

ATTACHMENT 1

EPIDEMIOLOGICAL REPORT

**EPIDEMIOLOGICAL REPORT: SEROLOGICAL FINDINGS IN ARGENTINA-
SEPTEMBER 2000**

DESCRIPTION OF THE PROBLEM:

- ✓ Detection of four positive serum test results for adult bovines in the District of Clorinda, Province of Formosa, on July 2, 2000.

OVERALL OBJECTIVE:

- ✓ Maintain and preserve Argentina's status as "Foot and Mouth Disease Free Country with no vaccination" and the agreements with several beef importing countries.

SPECIFIC OBJECTIVE:

- ✓ Epidemiological Surveillance and Continuous Epidemiological Follow-up to detect any residual viral activity and confirm the animal health status described above.

STRATEGIES

- ✓ Elimination of all susceptible, positive, contact and possible contact animals.
- ✓ Serological follow-up and massive sampling of susceptible animals.

ANIMAL HEALTH ACTIONS:

- ✓ Intensive surveillance: the passive surveillance system was replaced by an active surveillance system.
- ✓ Inspection of livestock operations: all farms along the border were inspected.
- ✓ Massive serological surveillance, ban on shipments of animals to wintering farms, and specific quarantine restrictions.
- ✓ Allocation of additional staff.
- ✓ Stringent border controls: disinfection, elimination of condemned animals, animal health information, creation of visiting inspection teams.
- ✓ Stringent controls and inspection of vehicles.

AFFECTED AREA:

The epidemiological situation was limited to only three provinces (Formosa, Corrientes and Entre Ríos). The characteristics of livestock farming in these provinces are shown below:

Province	Total No. of operations		Livestock farming area		Cattle operations		Total No. of bovines		Density bov/ha.	Average size of herds
	N°	%	Hectares x 1000	%	N°	%	N° x 1000	%		
CORRIENTES	18,557	5.6	6,762.	4.4	17,700	7.	4,159.	8.2	0.62	235

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ENTRE RIOS	37,732	11.5	6,013.	3.9	29,531	11.6	4,070.	8.0	0.68	138
FORMOSA	9,225	2.8	7,703.	5.0	9,225	3.6	1,026.	2.0	0.13	111
SUB TOTAL	65,514	20	20,478		56456	22	9,257.	18.		
TOTAL	326,691	100	151.327	100	252,907	100	50,357.	100	0.33	199

PROVINCE	Cattle operations		WINTERING		COW-CALF		FATTENING		SUBSISTENCE FARMING	
	N°	%	N°	%	N°	%	N°	%	N°	%
CORRIENTES	17,700	7.0	1267	7	16,293	14.	43	0.17	100	0,4
ENTRE RIOS	29,531	11.6	11,847	40	15,661	13.7	1,989	7.7	34	0,1
FORMOSA	9,225	3.6	803	8.6	5,534	4.8	200	0.7	2.688	11,3
SUB TOTAL	56456	22	13,914	25	37485	66	2232	3.9	2822	5
TOTAL	252,907	100.	17,520	100	114,301	100	25,541	100.	23.768	100

The characteristics of the affected area [Districts of Pilcomayo (Formosa), Mercedes [Corrientes] and Uruguay [Entre Ríos]], are:

District	Livestock Farming area	N° of Bovines	N° of operations	Cow-Calf	Wintering	Subsistence farming
Pilcomayo	466,660	104,229	920	456	38	426
Uruguay	407,253	292,305	2,417	1638	779	0
Mercedes	902,887	598,004	581	580	0	0
Total	1,776,800	994,538	3918	2674	817	426
% of Province	8.67	10.7	6.93			
Countrywide %	1.17	1.97	1.54			

The problem was limited to only three operations, as shown below:

Operation	Owners	Hectares	Bovines
Community farm	26	15,580	1308
La Centella	1	26,706	11,150
La Biznaga	1	11,570	6,219
Total	28	53,856	18,677

BORDER WITH PARAGUAY :

The border with Paraguay (1,570 Km.), includes 630 Km. along the Paraná River, 290 Km. along the Paraguay River, and 650 Km. along the Pilcomayo River. There are three bridges: International Bridge San Roque González de Santa Cruz, Posadas - Encarnación, Province of Misiones; International Bridge San Ignacio de Loyola, Clorinda - Colonia Falcón, Province of Formosa; and the Juan Domingo Perón Bridge between the town of General Belgrano and Gral. Bruguez. SENASA has staff permanently stationed at these bridges.

In addition, there are 23 river ports for small vessels (rafts, motorboats, etc.) that cross the river two or three times a day.

Another 26 river crossings are staffed with Customs, Coast Guard and/or Border Patrol officials. Within the framework of the Animal Health Border Control Program, SENASA signed institutional cooperation agreements with

these enforcement authorities to ensure compliance with health-related entry restrictions and inspection of accompanied luggage.

PRIOR SITUATION:

Sampling:

Every year, a countrywide systematic serum sampling serves to monitor the status of Foot and Mouth Disease (FMD). The same sampling methodology was applied in 1996, 1997 and 1998, to prove the absence of viral activity (as stated in section 1.4.5.2., Chapter 1.4.5. of the International Animal Health Code of the O.I.E.).

