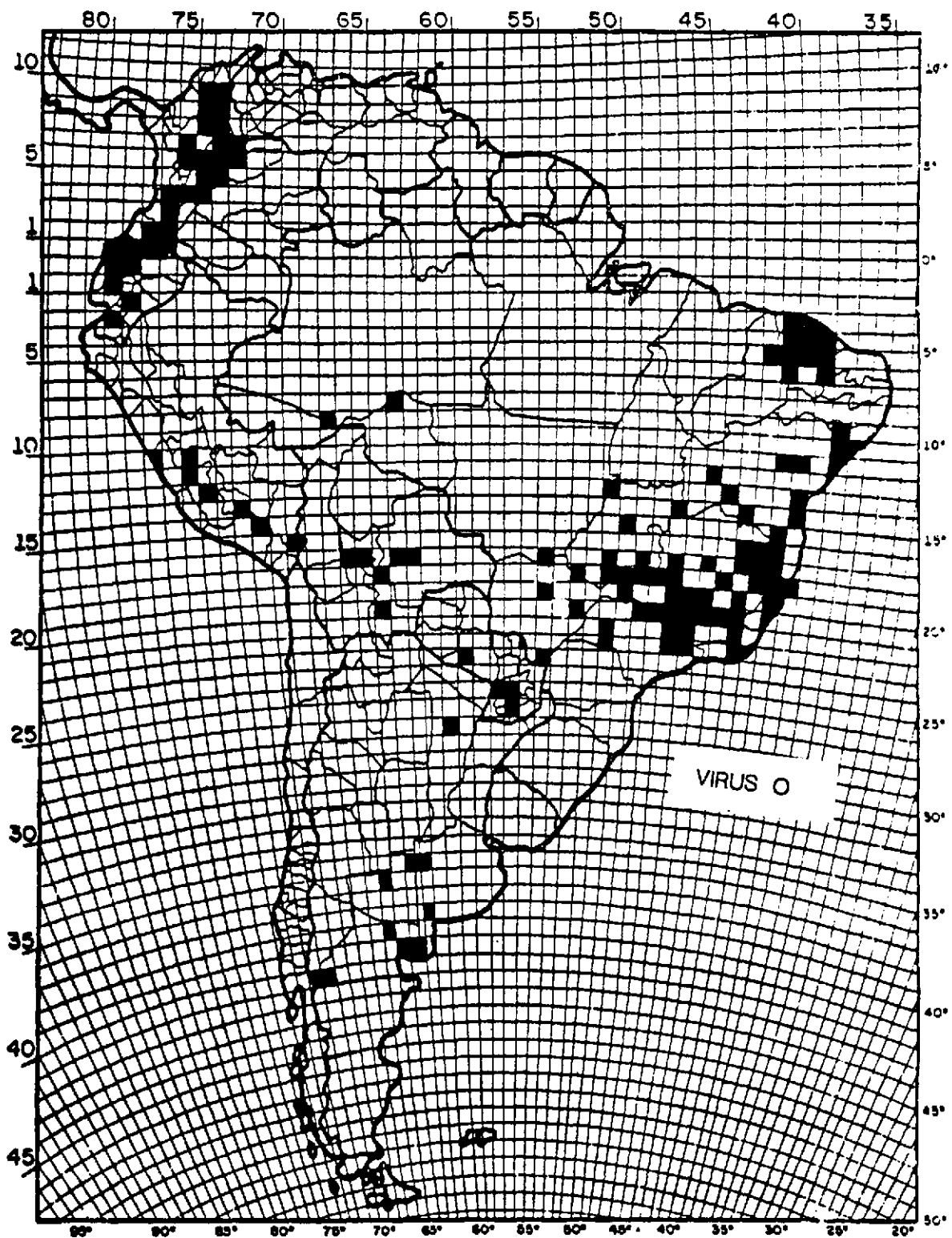
* Includes 2,281 eventual workers.

... Information not available.

