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PROJECT EVALUATION SUMMARY (PES) – PART I

Report Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
AFRICAN SWINE FEVER ERADICATION	517-0135-T-031	USAID/DR

4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) FY 81

☐ REGULAR EVALUATION ☒ SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES	6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY 78	A. Total $ 7,045,000	From (month/yr.) Dec. 78
B. Final Obligation Expected FY 81	B. U.S. $ 6,200,000	To (month/yr.) Dec. 80
C. Final Input Delivery FY 81		Date of Evaluation Review June 1981

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- ☐ Project Paper
- ☐ Financial Plan
- ☐ Logical Framework
- ☐ Project Agreement
- ☐ Implementation Plan e.g., CPI Network
- ☐ PIO/T
- ☐ PIO/C
- ☐ PIO/P
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☐ Change Project Design and/or
- ☒ Change Implementation Plan
- C. ☐ Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

ARDO:BRudert (draft)
ARDO:KEllis (draft)
PASA:SWilson (draft
CRD:RRodríguez (draft)
CRD:THammann (draft)
CRDO:CSBlankstein CSB

12. Mission/AID/W Office Director Approval

Signature: Ronald F. Venezia

Typed Name: Ronald F. Venezia, Acting Dir.

Date: August 19, 1981

AID 1330-15 (3-78)

13. Summary:

This evaluation is based on an evaluation Report conducted from January 12 to February 7, 1981 (See Annex). The African Swine Fever (ASF) program was designed to erradicate ASF from the Dominican Republic by the complete depopulation of swine and decontamination of their premises so that the process of repopulation of healthy swine could be initiated. The program was to be implemented in a series of phases. In the first phase, the Eastern Region of the country was selected to carry out depopulation, decontamination, and sentinel swine activities to see if the virus could be eradicated. Subsequent phases would draw upon experiences gained in the initial phase to eradicate the virus in the rest of the country.

The initial phase of the program was started in the Eastern Region on August 10, 1979, and was completed in February, 1980. The sentinel pig program which was started in the area in July 1980 was expected to be completed in December, 1980, when the sentinel pigs were scheduled to be moved to another Region.

When the area was cleared of swine, the majority of the brigade personnel moved on to the next region. A few brigades were left to begin cleaning and disinfection operations and to carry out surveillance activities, in order to assure that the area remained free of swine and pork products. The continued presence of the brigades simplified the reporting by local people of any concealed pigs.

As this action was proceeding, officials started to prepare the country for the depopulation of pigs in all areas. Some of the larger commercial pig raisers strongly opposed this and tried to save their herds from depopulation.

They pointed out they had never had ASF and could maintain excellent control of their premises. This "save-the-herd" idea almost succeeded but was finally turned down by the Program. This was based more on hog cholera and other diseases remaining endemic than by the threat of ASF. Concern that small farmers would raise questions of favoritism, and the fear of undermining their cooperation with the program also weighed in the decision.

The depopulation of the Eastern Region was completed in February 1980. The results were encouraging enough to move ahead of schedule and to try to complete the depopulation throughout the rest of the country immediately. On March 11, 1980, the President announced that the depopulation program would cover the whole country. People were warned that after some deadline date, any pig found would be confiscated without compensation. The barriers to traffic of pigs and pig meat from the rest of the country into the East were maintained. Some 92 brigades then moved into action in the rest of the country, sweeping toward the center from the east, west and north. By that time, it was estimated that only 70,000 pigs were left.

To further accelerate the depopulation program, in March 1980 the ASF High Commission adopted a resolution that prohibited the further breeding of swine, and advised the public that after a certain date uncastrated boars, pregnant swine and young pigs under 25 kgs. would be confiscated when found and no compensation paid (see page 8 of the Annex).

The large commercial swine producers were concentrated around the two major population centers, Santo Domingo and Santiago. These were the final target areas for the depopulation program. Some 15 of the largest producers were found here. Their efforts to resist depopulation included a full page advertisement demanding that they be included in governmental discussions.

They hoped as a result of the delay that their herds could be sold at higher prices. Of the 200 large scale commercial pig farms in the Dominican Republic before the outbreak there were only about 8 left by May 1980.

The depopulation work moved rapidly and a deadline date for depopulation was set at August 31, 1980. The success of the depopulation program is attested to by the fact that after repeated sweeps through the countryside and running down all reports and rumors, only some 200 pigs have been confiscated and slaughtered from August 31, 1980 to the present time. Many smaller farmers went through the hills around their towns hunting for pigs. This was in part because they often were given some of the meat (up to half) from pigs confiscated through their efforts. It was also in part due to their honest desire to assist depopulation so they could get new pigs and start over sooner.

To further support the program, all pork imports were stopped on March 31, 1980, to force utilization of existing local pork products as rapidly as possible. Prohibition of importation was continued until the end of 1980, to use up all pork products in storage and allow for the cleaning and disinfection of these storage units. It was publicized that all pork meat in the marketplace was to be sold by Nov. 1980. Meat sausage plants began to substitute beef or poultry in place of pork in making hot dogs and sausages.

In an attempt to provide a substitute for pigs, the Secretariat of Agriculture installed a hatchery supply chicken flock outside of Santo Domingo and sent chicks to local groups throughout the country for distribution to lower income rural families. Five-week old chickens were provided at the rate of 70,000 per month. This was increased to 150,000 per month by Sept. 1980. The cost per chicken to small farmers was about 25 ¢. Surveyed farmers reported high levels of acceptance

of the chickens at the outset. Other plans were to provide sheep, turkeys, goats and rabbits to help replace the depopulated pigs (See PP 9-10 of the Annex).

At the time of the evaluation, the country had been completely depopulated of swine, the Eastern Region sentinelized and declared officially free of ASF, a separate ASF laboratory established and functioning, an effective mass media campaign implemented, a compensation program set-up and functioning, and the first stages of developing a comprehensive national swine repopulation plan initiated.

The goals of improving the economic standards of the rural poor and increasing the level of agricultural productivity with particular regard to the needs of the small farmer, cannot be determined until repopulation is completed. Repopulation activities have already been inititated in the East.

14. Evaluation Methodology

An evaluation was planned for the project at the end of the initial phase. The basic purpose was to determine whether the eradication program was proceeding satisfactorily and what changes, if any, might be necessary to complete the last three phases. The economic, social and environmental impact of the program would also be considered along with an assessment of the intensive communication campaign. Once the evaluation was completed, the ASF program would proceed with plans for carrying out the remaining phases. The original evaluation plan proved to be impractical because field operations developed in a manner somewhat different from that anticipated in the original design (See 15).

Consequently, the original evaluation plan was revised and this final program evaluation was scheduled for a 4 week period Jan. 11 to Feb. 7, 1981.

The Evaluation Team consisted of three members:

-Dr.John Mason, Assistant Director of the FMD Prevention Program in Mexico and Team Leader.

-Dr.Hunt McCauley, Assistant Professor of Clinical Large Animal Medicine at the University of Minnesota and Agricultural Economist.

-Dr.James Converse, Visiting Assistant Professor of Sociology at Kansas State University and Agricultural Sociologist.

The team used the following scope of work to carry out the evaluation:

a) Determine whether the disease was eradicated in the Eastern Region.

b) Evaluate the social and economic impact of the eradication program in the Dominican Republic.

c) Evaluate the value and success of the compensation program.

d) Evaluate the effectiveness of the mass media campaign.

e) Evaluate the effect of unplanned changes in project design.

f) Evaluate the capacity for ongoing disease monitoring in the Dominican Republic. Specific points to be included were the capability of the ASF campaign personnel, laboratory capability, institutionalization of the program, resource allocation and availability, and control of points of entry (internal and external).

g) Evaluate the effectiveness of inputs provided in terms of quantity, quality and timeliness of arrival.

h) Identify failures to achieve planned program objectives and determine factors causing such failures.

i) Determine what new information has been added to scientific knowledge about the disease.

j) Recommend changes in project design which might improve implementation of the project.