PROVINCE	BOVINES					SHEEP			
	N° of Samples	VIAA+	% VIAA+	EITB+	% EITB+	N° of Samples	VIA +	% +	Ac. Det. with ELISA
BUENOS AIRES	2571	49	1.906	0	0.000	1157	0	0	negative
CATAMARCA	153	0	0.000	0	0.000	81	0	0	negative
CHACO	208	4	1.923	4	1.923	12	0	0	negative
CORDOBA	1844	9	0.488	0	0.000	861	0	0	negative
CORRIENTES	1836	12	0.654	0	0.000	712	0	0	negative
ENTRE RIOS	1058	9	0.851	3	0.284	284	0	0	negative
FORMOSA	1019	5	0.491	2	0.196	270	0	0	negative
JUJUY	78	0	0.000	0	0.000	52	0	0	negative
LA PAMPA	1278	27	2.113	1	0.078	602	0	0	negative
LA RIOJA	310	1	0.323	0	0.000	230	0	0	negative
MENDOZA	367	40	10.899	4	1.090	350	0	0	negative
MISIONES	443	0	0.000	0	0.000	40	0	0	negative
RIO NEGRO	488	28	5.738	4	0.820	253	0	0	negative
SALTA	326	0	0.000	0	0.000	176	0	0	negative
SAN JUAN	100	0	0.000	0	0.000	80	0	0	negative
SAN LUIS	513	22	4.288	6	1.170	151	0	0	negative
SANTA FE	1486	20	1.346	0	0.000	680	0	0	negative
SGO.DEL ESTERO	188	0	0.000	0	0.000	168	0	0	negative
TUCUMAN	180	0	0.000	0	0.000	24	0	0	negative
COUNTRY TOTAL	14446	226	1.564	* 24	0.166	6183	0	0	negative

* Diagnostic testing of the bovines that tested positive with EITB included PCR and PROBANG tests. All test results were negative.

In 1999, a two-stage serological survey of susceptible populations was initiated. The first stage included a survey of non-vaccinated susceptible populations (sheep and cattle). To date, 12,500 samples have been received and 7,154 serum samples were tested. All test results were negative.

The second stage (also in 1999) included a random two-stage sampling and another sampling along the border with neighbouring countries.

For the two-stage random sampling, the country was divided into five areas based geographic and ecological characteristics, as these are determining factors for the type of husbandry systems.

The sampling was designed to provide a 95% confidence level of detecting at least one FMD virus infected bovine, if the prevalence of infected operations is equal or greater than 1%, and the prevalence of cattle that test positive on the operations is equal or greater than 25%. An infected farm would be one which has one or more bovines that test positive. The results for November 1999, are included below:

PROVINCE	TOTAL	3ABC + "suspect"	% + 3ABC "%suspect"	3 ^a BC + "reactors"	% + 3 ^a BC "%reactors"	EITB +	% EITB +
BS.AS.	1883	106	5.6	126	6.7	0	0
CATAMARCA	236	2	0.8	16	6.8	0	0
CHACO	1119	49	4.4	64	5.7	0	0
CHUBUT	529	5	0.9	21	4.0	0	0
CORDOBA	729	13	1.8	29	4.0	0	0
CORRIENTES	1703	103	6.0	100	5.9	0	0
E.RIOS	1526	68	4.5	78	5.1	0	0
FORMOSA	1578	121	7.7	152	9.6	0	0
JUJUY	328	4	1.2	8	2.4	0	0
LA PAMPA	347	9	2.6	15	4.3	0	0
MENDOZA	719	26	3.6	30	4.2	0	0
MISIONES	572	23	4.0	30	5.2	0	0
NEUQUEN	390	22	5.6	19	4.9	0	0
RIO NEGRO	321	11	3.4	12	3.7	0	0
SALTA	1126	45	4.0	39	3.5	0	0
SAN JUAN	81	0	0.0	0	0.0	0	0
SAN LUIS	240	7	2.9	5	2.1	0	0
SANTA CRUZ	220	0	0.0	3	1.4	0	0
SANTA FE	1980	31	1.6	76	3.8	0	0
S.del.ESTERO	440	25	5.7	11	2.5	0	0
T.FUEGO	140	0	0.0	2	1.4	0	0
TUCUMAN	216	5	2.3	13	6.0	0	0
TOTAL	164231	675	4.1	849	5.2	0	0

Serum tests – Border area

In 1998, Paraguay and Argentina conducted a sampling of young cattle and non-vaccinated species (sheep and goats), on both sides of the border.

The program included the inspection of 78 farms and the sampling of 1610 susceptible animals. In total, 553 serum samples were collected in the Paraguay area, and 1057 on the Argentine side of the border.

Laboratory staff of both countries tested the samples with VIAA, EITB and ELISA. The results were:

COUNTRY	Farms Sampl.	Cattle			Sheep			Goats			TOTAL
		Total	VIAA +	EITB +	Total	VIAA +	Antibody Detection por ELISA	Total	VIAA +	Antibody Detection with ELISA	
Argentina	51	437	1	0	5	0	Neg	615	2	Neg	1057

Paraguay	27	256	0	0	43	0	Neg	254	0	Neg	553
Total	78	693	1	0	48	0	Neg	869	2	Neg	1610

Serum testing of non-vaccinated and wildlife species

In 1998, two samplings were conducted in the Provinces of Buenos Aires, Chaco, Corrientes, Formosa, Misiones, Jujuy, La Pampa, La Rioja, Río Negro, and Salta. Various non-vaccinated and wildlife species were sampled, as indicated in Chapter 1.4.5., section 1.4.5.2., item 2.c) of the International Animal Health Code of the O.I.E.