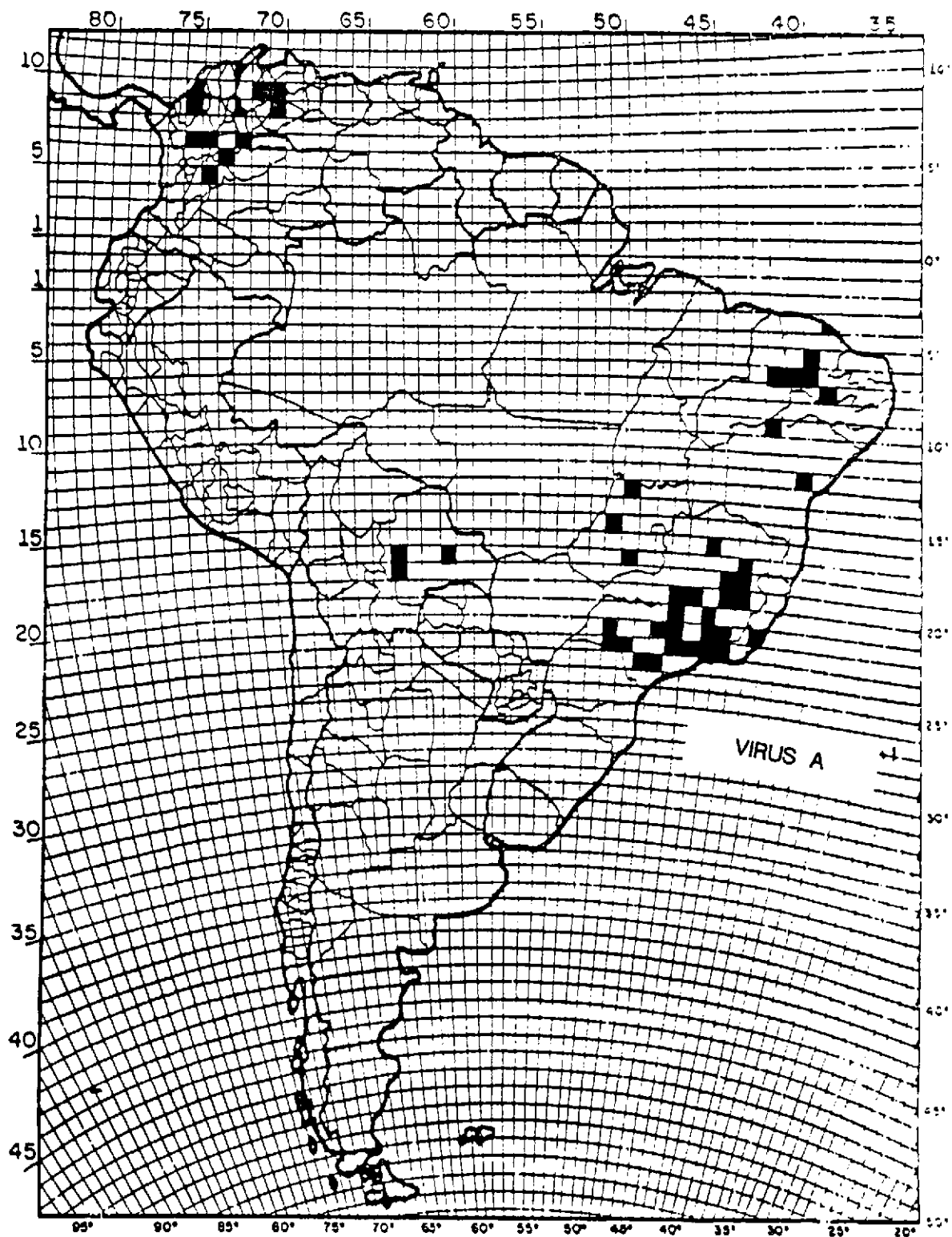
MAP 1. Distribution of the number of weeks with occurrence of vesicular disease by coordinates. South America, 1994