The sources of information for this evaluation were the national and regional staff of the ASF Program and field trips and visits to the involved SEA's offices and Government agencies. Cooperation was also given by all personnel involved in the project design and implementation at the USAID Mission.

At the same time the whole history of the Program since the announcement and discovery of the disease was reviewed by working in SEA's and Mission's files. Also interviews with a considerable number of producers and farmers provided valuable information on the social impact and economic importance of the Program. The principal officials and officers assisting the team were as follows:

USAID officers interviewed:

1) Kenneth Ellis, ARDO

2) Brian Rudert, ARDO

3) Saul Wilson, PASA

4) Charles Blankstein, CRDO

5) Ronald F. Venezia, AD

ASF counterpart team was:

1) Dr. Carlos Gravely

2) Dr. Noel Salcedo

3) Dr. Facundo Ottenwalder

4) Dr. Pedro Lora

5) Dr. Antonio González

The total cost of the evaluation was U.S.$25,500.

15. External Factors:

A number of changes were made in the project design as the program developed. The most significant was the decision to proceed with the swine depopulation of the entire country, without waiting for the outcome of the pilot project in the Eastern Region. In view of the early success with depopulation in the east, there was every reason to assume that the same success could be achieved in the rest of the country and there appeared to be no reason to wait any longer to proceed. As stated in the Annex, the Evaluation Team feels that the program made a wise decision, and that subsequent events have supported this.

Another change in design that was not anticipated was the decision to try to save some of the better herds. This has not been envisioned in the original project proposal. Fortunately, this plan was cancelled before it materially affected the program.

An additional change was the use of loan funds for the construction of the El Seybo Quarantine and Breeding Center. While not contemplated originally, it was considered justifiable because of the rapid progress of the program and the pressing need for a Center to supply additional pigs for the late phases of the sentinelization.

A number of other less significant changes can be mentioned. Use of funds for aerial photography was dropped when it became obvious that the depopulation program was succeeding without this procedure. Certain heavy equipment costs

for burial pits were eliminated when the number of new foci dropped sharply in 1979. A number of changes were made in the projected technical assistance needs. For example, a laboratory architect may not be needed if a new laboratory is not built before the termination of the project.

Hurricane David struck the Dominican Republic on August 31, 1979. It was at first feared that the program would have to be discontinued for 3 months, but it was decided on September 13, 1979 to continue as scheduled. As a result of the Hurricane, there was an electricity blackout at the ASF laboratory for about 3 weeks and all materials, reagents and samples being kept in the deep freeze and refrigerators were removed and stored at different locations around town. Fortunately, no deleterious effects were experienced at the laboratory, although field operations were suspended for about 3 weeks (see PP. 10, 42-3 of the Annex).

16. Inputs

- Commodity Procurement

To expedite purchase of certain supplies and equipment for the program,a $50,000 fund was established in the US by USAID, to be administered by the USDA through the PASA. This was to be used for emergency purchases of small items urgently needed by the program, and generally for the laboratory. This system worked quite well and reduced the time required for procurement of these items considerably. Other commodities were obtained through regular channels and were provided in a timely manner.

- Technical Assistance

The ASF program was designed at the outset to utilize the technical assistance services of a disease eradication specialist from the USDA-APHIS,

who would be able to obtain additional technical assistance from the USDA and other sources whenever the need arose. During the 1 1/2 years of the programs' existance, an impressive array of technicians and consultants have been brought to the DR for varying periods of time (see Exhibit 7 in attached Report). Although these visiting experts have provided an invaluable service, it has placed a burden on the USDA technical advisor, who has had to arrange for their recruitment and assignment to the program, and the coordination and support of their activities in-country. It might have been advisable in the beginning to provide for one or two additional permanently assigned technicians who would have been able to supply some of these technical services on a regular, continuing basis. There seems to have been a need particularly for a Spanish-speaking consultant to monitor operational and epidemiologic surveillance, and an administrative officer, also Spanish-speaking, who would have handled much of the heavy load of paperwork that the technical advisor has been dealing with.

In the initial arrangements to provide technical assistance for the program, the USAID Mission in the DR requested personnel who would have Spanish language capabilities. The USDA was unable to supply a person with the technical expertise necessary who also was proficient in Spanish. The technical advisor who was assigned has done a very commendable job in spite of a Spanish language limitation. But some problems did arise from time to time regarding the provision of continuing, reliable translator/secretarial/typist services required for the resident program advisor and the visiting technicians.

Also, primarily because of the fluctuating number of visiting technical advisors, there were some problems at times, in obtaining suitable transport. This could possibly have been avoided by insisting that the ASF program provide the necessary transport, as specified in the PASA.

There has been a serious office space problem. The Senior Technical Advisor has one very small office at the ASF Program Office, which he shares with 2 secretary/translators. There are no facilities for having a private conversation with anyone and there are always a stream of visitors coming in and out. Another small office is provided by USAID in a leased building near the main Mission office. This is shared with 3 or 4 other USAID technicians with other programs, all of whom share the use of a bilingual secretary. No office desk is available for technicians working with the ASF program on a short-term basis (see PP. 41-3 of the attached Annex).

17. Outputs

- Depopulation

The depopulation of the Eastern region was completed on February 25, 1980, and in the rest of the country by Sept. 1980. There has been some speculation as to why the depopulation program went so well and could be terminated so quickly. Probably a crucial factor was the determination and dedication on the part of the Government of the Dominican Republic, up to the highest levels, to carry the program to a successful conclusion. When the swine farmers realized that the pigs of all operators -both large and small- were being killed, they understood that the Government was entirely committed. This, together with the notice that all pigs found after a certain date (August 31, 1980) would be considered public property and confiscated, convinced them that it would be to their advantage to market their pigs before this date.

Another factor that was instrumental in the program's success was the cancelling of the "herds in observation" (HIO) program. Even though the project design called for complete elimination of all pigs in the country, in October

1979 the ASF program officials decided that a number of large well-operated swine herds with no evidence of ASF infection could be kept under strict surveillance and maintained throughout the program to serve as a nucleus for future repopulation. Fortunately, it was decided in January 1980 to cancel this program, because it was realized that although these herds did not have ASF, they were infected in varying degrees with hog cholera, brucellosis, pseudorabies, leptospirosis, and probably a number of other diseases, which could also be eliminated by getting rid of these herds, and starting over from scratch.

Another consideration in this decision was the fear on the part of the small pig farmer that his pigs were being killed while those of the large operator were being saved. With the cancellation of the HIO program, these fears were eliminated (see pp.20 of the attached report).

- Compensation

The original intention of the program was to compensate the farmer for pigs slaughtered during the eradication campaign, but there was also interest in insuring that the owner would report diseased swine and also be willing to market live ones. Therefore, the compensation price was set arbitrarily at RD$1.00 per kilo live weight. At the time, this was slightly higher than the going market price, although later, as pigs became scarcer, the market price went over RD$1.00, and most farmers preferred to market their pigs commercially.

Sick or exposed pigs were sacrificed at the outbreak sites with succinylcholine and buried. Healthy pigs picked up during the depopulation sweeps by the brigades were trucked to slaughterhouses. The owners were given certificates to be cashed in later at the Agricultural Bank. An estimate of the live weight of all animals compensated for was carried out at the site by appraisers from the Agricultural Bank, who accompanied the brigades.

By and large, there were very few complaints about the compensation system. Pig owners were paid a fair value, and even though there was some delay in the early days of the program, the great majority of the owners were paid. (See P. 21 the attached report).