Number of animals sampled: 3456 including camelidae (llamas and guanacos), deer, and "Pampa" deer.

No antibodies were detected with ELISA testing.

Province	Sheep	Goats	Guanacos	Llamas	TOTAL	Detection of antibodies with ELISA
Chaco	59	51	0	0	110	Negative
Corrientes	150	150	0	0	300	Negative
Formosa	126	39	0	0	165	Negative
Misiones	65	0	0	0	65	Negative
Río Negro	0	0	38	0	38	Negative
Salta	70	198	0	22	290	Negative
TOTAL	470	438	38	22	968	Negative

Regular serum testing:

For the Epidemiological Surveillance and Continuous Epidemiological Control Program, the following samples were collected in the first six months of the year 2000:

Regular Serum testing prior to the positive case				
Province	Operations	Cattle	Goats	Pigs
Chaco	52	1897	0	0
Corrientes	50	1750	0	0
Formosa	30	1012	0	0
Jujuy	10	303	58	0
Misiones	16	468	0	0
Salta	15	432	0	124
Total	173	5872	58	124

Reported and Suspect Cases

The Epidemiological Surveillance System requires immediate reporting of any case of dribbling and /or limp syndrome, recording in an official book with numbered pages, and immediate inspection of the livestock operation by SENASA veterinarians. This could evolve into two situations:

- ✓ The official veterinary physician rules out the possibility of a case of Foot and Mouth Disease with a formal diagnosis and a clinical inspection. In this case, the veterinary physician would collect tissue and serum samples, and collect swabs for the final diagnosis. This situation would be classified as a reported case, and the Reports and Suspect Cases Form would be completed and forwarded to SENASA's Bureau of Epidemiology.
- ✓ A clinical examination confirms a suspect case of FMD. Preliminary health actions would then be put in place. Said actions would include a ban on all shipments of animals within the area, and restrictions to entry and departure of shipments, vehicles and persons to and from the area, to ensure the necessary biosafety conditions. Following the pre-defined communication plan, the National Animal Health Emergency System would be activated (SINAESA).

As explained, in both cases the final diagnosis would be based on the corresponding diagnostic tests to discard the presence of FMD or other exotic diseases.

Data from the register for 1999 and the first six months of the year 2000 is included below:

Register of Reported Cases:

Year	Number	Cattle	Sheep	Pigs	Goats
1999	87	570	0	15	19
2000	296	2041	11	0	155

Register of Suspect Cases:

Year	Number	Cattle	Sheep	Pigs	Goats
1999	80	178	0	0	0
2000	40	125	0	0	0

Importation of animals:

IMPORTATION OF BOVINES 1994 -1999							
Country	Total	1994	1995	1996	1997	1998	1999
Uruguay	141,466	447	400	3	20,492	90,968	29156
Chile	10343	1186	471	552	2524	3485	2125
Paraguay	6984	5	0	31	2116	4910	22
Brazil	537	0	0	0	0	326	211
U.S.A.	303	138	22	28	42	49	24
Canada	231	105	14	19	61	17	15
Australia	10	10	0	0	0	0	0
Total	159,874	1891	907	633	25,235	99,755	31553

Information on Neighbouring Countries:

In addition to the reported endemic situation with clinical presence of the disease in Bolivia, at the beginning of 1998 the disease was detected in Puerto Mourtinho, State of Matto Grosso do Sul, Brazil.

As these outbreaks were close to the border with Paraguay, Paraguayan authorities assigned more resources to the animal health staff in the district of Alto Paraguay.

Less than a year later, the disease was detected again in Naviraí, State of Matto Grosso do Sul, 100 Km. from the border with Paraguay.

The appearance of suspect cases of a vesicular disease, supposedly Foot and Mouth Disease in the town of Nueva Durango, district of Canindeyú, Paraguay, in February 2000, led SENASA to issue an animal health warning in the provinces along the border with Paraguay.

Paraguay later stated that the cases were only journalistic fabrications, but confirmed three cases of IBR, and requested the presence of the consulting veterinarians of the "del Plata Basin" Agreement (the Coordinator and an Epidemiologist), who later confirmed the official report.

ANIMAL HEALTH WARNING:

When on June 5, 2000, a private veterinary physician reported FMD cases in Paraguay, Argentina issued a warning to all animal health posts in the Argentine provinces that share a border with Paraguay (Formosa, Chaco and Misiones), and adopted the following actions:

ACTIONS ADOPTED:

- 1.- **INTENSIVE SURVEILLANCE:** for a defined period of time, the passive surveillance system was replaced by an active surveillance system. The system was therefore more sensitive.
- 2.- **SURVEY OF FARMS:** livestock operations on the border, neighbouring and adjacent farms were inspected to assess the animal health situation and collect samples.
- 3.- **ADDITIONAL STAFF:** additional staff was assigned to surveillance and control activities, for a defined period of time.
- 4.- **INTENSIVE BORDER CONTROLS.**
- 5.- **BAN ON SHIPMENTS AND QUARANTINE** restrictions for and from all operations, neighbouring operations, and farms of destination of the thirteen

herds. All susceptible animals and all herds shipped from the surveillance area between June 1 and August 5, were clinically examined.