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

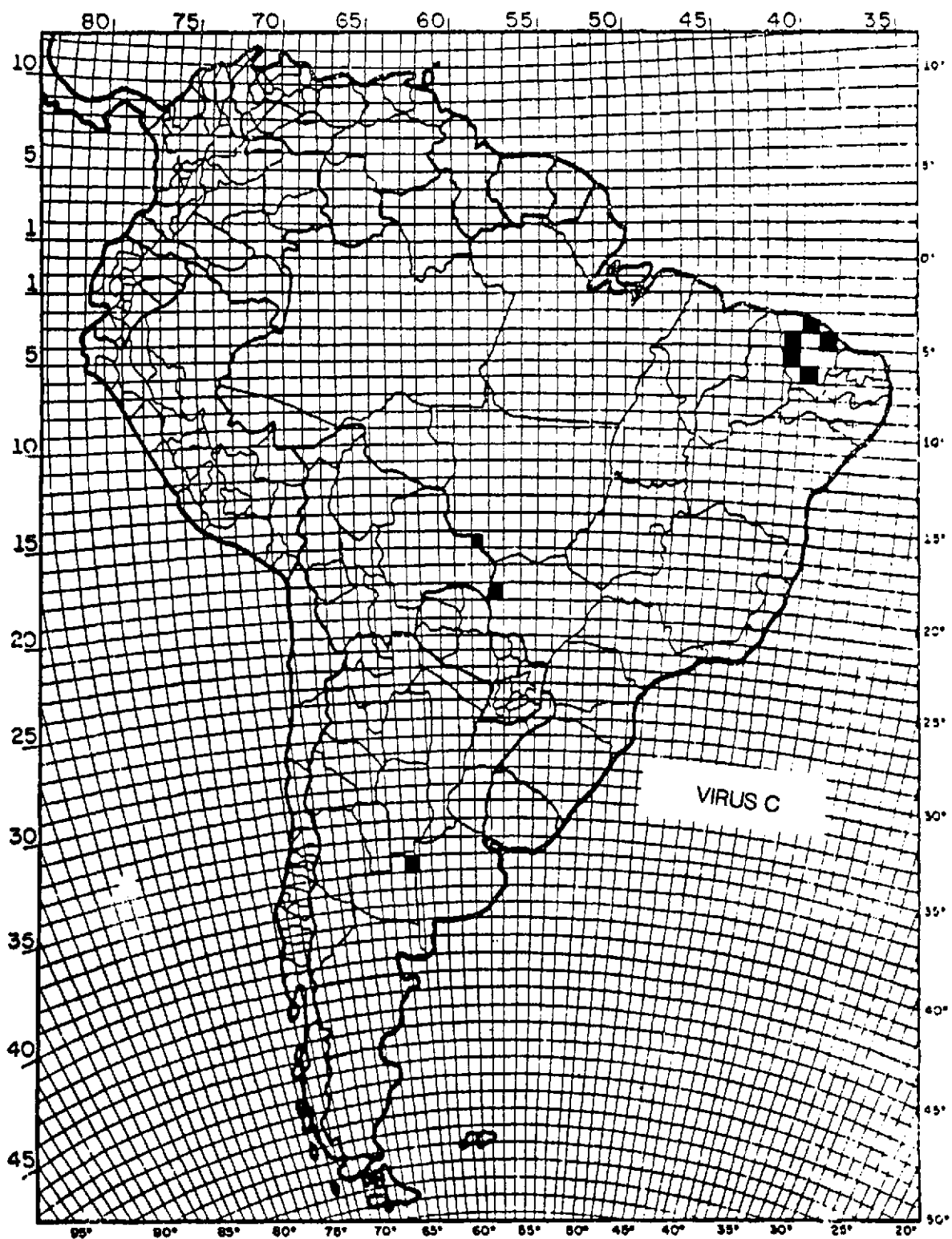




TABLE 26. Comparison of human resources engaged in FMD control programs, South America, 1993 - 1994.

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

... Information not available.

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

Country	Total	Public		Total	Private
		Operating	Capital		
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 diagnosis 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	Nº 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	...
Bolivia	URUGUAY	435	2.000	-----	3.796	...
	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 in days /c						
	Received		Published		Length of delay /b			Rec.-Publication			
	No.	%	No.	%	Mn	Md	Mx	Mn	Md	Mx	Total
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 number of weeks received.

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

/c - Mn = 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 Communications				Days of delay							
	Recieved		Published		Length of delay /b				Rec.-Publication			
	No.	%	No.	%	Mn	Md	Mx		Mn	Md	Mx	Total /d
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.