- Information Campaign

During the early period of the campaign to eradicate the pigs, much of the communication effort was directed simply to trying to tell people what to expect. This was done mainly by press releases and large scale ads in the newspapers, by wall posters, and radio announcements. The high level of technical quality of these items is immediately obvious. The extent to which they showed up as sources of information at the farm level was more limited than expected. This may be due to the lenght of time that has elapsed since the intensive part of the information campaign passed.

Continued activity is important. An FAO information specialist had considerable input into the program, and recommended at an early stage that a social scientist be included in the communication campaign. The decision to place a veterinarian in charge of the campaign appears not to have been a problem, but may have lessened somewhat the awareness to problems as shown in the analysis. There has been compiled a very detailed newspaper file on many aspects of the campaign. These activities have shown flexibility and a great deal of creativity

in enlisting the assistance of farmers in helping locate and eradicate pigs, rather than identifying them as the people who are concealing pigs. This shows up in one of the posters, wherein the pig looks like the culprit, and the farmer is cast as the cooperative one who found the wily pig.

The communication campaign can be judged a success in terms of re-establishing consumer confidence in pork, and in terms of convincing producers to sell or consume their pigs. It can also be considered a success in terms of giving enough information to farmers to prevent opposition to the campaign to eradicate.

Several misconceptions about the campaign exist that need to be addressed soon. Many farmers see the sentinel pigs merely as breeding stock, and take this to mean that repopulation is already under way at a fairly rapid pace. Many want and expect pigs in the not-to-distant future. Some effort needs to be initiated soon in the areas of the country not undergoing sentinalization to explain in more detail the nature of this part of the program. Had this been undertaken earlier, it would have simplified things by presenting accurate information from the start. The decision to concentrate this campaign in the east has meant that people in other regions have concocted their own version of what is happening. This now means that the information about sentinelization will have to be presented as part of an effort to correct earlier misconceptions, a more difficult message to convey than would have been the case earlier on. Part of the problem results from not having created a communication specialist position in the regional offices of SEA. Almost all the effort has come from the Santo Domingo office. (See Annex C of the attached report).

- The Sentinel Pig Program

The pigs brought into the Dominican Republic for the sentinel program were obtained through a carefully designed program to guarantee that they were disease free, of desirable quality and purchased at reasonable prices. A bid procedure was followed and the pigs had to be tested previous to shipment for HC, PR, leptospirosis, brucellosis and TGE, and certified free of contact with mycoplasma, atrophic rhinitis, erysipelas and a number of other diseases. The pig purchasing program it its entirety was exceptionally succesful.

The sentinel program in the Eastern Region was designed to use at least all known or suspected ASF foci as sites to keep the pigs. Some responsible person was hired locally to care for the pigs, and usually 5 pigs were assigned to each site.

The care and health status of the sentinel pigs were supervised by ASF veterinary personnel who were charged with making daily visits to check the pigs, and to collect blood samples from each pig at least once every 45 days, or twice during the 90-days sentinel period, and fecal samples every 21 days. Any pig found to be clinically ill or any that died were to be examined clinically, or by autopsy, and appropiate specimens collected for laboratory examination. (See P. 22 of the attached report).

Of the 611 pigs placed at 126 different sites in the Eastern Region and Samana, none became ill with anything resembling ASF. There were six deaths evidently due to intoxication and one death due to pneumonia. Fecal examinations did reveal a variety of intestinal parasites. The serum specimens from 2 different bleedings were completely negative for ASF, HC, PR, TGE and brucellosis.

These pigs were moved out of the Eastern Region on Jan. 22, 1981, at the end of the sentinel period and have now been relocated on 67 different sites in the Central Zone.

The latest procurement of 500 sentinel pigs arrived from the United States in two shipments between December 1980 and January 1981. The first shipment of 250 head have now been placed on 42 sentinel sites in the central region and the remaining 250 are still in the 30 days quarantine period at the El Seibo Quarantine Center. (See P. 23 of the attached report).

In selecting sites for the sentinel program, it was decided that "foci" discovered in 1979 and 1980 should be given higher priority than those reported in 1978. This decision was based on the idea that by the time the sentinel program started almost 2 years would have passed from the time of discovery of the 1978 foci, and it was felt that it would be unlikely that the ASF virus could survive in the field for this period of time. Therefore, in the order of the priorities established, the most recent foci were given the most importance as sentinel sites.

This would appear reasonable since all the 1979 and 1980 foci are based on positive ASF serology results. As far as can be determinated no clinical cases or deaths were involved, and the possibility that even these asymptomatic carriers would seed the enviroment with much virus is minimal.

Although the premises where the 1979 and 1980 cases were found should be used for sentinel sites, the 1978 foci should not be neglected. There is less and less chance that any remaining virus could survive, but few countries have had much experience with the maximum survival time for the ASF virus, and the opportunity to check the 1978 sites should not be lost. (See P. 24 of the attached report).

- The ASF Laboratory

Laboratory services for ASF did not exist in the Dominican Republic at the time of the initial diagnosis in July 1978, but these were established during the next few weeks through the provision of technical assistance, equipment and supplies from the USDA, the Plum Island Animal Disease Center and FAO. A functioning diagnostic service was quickly installed at the Central Veterinary Diagnostic Laboratory at San Cristobal, where hemadsorption and direct and indirect immunofluorescent anti-body tests were carried out on specimens submited from the field. Local Laboratory personnel were trained, and by Oct. 1978 a veterinary immunologist from Plum Island on assignment to FAO was detailed on a full-time basis.

The facilities provided for the ASF laboratory at the San Cristobal Central Laboratory did not prove to be satisfactory for various reasons, primarily because of the lack of provisions for security and the risk that the hog cholera vaccine production facilities there would be contaminated with ASF virus. Consequently, the ASF services were moved to another location, a refurnished residence at the outskirts of Santo Domingo.

These premises were occupied in April, 1979 and supplied as quickly as possible with the necessary personnel and equipment. The laboratory is currently supplied with an impressive array of equipment and is probably one of the best equipped small swine diagnostic laboratories in Latin America. (See P. 34 of the attached report).

At the present time routine tests for the sentinel pigs and the pigs being maintained at the El Seibo Center for eventual repopulation include the hemadsorption, indirect and direct immunofluorescence and the ELISA tests for ASF, the card test for brucellosis, the serum neutralization and the direct immunofluorescence tests for pseudorabies, hog cholera and transmissible gastroenteritis, and fecal examinations for parasites.

There were a number of changes in procedures used at the laboratory. From July to December 1978 the IEOP test was used with serum specimens to check for ASF antibodies. Starting in December 1978, any sera with positive titers in the IEOP test were checked for confirmation with the indirect immunofluorescence test. In november 1979, the ELISA test was substituted for the IEOP test, with positives still being checked with the IIF test.

The ASF laboratory has from time to time developed some backlog of specimens, primarily because of late arrival of materials and reagents from commercial suppliers. Provision of supplies from Plum Island and the NADL at Ames have not presented any problems.

The ASF laboratory can not really be considered a secure laboratory, because of basic structural deficiencies. Showering-out facilities that have been installed recently are now in routine use, and are a definite improvement. However, the sewage from the laboratory is not treated in any special way, a window opens from the washing and sterilization area to the outside, a recently installed incinerator is located outside the laboratory proper, separate post-mortem facilities are not available, and autopsies are conducted outside the laboratory proper.

A laboratory rule which is followed rogorously is that anyone visiting the laboratory should not visit the field, particularly the sentinel pigs, for at least one week afterwards. Along the same lines, the program should insist that laboratory personnel have no contact with livestock. It would be well for the program to review routine security regulations at high security laboratories such as Plum Island and Ames and at the CDC Laboratoris at Atlanta, Ga. and try to adapt them to the ASF laboratory, even if in modified form. (See P. 35 of the attached report).