6.- AT SLAUGHTERING PLANTS, the following measures were put in place: verification of the data on herds received, stringent ante-mortem and post-mortem inspection of all herds received (particularly the lips, snout, mouth and hooves), and remittance of offals and waste to rendering plants.

CHARACTERISTICS OF THE REPORTED CASE. DATE AND ACTIONS TAKEN.

On August 2, 2000, the illegal importation of ten (10) bovines from Paraguay to a community farm on government property in the town of Clorinda, Province of Formosa, in the transit zone between both countries, was detected.

As routine practice, a ban was placed on all shipments of animals. The imported animals and all contact animals on the farm and neighbouring farms were placed in quarantine. Serum and oesophageo-pharyngeal fluid samples were collected from all bovines (three year old steers). The animals were subject to sanitary slaughter, in compliance with current statutory requirements. No specific clinical symptoms of any vesicular disease were found at the time of the visits and inspections.

The epidemiological investigation revealed that the herd had presumably entered the country on July 22, 2000.

The above mentioned bovines were in contact with 4 bulls and 82 older cattle on the same community farm. Based on the results of the investigation, all the bovines that were shipped from the farm prior to the detection of the first case, were inspected.

SPECIES, CATEGORY AND NUMBER OF ANIMALS INVOLVED

1.- Illegal importation: Bovine species, 10 three year old steers.

2.- Contact animals: 82 bovines, owned by two different farmers, 52 cows and 30 steers were in direct contact with the illegally imported animals on the community farm, in addition to another 1226 bovines on the community farm (1308 animals in total).

3.- Shipments of animals: 13 herds, including animals from neighbouring operations, to the following destinations, on the dates shown:

Follow-up of Herds, by destination			
Herd N°	Date of shipment	N° of bovines	Destination
1	22/7	5	Corrientes
2	22/7	24	Corrientes
3	22/7	5	Corrientes
4	29/7	4	Corrientes

5	28/7	26	Chaco
6	28/7	39	Chaco
7	23/7	15	Chaco
8	24/7	100	S. del Estero
9	24/7	25	Santa Fe
10	24/7	60	Santa Fé
11	29/7	28	Santa Fé
12	29/7	30	Santa Fé
13	29/7	30	Santa Fe
Total		391	

4.- Of the 13 herds, one herd with 4 bovines was shipped to a farm (Rincón del Socorro) in the District of Mercedes, Province of Corrientes. Two of the animals in this herd were included in another herd together with other 60 bovines born and raised on the farm in Mercedes, and shipped to another operation of the same owners (La Centella), in the district of C. del Uruguay, Province of Entre Ríos.

5.- Contact animals on the farm in Mercedes (Corrientes): 1546 bovines; and on the farm in Uruguay (Entre Ríos), 709 bovines.

6.- A total of 3563 bovines were involved.

DIAGNOSTIC TESTS:

Immunodiffusion VIAA in agar gel (IDGA)

EITB (Electroimmune transfer blotting)

PROBANG test (technique to isolate FMD virus carriers)

Typing with ELISA test (Pan American Foot and Mouth Disease Centre – PANAFMOSA)

Typing and subtyping by Complement Fixation 50%

Characterisation of the immunogenic profile with monoclonal panels of other South American strains of Foot and Mouth Disease and monospecific hyperimmune serum, and sequencing of the RNA genome.

Type and dates of sampling. Laboratory test results.

On August 2, 2000, serum and oesophageo-pharyngeal fluid samples were collected from the ten bovines. On the same day, the samples were sent to SENASA's Central Laboratory for testing.

The diagnostic test results for the illegally imported animals on the community farm in Formosa were:

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N° of ANIMAL	CATEGORY	ORIGIN	VIAA	EITB	ELISA	Comp. Fix. 50%	PROBANG
1	Steer	Illegal	+	+	-	-	-
2	Steer	Illegal	+	+	-	-	-
3	Steer	Illegal	-	-	-	-	-
4	Steer	Illegal	+	+	A	A 24	+
5	Steer	Illegal	-	-	-	-	-
6	Steer	Illegal	-	-	-	-	-
7	Steer	Illegal	-	-	-	-	-
8	Steer	Illegal	-	-	-	-	-
9	Steer	Illegal	+	+	-	-	-
10	Steer	Illegal	-	-	-	-	-

VIAA and EITB diagnostic test results were reported on August 4, 2000; Probang, ELISA, and Complement Fixation 50% test results, on August 10, 2000.

N° of ANIMAL	CATEGORY	ORIGIN	VIAA	EITB	ELISA	Comp. Fix. 50%	PROBANG
11	Bull	Herd 13 ER	-	-	-	-	No sample
12	Bull	Herd 13 ER	+	+	-	-	No sample
13	Bull	Herd 13 C	+	+	-	-	No sample
14	Bull	Herd 13 C	+	+	-	-	No sample

The four animals were sampled. The two bulls in Corrientes were sampled on August 4 and the diagnostic test results were available on August 5. The 62 animals in Entre Ríos were sampled on August 5, and the test results were available on August 6. The 82 contact animals were sampled on August 2, and the test results were available on August 4.

PROVINCE	N° of HERDS	N° of BOVINES	VIAA	EITB
Corrientes	4	38	-	-
Santa Fé	5	173	-	-
Chaco	3	80	-	-
S. del Estero	1	100	-	-
Total	13	391	-	-

As shown above, only 15 bovines tested positive of a total number of 3563 bovines, 10 goats, 35 sheep, and 9 pigs on three livestock operations. The test results for the 387 bovines in the 12 herds were double negative. The percentage of positive animals, including the 4 illegally imported bovines, was therefore 0.42%.

All the animals on the 3 operations that had positive cattle were included in a continuous clinical inspection program. In addition, serum samples were collected as indicated below. At present, only the farms in Corrientes and E.

Ríos continue under strict clinical and serological surveillance. No abnormal animal health conditions have been noted.

Similar procedures were put in place for the farm in Formosa. Entries of susceptible animals were banned. All animals on the farm were subject to sanitary slaughter, and a program with control animals will be adopted in the future.

Date	Farm	Total Bovines	SERUM TEST RESULTS							
			Sampling of Bovines	Samples	VIAA +	VIAA -	EITB +	EITB -	ELISA +	ELISA -
3/08/00	Community Farm	1308	82	82	8	74	8	74		
5/08/00	La Centella	11,150	62	62	1	61	1	61		
6/08/00	La Centella	10,441	1,579	1579	12	1567	0	12	0	12
7/08/00	La Centella	10,441	4,314	1508	3	1505	0	3	0	3
8/08/00	La Centella	10,441	5257	1214	8	1206	1	7	0	1
20/08/00	La Centella	10,441	1579	1579	9	1573	0	9	0	0
22/08/00	La Centella	10,441	4314	1678	0	1678	0	0	0	0
23/08/00	La Centella	10,441	5257	1215	0	1215	0	0	0	0
29/08/00	La Centella	10,441	239	239	0	239	0	0	0	0
4/08/00	R. del Socorro	6,219	124	2	2	0	2	0	2	0
5/08/00	R. del Socorro	4,673	2295	325	1	324	0	0	0	0
6/08/00	R. del Socorro	4,673	2378	302	0	0	0	0	0	0
20/08/00	R. del Socorro	4,673	2295	330	0	0	0	0	0	0
22/08/00	R. del Socorro	4,673	2378	324	0	0	0	0	0	0

ORIGIN OF VIAA AND EITB SERUM TEST RESULTS

The working hypothesis on the origin of the infection has been confirmed. The illegally imported animals were the cause of the positive test results and the source of the isolated strain, as all other laboratory test results were negative except for the 3 bulls and the 8 bovines in the group of 82 contact animals.

The origin or source of the FMD virus infection was the illegally imported animals in which the virus replicated. The shedding of the virus infected 11 of the 3563 bovines that were in close contact with the infected animals.

The 82 contact animals were exposed to the only existing source of infection for a period of approximately 10 days between July 22 and August 2. The exposure time for the four bulls that were shipped from the community farm on July 29, was shorter.

The infection rate in Argentine cattle was 11/ 3563, or 0,3%, (as 4 were illegally imported animals). From an epidemiological point of view it must be noted that the affected animals were adults (cows, bulls and steers) that had immunity as a result of the systematic and mandatory vaccination regime applied by Argentina, and which was discontinued on April 30, 1999.

The single source of infection was limited to 4 of the 10 illegally imported bovines, as demonstrated by the negative test results for all other bovines that were not in contact with said illegally imported animals. This could also be the result of the early adoption of preventive actions, mainly the ban on shipments and sanitary slaughter.

Immediate sanitary slaughter of the illegally imported animals limited the spreading of the disease as it destroyed the reservoirs of infection. It is also true that the high immunity of adult bovines over 2 years of age that received multiple vaccinations may have contributed to reduce the spreading of the virus to other contact animals.

The absence of clinical cases significantly reduced the possibility of mechanical spreading of the virus.

When the infection in the 11 Argentine bovines was confirmed, no further laboratory testing was considered necessary to determine the progress of the infection. After the typing of the virus was completed, the animals were subject to sanitary slaughter.

It is therefore possible to affirm with a high degree of certainty that, prior to this event, the virus was not present or active, as demonstrated by the prevalent situation in 1998 and 1999, the negative test results for the 13 bovines that were illegally imported in 1999, and the serum test results of the first semester of 2000.

ISOLATION OF THE ETIOLOGICAL AGENT

The sequencing of the A 38784 SE virus that was isolated with the PROBANG test from one of the illegally imported animals which was subject to sanitary slaughter on August 2, showed that:

The genome that codes the immunogenic VP1 protein of the virus was expanded by RT – PCR with the protocol of the world reference laboratory for Foot and Mouth Disease (Pirbright).

The nucleotide sequence of the VP protein of the isolate was determined with the PCR results. Four oligonucleotides of the gene were then compared to the reference strains.

The study included the nucleotide sequence, the aminoacid sequence, and the phylogenetic tree of Argentine and South American strains.