The laboratory is located on the main Santo Domingo-Santiago highway,

and in the event that this road is broadered into a freeway, as has been proposed, the laboratory would have to be relocated again. No finding provision has been made for this in the program and special funds would have to be obtained. If a new laboratory can be built, consideration should be given at that time to more adequate security provisions, and possibly more suitable facilites for training, if that program is still being considered. Also, consideration should be given to enlarging the present services and facilities to have the laboratory serve as a general swine diagnostic laboratory, at the eventual termination of ASF eradication program.

Although the laboratory is adequately staffed at the present time for current needs, considering its long-term needs, it would be advisable to send one or two laboratory scientists for one to two years of training in the United States, at specialized animal disease centers and particularly at Plum Island and Ames. In the meantime, it would be worthwhile to continue the services of current laboratory advisor until these technicians can return.

It has been recommended that the ASF laboratory participate in quality check reviews, perhaps on a semiannual or annual basis. This would involve receiving a number of unknown specimens from Plum Island and Ames and running them as a check on laboratory accuracy. This would serve to keep up staff interest in maintaining a high-level of competence and provide a sense of pride in their accomplishments.

The laboratory is now without telephone or radio communication with the Central Office. This would seem to be an essential requirement for a laboratory of this kind. Although telephone installation may be difficult or impossible at the present time, radio communication should be possible to arrange.

The laboratory now dependes on the Central Diagnostic Laboratory for the supply of tissue culture media and some other basic supplies, but is expected soon to be able to be self-sufficient in this regard. This would be essential if the laboratory expects to maintain a state of readiness to operate on an emergency basis, in case of a possible resurgence of ASF in the country. (See PP. 36-7 of the attached report).

- Quarantine Program

The Animal Export/Import Quarantine program in the Dominican Republic is conducted by the ASF program. The program personnel consist of 8 veterinarians and 24 inspectors who are stationed at the 4 international airports, 9 seaports and at the one official border station at Malpassé-Jimaní, on the Dominican-Haitian frontier. The service seems to be well organized and supervised and operates on the basis of standard procedures for this type of program.

The basic Operations Hadbook used by the staff is adopted from a manual published in Spanish by OIRSA, which was adapted in turn from manuals used routinely by the APHIS Plant and Animal Protection Service at airports, seaports, and border stations. (See P. 37 of the attached report).

The Director of the service seems very knowledgeable and well prepared, and has participated in a training tour of animal quarantine facilities and operations in the continental United States and Puerto Rico. Also, Dr. Jose Ferrer who was formerly in charge of animal health programs for OIRSA and is a specialist in this type of program, has visited the Dominican Republic recently, and spent a week reviewing the animal quarantine program here.

Provisions for technical assistance for the remainder of the program contemplates bringing in an animal quarantine specialist from the U. S., pressumably

a Spanish-speaking officer of the APHIS Plant and Animal Quarantine Service, for a short-term technical assistance assignment. This would serve further to strengthen the program.

It should be realized that the initial examination of baggage of an arriving airline passenger is handled by the customs inspectors, who call the quarantine service personnel only if they have some problem and need assistance. Therefore, the first level of protection is the customs inspector and if he is negligent or lax, prohibited materials could be introduced in spite of the best efforts of the Quarantine program. This applies also to the military posted along the Haitian-Dominican border.

One serious deficiency in the program is the absence of an operating incinerator at the International Airport in Santo Domingo for garbage removed from incoming planes, some of which come directly from countries with ASF, such as Spain and Haiti. The garbage is now being burned at a site at the perimeter of the airport. The incinerator which is available and is about to be assembled and installed. This holds true for the three other airports also. While no immediate risk exists, as soon as the swine repopulation program begins, there always will be a chance that ASF could be reintroduced. It should be remembered that ASF presumably was introduced into the Dominican Republic in early 1978 by the feeding of garbage from the Santo Domingo Airport to pigs.

Along these lines, it would be well for the ASF program to consider prohibiting the keeping of pigs near airports or seaports when the repopulation program goes into operation. Also, they should be kept away from the immediate vicinity of the ASF laboratory. (See P. 38 of the attached report).

- <u>The Repopulation Plan</u>

Veterinarians from the ASF program and the Secretariat of Agriculture

have developed a 5 year plan for rebuilding the pig industry. At the end of the 5th year they estimate a population of 1,400,000 head, with the production of about 112,000 metric tons of pork meat. This will meet a domestic demand estimated at 15 kg /person/year for 7 million people. They are counting on a high level of efficiency from the imported pigs and on improved overall management, facilities, health care and feed.

The Repopulation Plan details the breeding herd system which would produce and distribute breeding stock to large, medium and small farmers. A pig raising scheme has been designed through agricultural cooperatives to provide opoortunities for people with lower incomes to participate in the rebuilding program. Pig movement from farm to farm or to slaughter would be strictly controlled by a system of permits and vehicle check points.

The total funding estimated for the program is RD$67 million. RD$43 million is for credit to private producers, RD$16 million is earmarked for feed purchase and RD$6 million for purchase of pigs. A major item of RD$14 million is budgeted for salaries of government personnel. Presently, IDB is interested in further investigating the possibilities of supporting this program.

The Dominican Republic will be going through the unique experience of repopulating a country completely free of pigs. If the program is carried out properly, it can be of enormous benefit to the Dominican pig industry. At the very least, the experience gained and the lessons that could be learned for other countries that might find themselves in a similar situation could prove invaluable. USAID would do well to assist with technical assistance to carry out the program, or at the very least, to help record the experience.

The plan for repopulation will be reviewed by a IBD team which is expected

to arrive in the Dominican Republic next month. A basic feature of the plan is the intention to limit the distribution of pigs initially to commercial producers and cooperative organizations. Three main reasons are given for this policy:

a) The need to control the extension of credit and the permits to import new pigs.

b) The need to facilitate the disease surveillance of these pigs by limiting the number of sites where they will be kept.

c) The need to maintain a high level of genetic quality and husbandry of the developing swine population of the country.

The net result of this policy will be that the small farmer or householder who would like to keep a few pigs in his backyard or "patio" will be unable to do so, at least for the first 3 or 4 years. This will constitute a radical change in social custom in rural areas and will certainly be unpopular.

There will surely be political pressure on the government to return to traditional practices. This question will very likely become an important political issue, especially in the next Presidential election campaign in 1982, and it will be interesting to see how long this policy can be maintained by the Program.

It would be wise for the Program to continue using the concept of "sentinelization" during the early phases of repopulation. In other words, every site where pigs are introduced for the first time should be kept under veterinary observation, at least weekly, for the first year or two, to make sure that if any illness is seen in the pigs it is detected quickly. Also a disease reporting system should be organized so that swine owners or attendants will request assistance between visits, as soon as anything alarming is seen. (See P. 40 of the attached report).

18| Purpose

The project purpose was to eradicate ASF from the Dominican Republic; achieve complete depopulation of swine and decontamination of their premises; and to initiate the process of repopulation.

Progress toward the EOPS are almost completed. An effective mass media campaign has been carried out and all levels of Dominican Society have cooperated with the campaign which has made all citizens aware of the problem and the need for full cooperation from all sectors to eradicate ASF. In addition full cooperation was attained from producers of pork and pork products to implement the eradication, depopulation and repopulation plans. Instead of SEA's Livestock Sub-Secretariat a separate High Level Commission for ASF eradication was established, fully funded and staffed, and carried out complete swine depopulation and is in the process of terminating complete sentinelization of the country. An effective compensation program was implemented which adequately dealt with the problems of producers and stimulated their cooperation with the program. A comprehensive national swine repopulation plan is being developed which involves minimizing risks of any reoccurence of ASF and other diseases and selection of efficient alternative to start pig production systems again.

19. Goal

The project goal is:

" 1. To improve the economic standards of the rural poor.

2. To increase the level of agricultural productivity with particular regards to the needs of the small farmers".

It is not possible at this time to evaluate achievement of the project goals which are almost entirely dependent upon ASF virus eradication and subsequent swine repopulation which has not been reinitiated. Prospects appear good that the project goals will be achieved. The reestablishment of a national swine herd

that is free of major swine diseases and of superior genetic quality will have direct benefits for rural poor and small farmer productivity. As of now, repopulation plans has been implemented in several areas of the East Region. About 10 small farmers associations have already received a minimum of 30 swine (28 sows plus 2 boars) each through credit from the Agricultural Bank. Several big private producers are also reentering the business.

20. Beneficiaries

Pig production is important in the economic development of the Dominican republic, both from the standpoint of human nutrition and a source of foreign exchange through the export of pork products. Although the greatest production comes from commercial producers, the scavenging pig owned by low income or rural poor people is significant, because it converts otherwise unusable resources (household garbage and crop waste) to an income source. This is frequently referred to as "the piggy bank". Therefore, from many socio-economic standpoints, the investment in improving production efficiency through improving the animal health enviroment has potential benefit.

After the eradication and repopulation efforts have been carried out, the pig production will return to the point of satisfying the domestic demand and later of supplying export products. For this report, it is assumed that pork production under ASF and HC free conditions will meet domestic demands in the year 1986. After that, a more efficient production system will supply pork for export.

In Table 1, two pork production projections are shown. One represents the estimated production had the GODR decided to "live with" ASF and HC. The other represents the production estimated to result from a decision to eradicate ASF and HC and repopulate with pigs having improved genetic production performance and

freedom from other diseases, such as Mycoplasma infections, Atrophic Rhinitis, Transmissible Gastroenteritis, Brucellosis and Tuberculosis.

Tables 2 and 3 (attached) give estimated benefits and costs of the ASF eradication campaign, respectively. Small farmers will benefit from increased productivity because of the presence of superior genetic material. (See PP. 13-14, Annex A of the attached report).

TABLE I

Comparison of estimated pork production, consumption and exports under different disease conditions Jan. 1982 through December 1991.

	Projections under conditions of ASF, HC and other Disease Free and Improved Genetic Performance 1000 kg. CWE.			Projections based on previous production levels with 20 % decrease due to endemic ASF 1000 kg. CWE.		
Year	Production	Consumption	Exports	Production	Consumption	Exports
1982	200	200	0	18,000	18,000	0
1983	600	600	0	19,000	19,000	0
1984	2,000	2,000	0	20,000	20,000	0
1985	7,500	7,500	0	21,100	21,100	0
1986	29,250	29,250 (1)	0	22,200	22,200	0
1987	32,170	29,980	2,190	23,400	23,400	0
1988	35,380	30,730	4,650	24,600	24,600	0
1989	38,910	31,500	7,410	25,900	25,900	0
1990	42,400	32,290	10,110	27,200	27,200	0
1991	46,646	33,000	13,640	28,600	28,600	0

TABLE 2

Summary of benefits from the ASF Eradication Program 1982 through 1991

BENEFIT	RD$
Avoidance of Control Program for Endemic ASF	29,000,000
Avoidance of HC Vaccination Cost	2,100,000
Foreigh Exchange Earnings	66,006,000
Pork exported 1987-1991, total. 38,000 M. T. CWE at 1980 Price FOB American Port Of RD$1,737 per Metric Ton CWE for pork imported to DR.	
Beef available for export 1986 through 1991 at the average export quantity for 1975 through 1978 of 4125 metric tons per year at a 1980 price of RD$1,823 per Metric Ton CWE. FOB Santo Domingo	37,600,000
Total (Preliminary)	134,706,000

TABLE 3

Costs estimated for the ASF Eradication Program

August 1979 through December 1981, in the Dominican Republic

SOURCE	RD$
1. Program Expenses for Eradication	8,375,000
2. Unrecovered Compensation from "Ventas Populares"	22,750
3. Loss of Foreigh Exchange from Pork Imports 1979 + 1980	12,272,000
4. Loss of "Scavenging Pig" production	3,966,000
5. Pork Imports 1981 Estimate	11,700,000
6. Decrease in Beef Exports. Rough estimate 1979 through 1981	6,000,000
Sub-total	36,335,750
a. Less Costs avoided to operate an ASF control program	6,770,000
b. Less animal feed not imported for pig production under hypothesized "live with" ASF and HC.	?
c. Less estimate of pork imports needed had the Dominican Republic decided to live with ASF and HC: 20 % of item 3 and 5.	4,794,000
Total	24,771,000 ?

21. Unplanned Effects

At the start of the efforts to deal with the ASF outbreak in the Dominican Republic it was hard to imagine that the results would turn out so well or so quickly. The early days of confusion and scepticism in 1978 have changed at the present time to pride in a job well done.

During the summer and fall of 1978, veterinarians of the Secretaria de Agricultura were doing their best to control the disease by killing and burying pigs on infected premises. At this time, the laws did not even provide authority to indemnify owners and a new law providing for compensation had to be eancted. Finally 136,000 pigs were destroyed and buried and about RD$7,400,000 were paid in compensation from July 1978 to July 1979.

During this early period, an impressive public information program was started. All forms of media and meetings were used including village and religious gatherings to spread the word about the danger of ASF and the benefits of the program against it. With few exceptions the response was one of willingness to cooperate.

Even though there was confusion and uncertainty about the possibility of carrying out the program for the entire country, the Dominican Government stuck with the idea that local depopulation was in their country's best interest.

At first, in the summer of 1978, the fear that eating pork would make people sick caused some pig raisers to sell their pigs as soon as they could, even though the price had dropped to 1.20 RD$ per Kg. live weight to .80 RD$ and lower. This happened in spite of considerable propaganda about ASF not affecting humans. Later, producers were encouraged to sell their pigs by the threat of confiscation and/or purchase by the Government at a fixed price which might be lower than the ongoing market price. By January 1980 the pig population had been reduced to an estimated 200,000 head from a population of 1,400,000 before the outbreak. (See P. 6 of the attached report).

The outbreak itself is difficult to analyze epidemiologically. The disease had probably been present in the Dominican Republic for at least 5 or 6 months before a definitive diagnosis was made in July 1978, and no reliable data existed for this early period. The outbreak probably reach its peak at this point and was already widely distributed throughout the country.

The news that ASF was present in the country caught everyone unprepared. No suitable laboratory facilities or laboratory expertise were available. Animal health field personnel had not been trained to deal with the disease and did not have the organization or vehicles for an emergency of this kind. To further complicate the situation, there was a change of Government in August 1978. This resulted in major changes in the veterinary services staff, with the result that toward the end of 1978 the ASF program was completely reconstituted and had to develop a program with completely new personnel.

The date available for the July - December 1978 period are primarily laboratory results for tissue samples from pigs at outbreak sites. Very few sera were collected during this period, and practically no epidemiological investigations were made at the disease foci. Also, the tissue samples submitted usually arrived with a minimum of information about clinical findings, or herd morbidity or mortality.

During July, August and September of 1978, as the news about the ASF outbreak spread, the popular impression was that pork meat from infected animals was harmful for human consumption. Consequently, the demand for pork decreased sharply, and the price dropped in a similar fashion. As a result there was a rush by hog farmers to report affected herds, so that they could be compensated for their animals by the Government at the maximum price. This in turn resulted in a

flood of tissue specimens into the ASF laboratory for diagnosis.