An analysis of the sequencing data for the VP1 protein of the identified virus (A38784 SE) indicated that there was a distant genetic relationship between the sequence of Argentine Serotype A isolates in the period 1981 – 1994 and the sequence of other South American isolates. The virus that was isolated represented a new branch of the phylogenetic tree. The shortest genetic

distance of this virus was found in isolates A Arg./81; A Rivadavia/Arg./91; A Brasil/93; A Uruguay/79; A Castellanos/Arg./87; A Paraguay/82; A 25 de Mayo/Arg./87; A racan/Arg./87 and A Paraná/Brasil/81.

The analysis of the aminoacid composition of the immunogenetic area 140-160, showed that the isolate was antigenically different from A Arg./81 and A Arg./87, and antigenically closer to A24.

The phylogenetic relationship is incomplete as there is no data on the isolates that were identified in other countries of the region in recent years.

DIAGNOSTIC CONFIRMATION

Virus A 24 which was isolated in the positive Probang test sample collected from the illegally imported animals was sent to the Pan American Foot and Mouth Disease Centre and to the Pirbright World Laboratory (the O.I.E.'s reference laboratory for Foot and Mouth Disease) to confirm the typing, subtyping and sequencing diagnostic.

SANITARY SLAUGHTER

As a result of bad weather conditions, 1308 animals owned by 26 farmers were subject to sanitary slaughter on the Community Farm in the Province of Formosa.

All susceptible contact animals (1546) on the farm in the Province of Corrientes (Pampa Grande) were also subject to sanitary slaughter as a result of the isolation, prophylaxis and sanitary actions.

All susceptible contact animals (709 bovines) on the farm in Entre Ríos were subject to sanitary slaughter.

No clinical symptoms of Foot and Mouth Disease were noted at the time of the inspections and sanitary actions.

Sanitary Slaughter, per Province and Species						
Province	Date	Operations	Bovines	Sheep	Pigs	Goats
Formosa	15/8	1	1308	35	9	10
Corrientes	12/8	1	1546	0	0	0
Entre Ríos	10/8	1	709	0	0	0
Total		3	3563	35	9	10

All premises and operations were sanitised, and currently have no susceptible animals.

The following animals were subject to sanitary slaughter as a result of the enforcement of the ban on shipments of animals and failure to submit the shipment documents required by law:

Province	Herds	Bovines	Sheep	Goats	Pigs	Total
Bs. Aires	1		0	0	43	43
La Pampa	2	2	0	0	17	19
Misiones	4	55	0	0	2	57
Tucuman	1	34	0	0	0	34
Total	8	91	0	0	62	153

DESCRIPTION OF ACTIONS TAKEN IN DIFFERENT AREAS AS A RESULT OF THE INITIAL EVENT

DEFINITION OF AREAS (selected criteria)

The criteria and measures that were put in place were based on Argentina's health status for Foot and Mouth Disease. Said criteria and measures were in line with the requirements set forth in SENASA's Resolution # 779/99 – National Animal Health Emergency System – which is based on the guidelines and recommendations of the O.I.E., and the Surveillance and Continuous Epidemiological Follow-up, which is based on the criteria included in Chapter 1.4.5 of the International Animal Health Code.

SURVEILLANCE AREAS

As required in Chapter 1.4.4. of the International Animal Health Code of the O.I.E., a Surveillance Area (Section 1.4.4.4.) was established in the Province of Formosa and the areas at risk in the Provinces of Corrientes and Entre Ríos. By definition, the size of the Surveillance Area was restricted by the existing geographic and climatic conditions, and the type of disease. A ban was placed on all shipments of animals in this area.

As a result of the above mentioned epidemiological situation, stringent surveillance and control measures were adopted. All livestock operations in the area and other areas at risk due to epidemiological relationships, are currently under intensive surveillance, and subject to serological testing.

GEOGRAPHIC AREA

Formosa:

The territory of the Province of Formosa and the area to the East of National Route # 11 (Districts of Bermejo and 1° de Mayo in the Province of Chaco).

The boundaries of this area are: to the North, the Pilcomayo River; to the West, in the Province of Formosa, the inter-provincial border with the Province of Salta and the Districts of Bermejo and 1° de Mayo, and National Route # 11; to the South, in the Province of Formosa, the Teuco and Bermejo Rivers, to the intersection with National Route # 11, and in the District of 1° de Mayo, the inter-departmental border with the District of San Fernando; to the West, the Paraguay and Paraná Rivers.

Livestock Operations and Cattle Population

The surveillance area includes the entire province which has 9225 livestock operations and 1,026,917 heads of cattle.

Corrientes:

The boundaries of this area are: to the East, the inter-provincial border with the Province of Misiones, and the Uruguay River to Paso de los Libres; to the South, National Route # 117 (formerly National Route # 14) from Paso de los Libres to the intersection with National Route # 14, the intersection with National Route # 123, National Route # 123 to the town of Desmochado, National Route # 12 to Bella Vista; to the West, the Paraná River from Bella Vista to Corrientes; to the North, the Paraná River from Corrientes to the inter-provincial border with the Province of Misiones.

Livestock Operations and Bovine Population

The entire province has 17,700 livestock operations and 4,159,721 heads of cattle; the area described above has 9444 operations and 2,441,967 heads of cattle; which represent 53% and 59% respectively.