As soon as the program publicity began to take effect and the population realized that pork consumption was not dangerous, demand for pork went up again, along with the price, and there was a sharp drop in the number of herds reported with ASF, and a consequent drop in the submission of specimens to the Laboratory. This coincided with the reorganization and reduction in field personnel in the program, which further reduced the number of samples. Therefore, it is difficult to judge how much of the drop in reported foci in the latter part of 1978 was due to an actual drop in incidence and how much to anomalies in reporting.

From January to June 1979, the program was mainly concerned with staffing and organizational problems in initiating the eradication campaign to be funded with the 6 million dollar US AID loan. Very few serum samples were collected and few tissue specimens reached the laboratory, either because the disease was subsiding in the country, or because there were few people in the field to attend to reports or search for affected herds.

By July, 1979, the program had been fully staffed and a plan had been developed to eradicate the disease as rapidly as possible. There was now a need to locate as many remaining disease foci as possible and a large serum survey was organized. Essentially, specimens were collected almost at random from existing herds, mainly in areas where outbreaks had been known to occur. The animals sampled included "patio" pigs in pens, "finca" pigs running loose, and pigs coming to slaugher. The information accompanying the specimens rarely included much more than the date of collection and name of the owner of the pigs.

The laboratory results for serology were usually reported by date of examination of the specimens. Since there were periods with backlogs of specimens, it is possible that some specimens were collected 1 to 2 months before they were examined and recorded. However, the number of positive sera from

July 1979 - Dec. 1980 was low and the percent of positivity by three-month periods for this period probably would not show any appreciable trend even if the data were arranged by date of collection. (See PP. 13-14 of the attached report).

22. Lessons Learned

- Developments of scientific interest

Because of the difficulties encountered in the early days of the program, it was not possible to document the outbreak in a satisfactory fashion. However, there have been a number of developments in the program that merit attention. One is the decision to use the ELISA test on a routine basis after a successful laboratory trial. This experience has been documented and submitted for publication in the American Journal of Veterinary Research by staff members of the Plum Island Laboratory and the ASF Laboratory in Santo Domingo. Along these lines, the Plum Island Laboratory has reported on the characterization of the virus strains isolated in the Dominican Republic.* This work showed that the ASF strain of virus from the Dominican Republic produced low mortality and comparatively less severe gross and microscopic lesions, confirming that these isolates, together with those from Brazil, were of low virulence.

Of definite value and a considerable contribution to animal disease eradication practice has been the body of knowledge and experience gained by the Dominican ASF Eradication Program in the actual elimination of an original population of 1 1/2 million swine. This will certainly be of value in other countries which have to operate similar programs, such as Haiti.

* Proc. 82nd and 83rd Annual Meetings of the USAHA, 1978 and 1979 respectively.

23. Special Comments

CONCLUSIONS AND RECOMMENDATION

a) There is reasonable assurance that the domestic swine population has been eliminated from the Dominican Republic.

b) Based on the experience with the sentinel pig program in the Eastern Region and the Samana Peninsula, there is reasonable assurance that ASF has been eradicated from this area.

c) The sentinel pig program should be continued in the rest of the country as scheduled, with the same care and surveillance as practiced in the Eastern Region.

d) Surveys of the wild pig population have not resulted in evidence of any kind that these pigs were ever affected with ASF, or could be serving as a reservoir of the disease. It is not practical or necessary to try to eliminate these pigs, and in any case they do not appear to be a risk to the program, and repopulation should continue as planned. The wild pig surveys should be continued until all areas are covered.

e) Surveys for Ornithodoros ticks (soft ticks) in the Dominican Republic have been completely negative so far, and there is no evidence that these anthropods exist or ever existed in the Dominican Republic.

f) The laboratory personnel appear to be adequate to carry out the expected routine services for the next year or two. However, in looking to future needs, it would be advisable to send one or two laboratory scientists for long-term graduate training at recognized animal disease centers.

Until these persons return, it would be worhwhile to continue the assignment of the current laboratory advisor.

g) The work at the laboratory could be carried out more easily if:

-a) Telephone or radio communication were provided

-b) Additional outer office space were provided

-c) Provision were made to avoid power overloads

-d) More lead time were provided in ordering laboratory supplies and equipment.

h) The security of the laboratory could be improved by the following measures:

-a) Double window to receive specimens

-b) Elimination of ASF virus from the laboratory

-c) Provision of adequate post-mortem facilities inside the laboratory.

-d) Incorporate the incinerator inside the laboratory

-e) Establish some type of decontamination for the sewage system

-f) Keep door to outside in the cleaning and sterilization area closed at all times

-g) Check the ventilation filter system

-h) Keep pig farms away from the immediate vicinity of the laboratory

-i) Make sure that laboratory personnel do not have contact with livestock, particularly pigs

-j) Not use the laboratory for ASF idsease demonstrations.

J) Although repopulation may constitute some risk until the sentinel

pig program is completed in the entire country, the program should be able to start the repopulation effort at least in the Eastern Region, in the next few months, as long as adequate disease surveillance measures are carried out.

k) In planning for the repopulation program, provision should be made for a large enough veterinary field staff to maintain an adequate disease surveillance program

l) Although it may be impractical to insist that "Specific Pathogen Free" pigs be brought in for the repopulation program, the basic "disease-free" requirement should be maintained as far as possible.

m) The repopulation program should try to make adequate provision for the distribution of pigs to the small farmer or pig raiser, either through rural cooperatives, or some other suitable system, which still would permit some type of control and surveillance of the program.

n) The GODR should consider the use of PL 480 funds for the repopulation program.

ñ) The program should consult with livestock authorities in Malta where complete swine depopulation for ASF was carried out and where repopulation is now being planned.

o) A considerable area along the Haitian-Dominican border should be kept free of pigs until there is a reasonable assurance that ASF has been eliminated in Haiti. To reduce the possibility that the inhabitants in that area would smuggle pigs or pork in from Haiti, the sale of pork at subsidized low prices there should be considered. Also, livestock of different kinds (goats, chickens, ducks, turkeys or rabbits)

should be offered to the population to serve as substitutes for pigs. This type of program should be promoted in other parts of the country also.

p) Plans are now being made to carry out an ASF eradication program in Haiti. The current disease-free status of the Dominican Republic cannot be maintained indefinitely as long as the disease exists there and every effort should be made to carry out the program in Haiti to an early successful conclusion. It would be beneficial for the professional personnel who will operate the Haitian ASF eradication program to have the opportunity to profit from the experience of the GODR personnel by visiting the program here and meeting the staff on a personal basis. When the depopulation program does begin in Haiti, it would be advisable to start along the Dominican border and move toward the west.

q) The ASF program should prepare an Emergency Plan and a Task Force to deal with any outbreak of swine disease, particularly ASF. In line with the development of an Emergency Plan and Task Force, it would be worthwhile for the Program to carry out test excercises from time to time, to provide training for the staff who would be involved with animal disease emergencies.

r) The ASF program should maintain an ongoing training program for its veterinary field personnel, particularly in the clinical diagnosis and treatment of swine diseases and in epidemiological investigation procedures.

s) Quarantine services at all external and internal control points should be reinforced. Incinerators should be installed and used at all international airports.

t) The raising of pigs should be prohibited in the vicinity of all international airports.

u) Whenever possible technical advisors to the project should be fluent in the Spanish language. If not, funds should be allocated for adequate translation and interpretation services.

v) The long-term assignment of a bilingual administrative officer and a bilingual epidemiologically-oriented operations technical advisor would have benefited the program.

w) If funding for continuation of the technical program necessary for the succesful rebuilding of the pig industry is agreed upon but there is a disbursement time lapse after the termination date of AID support, alternative funding sources (including PL480) should be sought to provide adequate support through this transition period.

x) Field trials on the acclimatization and productivity of imported pigs raised under the physical and economic conditions of the small producer should be carried out without providing subsidized feed. This information would be of value in making future projections of pig production.

y) The ASF program staff, the Government officials and the technical advisors involved with the program are to be commended for their dedicated service and the impressive success achieved to date in their efforts to eradicate ASF from the Dominican Republic.