Entre Ríos

A section of the districts of: Uruguay, Gualeguaychú, Colón and Villaguay. The boundaries of this area are: to the East, the Uruguay River; to the South, the Uruguay River to the mouth of the Gualeguaychú River, the Gualeguaychú River to the intersection with Provincial Route #20, and along this route to the town of Urdinarrain; to the West, Provincial Route #20 from Urdinarrain to the intersection with National Route #18, and National Route #18 to the intersection with Arroyo Grande del Pedernal; to the North, Arroyo Grande del Pedernal from its intersection with National Route #18 to the mouth on the Uruguay River.

Livestock Operations and Bovine Population

Of a total number of 29,531 livestock operations with 4,070,861 heads of cattle, the above mentioned area has 7,037 operations and 985,033 heads of cattle (24% of the operations and 24% of the cattle population).

PREVENTION AND PROPHYLAXIS IN THE SURVEILLANCE AREAS

In compliance with the requirements set forth in the International Animal Health Code of the Office International des Epizooties, preventive actions – such as a ban on shipments of Foot and Mouth Disease susceptible species from the surveillance areas to other parts of the country – were adopted.

All shipments of animals to slaughter within the surveillance areas, were subject to stringent controls, including a clinical inspection at the points of shipment and of destination.

PREVENTION AND PROPHYLAXIS IN OTHER AREAS OF THE COUNTRY

In the rest of the country, all shipments of susceptible animals to wintering farms were banned. This measure involved 252,907 operations and 50,357,559 bovines, in addition to pigs, sheep and goats. Only direct shipments to slaughtering plants for domestic consumption or export in compliance with the animal health agreements with the importing countries, were authorised. All livestock auctions were suspended.

These preventive actions allowed verification and confirmation of the livestock population numbers and the health and serological status of the susceptible species on the farms, particularly of the farms that received shipments of herds prior to the establishment of surveillance area.

EPIDEMIOLOGICAL FOLLOW-UP

The epidemiological follow-up that was put in place required that all animals shipped from the region to other parts of the country during the period June 1 – August 5, be sampled and placed in quarantine. Shipments of these animals to other destinations, were banned.

HERDS SHIPPED FROM THE NORTH-EASTERN PROVINCES (NEA region)		
Province	Nº of Herds	Nº of Bovines
Buenos Aires	103	3815
Entre Ríos	424	33859
Misiones	77	3150
Corrientes	302	20352
Chaco	24	1381
Total	930	62557

A database with the information on the above shipments was created to identify minimum risk possibilities. All points of destination, to which the herds were shipped prior to the establishment of the surveillance area, were informed.

Laboratory test results of the follow-up were:

SERUM TEST RESULTS FOR THE HERDS SHIPPED FROM THE NEA REGION						
PROVINCE	Nº of HERDS	Nº of BOVINES	DIAGNOSTIC TEST RESULTS			
			VIAA +	VIAA -	EITB +	EITB -
BUENOS AIRES	82	5399	42	5357	0	42
CATAMARCA	2	200	15	185	0	15
CHACO	11	376	4	371	0	4
CORDOBA	55	2877	53	2824	0	53

CORRIENTES	57	1467	53	1414	0	53
ENTRE RIOS	49	2683	7	865	0	7
FORMOSA	1	100	0	100	0	0
LA PAMPA	43	1504	1	1503	0	1
SALTA	23	618	1	617	0	1
SAN LUIS	7	730	3	727	0	3
SANTA FE	239	10211	72	10139	0	72
S. DEL ESTERO	43	2354	26	2328	0	26
TUCUMAN	1	7	0	7	0	0
	613	28526	277	26437	0	277

The number of herds inspected and sampled at the point of destination is lower than the number of herds shipped because some farms received more than one herd from different farms of origin in the NEA region. As these herds were placed in adjacent paddocks, they were sampled and inspected as a unit.

MASSIVE SEROLOGICAL SURVEY

After sampling, all animals were ear-tagged for follow-up purposes. Positive test results were subject to further testing.

The screening and first diagnosis was based on VIAA testing. Positive test results were further tested with EITB.

The animals that tested positive for EITB were subject to PROBANG and Polymerase Chain Reaction (PCR) tests.

Non-vaccinated control species (sheep and goats) were subject to antibody testing with ELISA.

To eliminate the interference of vaccinal antibodies, 6 to 12 month old calves were selected.

The sampling in each area was designed to provide a 95% confidence level of detecting at least one FMD infected bovine, if the prevalence on an infected operation was equal or greater than 1%, and the prevalence of bovines that test positive on said operations, was equal or greater than 49%. An infected farm would have one or more bovines that test positive.

That is, the desired confidence level, the minimum expected prevalence in the infected herds, the minimum expected prevalence of infected bovines on the farms, the sensitivity and specificity of the screening tests used, the interpretation criteria for the diagnostic tests and the number of samples that must be collected from each operation.

Given that:

- ✓ the desired confidence level is 95%
- ✓ the minimum expected prevalence on the infected farm is 1%
- ✓ the minimum expected prevalence of infected bovines on the farm is 40%

- ✓ the sensitivity of the indirect 3ABC ELISA test is 100%
- ✓ the specificity of the indirect 3 ABC ELISA test is 80%
- ✓ the sensitivity of the EITB test is 95%
- ✓ the specificity of the EITB test is 100%
- ✓ the interpretation of the diagnostic test results is: POSITIVE if both test results are positive
- ✓ the sensitivity for the herds is 87.8%
- ✓ the specificity for the herds is 100%
- ✓ the number of samples to be collected on each farm is 10.