EVALUATION OF THE AFRICAN SWINE FEVER ERADICATION PROGRAM IN THE DOMINICAN REPUBLIC

John Mason - DVM MPH
James Converse - PhD
Hunt McCauley - DVM MS

January 12 to February 7, 1981

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III. Exhibits (cont.)

ACKNOWLEDGMENT

The Team wishes to extend its thanks to the staff of the ASF Program for its cooperation with interviews, field trips and visits to other Government agencies. Similar appreciation is extended to the personnel at the USAID Mission. Special thanks should go to the secretarial staff at both places who helped with the typing, translation and final publication of the report.

EVALUATION OF THE AFRICAN SWINE FEVER ERADICATION PROGRAM IN THE DOMINICAN REPUBLIC

JAN. 12 - FEB. 7, 1981

INTRODUCTION

The presence of ASF was confirmed in the DR on July 6, 1978 by the Plum Island Laboratory. The DR requested assistance from USAID on July 7, 1978. On July 12, 1978 the President of the DR established a High Level Commission to eradicate the disease, and a campaign was put into operation almost immediately. By July 13, 1978 the first U.S. advisors had arrived to assist with the program.

In retrospect, it was established that the disease had probably been present in the country since February, 1978. Deaths of a hog cholera-like nature had occurred about that time in a herd of swine being fed garbage collected at the Santo Domingo International airport. Infected and exposed swine apparently were sold and pork from some of the affected animals had been distributed through trade channels.

In March, April and May of 1978 there were more reports of hogs dying with signs of classical hog cholera, and hog cholera vaccination efforts with the China Strain vaccine were increased. When vaccinated hogs began to die, it was suspected that ASF might be present. Cross inmunity trials were carried out at the Veterinary School in Santo Domingo in June 1978, which showed deaths in hog-cholera immune pigs inoculated with tissue extracts of swine suspected to have ASF. Finally the Plum Island Laboratory confirmed the diagnosis of ASF on July 6, 1978.

As expected, many countries perceived the threat and in a short time animal health experts from various countries and organizations were visiting the Dominican Republic. The U.S. was predominant in its concern. Technical advice and some preliminary financial support also came from Spain, Cuba, FAO, PAHO and the IDB. The USDA sent a team of animal disease control specialists and personnel from the Plum Island Laboratory helped arrange for ASF laboratory diagnostic services.

The ASF program began its operations by slaughtering infected and exposed pigs at outbreak sites, and by setting up quarantine barriers around these foci. Movement of swine to slaughter was prohibited except by inspection and permit. Shipments of

pork and pork products out of the DR were stopped. Depopulation of swine in a 15 km. strip along the Haitian border was started.

On August 1, 1978, a law was passed establishing a special 4% tax on imports and a 1/2% tax on income, which was expected to bring in 20 million DR dollars. This fund was to be used for compensation of swine slaughtered as a result of the ASF eradication program.

By the end of September, 1978 it was estimated that 120,000 pigs had died of ASF. Between July and December 1978, a total of 101,420 pigs were destroyed at outbreak foci. Of these,25,144 (or 25%) were recorded as sick when the campaign teams visited the farms. The disease was found to be distributed widely throughout the country and finally 26 of the 27 provinces were found to be infected. It was soon realized that to eliminate the disease by slaughtering infected and exposed pigs at all the known foci would mean the elimination of practically the entire swine population in the country .

As soon as the magnitude of the outbreak was understood, the Government was faced with a very difficult decission. Since no vaccine or treatment existed for ASF, the choice was between living with disease, or trying to control or eradicate it.

Essentially to do nothing would have meant the loss of a developing pork export market and the perpetuation of a debilitated, chronically infected swine population. Control of the disease would require at least the depopulation of pigs at all the known foci, decontamination of the premises, control of movement of pigs and other regulatory measures, probably on a permanent basis.

A well executed control program at the start of an ASF outbreak can result in eradication of the disease in a short time, because only a limited number of herds are involved and they can be eliminated before the disease spreads and a large reservoir of carriers is built up. However, by July, 1978, when the diagnosis was confirmed, the disease was already widespread. Even if the Government proceeded to eliminate the known foci, a multitude of unknown foci and chronically infected

carriers would have remained to perpetuate the disease.

Although a detection program based on serological surveys could have been carried out to discover unreported foci and infected pigs, it would have been difficult to organize, expensive, and probably would have failed in the end. Consequently, the Government of the DR decided at the end of November, 1978 to try to eradicate the disease by eliminating all the hogs in the country, and appealed for financial and technical assistance to carry this out.

At the time, it was thought that the complete depopulation of swine in the country might be beyond the capability of the Government and it was proposed that this type of program be operated first on a trial basis in one region of the country. This was accepted and the Eastern Region was chosen as the most suitable site for the trial, because it would be easier to control movement in and out of this area.

Additional US technicians arrived to assist in designing a program which could receive financial assistance from USAID. On December 14, 1978 an Agreement was signed for the loan of 6 million dollars by the US to the DR for the eradication of ASF. A grant of $200,000, primarily for technical assistance, was also provided. The program was scheduled to start as soon as plans could be made and the conditions specified in the Loan Agreement met, and to end 27 months later.

The project was designed to eradicate ASF from the DR by the complete depopulation of swine and the decontamination of the affected premises. The program was to consist of four major components: mass education, eradication of the disease through depopulation, together with compensation to the owners for the swine eliminated, and a plan for eventual repopulation.

The eradication of ASF was to be accomplished in 4 phases. During the initial phase the disease was to be eradicated in the Eastern Region of the country, as a pilot project, in order to evaluate the methods and procedures to be followed and also to provide a training ground for program personnel. The initial phase was programmed to last 9 months. During the first 3 months there would be a depopulation

..../

and decontamination of premises with infected and exposed pigs, together with a campaign to urge owners of healthy pigs to market them before the end of the period, at the risk of confiscation. Once this was accomplished, the region would be kept free of pigs for another 3 months period, to allow for the natural destruction of any remaining ASF virus. After the 3 months "fallow" period, sentinel pigs would be brought in and placed on premises where ASF had been found, for an additional 3 months. These pigs would be under close security and if at the end of this period there was no recurrence of ASF, the area could be considered clean and the eradication program could proceed in the rest of the country.

Besides carrying out the eradication program in the Eastern Region, two other depopulation/decontamination activities would be carried out concurrently during the initial phase. One was the depopulation of the pigs in a 15 km. zone along the whole Haitian border and the other was the elimination of any subsequently discovered ASF foci in the rest of the country. Also, during the initial phase, research on two problems would be carried out: first, the possible presence of tick vectors for ASF in the DR and also, the question of the considerable population of feral pigs found in certain areas of the country.

An evaluation was planned for the project at the end of the initial phase. The basic purpose was to determine whether the eradication program was proceeding satisfactorily and what changes, if any, might be necessary to complete the last three phases. The economic, social and environmental impact of the program would also be considered along with an assessment of the intensive communication campaign. Once the evaluation was completed, the ASF program would proceed with plans for carrying out the remaining phases.