The massive sampling involved 5750 operations and 60,000 samples from susceptible animals.

TARGETED SAMPLING

To confirm the animal health situation in the country, a targeted serological sampling is being conducted in conjunction with the other actions. The purpose of the sampling is to develop a preliminary serological map for the country. To date, the survey has included the following areas and populations:

Date	Farms	Bovines	Sheep	Pigs	Goats
21/8/00	102	2473	42	43	11
25/8/00	78	979	0	18	3
31/8/00	178	2630	0	2	0
7/9/00	241	3376	0	0	7
15/9/00	458	4276	146	12	29
TOTAL	1057	13.734	148	93	43

The distribution by province and laboratory test results of the survey are shown below :

SERUM TEST RESULTS - SAMPLING FOR SURVEILLANCE PURPOSES								
PROVINCE	Nº of FARMS	Nº of BOVINES	DIAGNOSTIC TEST RESULTS					
			VIAA +	VIAA -	EITB +	EITB -	ELISA +	ELISA -
BS. AIRES	40	745	49	664	0	63	0	44
CATAMARCA	1	17	0	17	0	0	0	0
CORDOBA	20	859	2	857	0	2	0	0
CORRIENTES	339	3243	73	3184	0	35	0	38
CHACO	241	2141	22	2119	0	22	0	0
E. RIOS	224	2355	39	2317	0	31	0	8
FORMOSA	127	2438	2	2436	0	2	0	0
LA PAMPA	46	764	0	764	0	0	0	0
MISIONES	3	575	0	575	0	0	0	0
S FE	3	105	2	103	0	2	0	0
S.DEL ESTERO	13	492	4	488	0	0	0	4
TOTAL	1057	13734	191	13523	0	157	0	94

All samples from sheep, goats and pigs tested negative for all tests.

ACTIONS IN THE BORDER AREA

Actions at:

Points of entry:

All the points of entry authorised by SENASA in the Provinces of Salta, Jujuy, Formosa, Misiones, Corrientes and Entre Rios.

Control points for national traffic and inspection points in areas adjacent to the points of entry into the country located along national and provincial routes, equipped with facilities, and supported by law enforcement agents, at strategic points after entering the country.

✓ Allocation of Additional Human Resources

Technical personnel was trained and either contracted or assigned to inspect passengers, luggage and vehicles.

✓ Confiscation

In compliance with the requirements set forth in SENASA's Resolution # 152/99, all unauthorised importations must be classified, stored according to the zoosanitary risk they present, and destroyed in a specific and safe manner.

✓ Fumigation and disinfection of vehicles at points of entry

Pressurised liquid fumigation and disinfection of tires and body of vehicles.

✓ Billboards, Brochures

New billboards were installed to provide information on the entry restrictions, and to support control actions.

✓ Agreements

Agreements with the Argentine Border Control Authorities, the Coast Guard and the Customs Office were signed to ensure that the points of access are restricted entry areas, and to delegate animal health authority functions.

✓ **APPLICABLE STATUTES:**

- Resolution # 478/99. Actions for Foot and Mouth Disease Outbreaks, and applicable sanitary measures.
- Resolution # 470/95. Register of Reported and Suspect Cases. General Procedures.
- Resolution # 111/95. Inspection of Shipments.
- Resolution # 245/95. Monthly Statistical Report.
- Resolution # 87/96. Sanitary Slaughter.
- Resolution # 234/96. National Epidemiological Surveillance System.
- Resolution # 675/92. Epidemiological Surveillance.
- Resolution # 225/95. Husbandry Practices for Hogs.
- Resolution # 152/98. Control and Treatment of Residues at Ports and Airports.
- Resolution # 848/98. Animal Shipment Document (DTA) to replace the Animal Health Document for Animal Shipments.
- Resolution # 779/99. National Animal Health Emergency System.
- Resolution # 97/99. Creation of a Register and Licensing Requirements for Vehicles that carry Livestock.
- Resolution # 99/99. Luggage Controls with Beagle Hounds.
- Resolution # 295/99. List of Animal and Plant Products allowed entry (no zoosanitary or phytosanitary risk).
- Resolution # 299/99. Procedures Manual for Inspection of Passengers and Luggage.
- Resolution # 417/99. RENSPA. National Animal Health Register for Livestock Farmers.
- Resolution # 760/99. SENASA-AFIP. Affidavit for entry of products.

REPORTS TO THE O.I.E.

The first report corresponds to the period **July 22 – August 8, 2000** and states the diagnostic serum test results issued by SENASA's Central Laboratory for Foot and Mouth Disease.

The second report corresponds to the period **August 9 – August 14** and describes prophylaxis in the Provinces of Formosa, Corrientes and Entre Ríos.

The third report corresponds to the period **August 15 - August 21, 2000** and describes the general and specific actions adopted within the framework of the animal health warning.

The fourth follow-up report corresponds to the period **August 22 – August 25, 2000** and describes the progress in the animal health situation.

The fifth follow-up report corresponds to the period **August 26 – August 31, 2000** and describes the progress in the animal health situation.

The sixth follow-up report corresponds to the period **September 1 – September 7, 2000.**

The seventh report corresponds to the period **September 8 – September 15, 2000.**