The initial phase of the program was started in the Eastern Region on August 10, 1979, and was completed in February, 1980. The sentinel pig program which was started in the area in July 1980 was expected to be completed in December, 1980, when the sentinel pigs were scheduled to be moved to another Region. Consequently the program evaluation, as required by the Loan Agreement, was scheduled for a 4 week

period Jan. 11 to Feb. 7, 1981.

The Evaluation Team consisted of three members:

Dr. John Mason, Assistant Director of the FMD Prevention Program in Mexico and Team Leader.

Dr. Hunt McCauley, Assistant Professor of Clinical Large Animal Medicine at the University of Minnesota and Agricultural Economist.

Dr. James Converse, Visiting Assistant Professor of Sociology at Kansas State University and Agricultural Sociologist.

The PIO/T authorizing the evaluation specified that the Team would:

a) Determine whether the disease was eradicated in the Eastern Region.

b) Evaluate the social and economic impact of the eradication program in the Dominican Republic.

c) Evaluate the value and success of the compensation program.

d) Evaluate the effectiveness of the mass media campaign.

e) Evaluate the effect of unplanned changes in project design.

f) Evaluate the capacity for ongoing disease monitoring in the Dominican Republic. Specific points to be included were the capability of the ASF campaign personnel, laboratory capability, institutionalization of the program, resource allocation and availability, and control of points of entry (internal and external).

g) Evaluate the effectiveness of inputs provided in terms of quantity, quality and timeliness of arrival.

h) Identify failures to achieve planned program objectives and determine factors causing such failures.

i) Determine what new information has been added to scientific knowledge about the disease.

j) Recommend changes in project design which might improve implementation of the project.

HISTORICAL REVIEW

At the start of the efforts to deal with the ASF outbreak in the Dominican Republic it was hard to imagine that the results would turn out so well or so quickly. The early days of confusion and scepticism in 1978 have changed at the present time to pride in a job well done.

During the summer and fall of 1978, veterinarians of the Secretaría de Agricultura were doing their best to control the disease by killing and burying pigs on infected premises. At that time, the laws did not even provide authority to indemnify owners and a new law providing for compensation had to be enacted. Finally 136,000 pigs were destroyed and buried and about RD$7,400,000 were paid in compensation from July 1978 to July 1979.

During this early period, an impressive public information program was started. All forms of media and meetings were used including village and religious gatherings to spread the word about the danger of ASF and the benefits of the program against it. With few exceptions the response was one of willingness to cooperate.

Even though there was confusion and uncertainty about the possibility of carrying out the program for the entire country, the Dominican Government stuck with the idea that local depopulation was in their country's best interest.

At first, in the summer of 1978, the fear that eating pork would make people sick caused some pig raisers to sell their pigs as soon as they could, even though the price had dropped from 1.20 RD$ per Kg. live weight to .80 RD$ and lower. This happened in spite of considerable propaganda about ASF not affecting humans. Later, producers were encouraged to sell their pigs by the threat of confiscation and/or purchase by the Government at a fixed price which might be lower than the ongoing market price. By January 1980 the pig population had been reduced to an estimated 200,000 head from a population of 1,400,000 before the outbreak.

THE DEPOPULATION PROGRAM

In early 1979, the pressure on producers to sell their hogs was maintained and by July 1979 the program to depopulate hogs from the eastern provinces was started in earnest. The overall plan consisted of the following major points:

1) Complete depopulation of the Eastern provinces through pressure to sell pigs for consumption, followed by a "house-to-house" search with confiscation and indemnity for any pigs discovered.

2) Control of movement of pigs and the establishment of inspection posts at the boundary of the Eastern provinces. No pig meat was allowed to come into the Eastern part of the island.

3) Continued disease control efforts in the rest of the Dominican Republic.

4) Elimination of pigs in a 15 km. strip along the Haitian border and strict prohibition of all traffic of pigs and pig products from Haiti to the Dominican Republic.

5) Once all the pigs were removed from the Eastern Region, susceptible pigs were to be placed on premises where ASF had occured. These pigs would be "sentinel pigs" in that if they became sick with ASF it would show that the virus still existed.

6) If all went well in the Eastern provinces, this depopulation and "sentinelization" could then be done throughout the country, leading to the eventual rebuilding of the pig industry.

Some 40 brigades were used in this program. Each brigade consisted of a veterinarian or veterinary technician, 5 or 6 workers and an appraiser.

The brigades moved across the Eastern provinces looking for pigs. Many people consumed or sold their pigs at market. Others were paid the RD$1.00 per Kg., based on an "eyeball" weight appraisal when their pigs were discovered and confiscated. The meat from these pigs was distributed by INESPRE* to people with lower incomes at a subsized price under a "Venta Popular" program.

* INESPRE - Instituto de Estabilización de Precios

When an area was cleared of swine, the majority of the brigade personnel moved on to the next region. A few brigades were left to begin cleaning and disinfection operations** and to carry out surveillance activities, in order to assure that the area remained free of swine and pork products. The continued presence of the brigades simplified the reporting by local people of any concealed pigs.

As this action was proceeding, officials started to prepare the country for the depopulation of pigs in all areas. Some of the larger commercial pig raisers strongly opposed this and tried to save their herds from depopulation. They pointed out they had never had ASF and could maintain excellent control of their premises. This "save-the-herd" idea almost succeeded but was finally turned down by the Program. This was based more on hog cholera and other diseases being kept endemic than by the threat of ASF. Concern that small farmers would raise questions of favoritism, and the fear of undermining their cooperation with the program also weighed in the decision.

The depopulation of the Eastern region was completed in February 1980. The results were encouraging enough to move ahead of schedule and to try to complete the depopulation throughout the rest of the country inmediately. On March 11,1980 the President announced that the depopulation program would cover the whole country. People were warned that after some deadline date, any pig found would be confiscated without compensation. The barriers to traffic of pigs and pig meat from the rest of the country into the East were maintained. Some 92 brigades then moved into action in the rest of country, sweeping toward the center from the east, west and north. By that time it was estimated that only 70,000 pigs were left.

To further accelerate the depopulation program, in March 1980 the ASF High Commission adopted a resolution that prohibited the further breeding of swine, and advised the public that after a certain date uncastrated boars, pregnant swine and young pigs under 25 kg. would be confiscated when found and no compensation paid.

** One-Stroke Environ was used for disinfection during all decontamination operations.

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The large commercial swine producers were concentrated around the two major population centers, Santo Domingo and Santiago. These were the final target areas for the depopulation program. Some 15 of the largest producers were found here. Their efforts to resist depopulation included a full page advertisement that they be included in governmental discussions. They hoped as a result of the delay that their herds could be sold at higher prices. Of the 200 large scale commercial pig farms in the DR before the outbreak, by May 1980 there were only about 8 left.

The depopulation work moved rapidly and a deadline date for depopulation was set at August 31, 1980. The success of the depopulation program is attested to by the fact that after repeated sweeps through the countryside and running down all reports and rumors, only some 200 pigs have been confiscated and slaughtered from that date to the present time. Many smaller farmers went through the hills around their towns hunting for pigs. This was in part because they often were given some of the meat (up to half) from pigs confiscated through their efforts. It was also in part due to their honest desire to assist depopulation so they could get new pigs and start over sooner.

To further support the program, all pork imports were stopped on March 31, 1980, to force utilization of existing local pork products as rapidly as possible. Prohibition of importation was continued until the end of 1980, to use up all pork products in storage and allow for the cleaning and disinfection of these storage units. It was publicized that all pork meat in the marketplace was to be sold by Nov. 1980. Meat sausage plants began to substitute beef or poultry in place of pork in making hot dogs and sausages.

In an attempt to provide a substitute for pigs, the Secretariat of Agriculture installed a hatchery supply chicken flock outside of Santo Domingo and sent chiks to local groups throughout the country for distribution to lower income rural families. Five-week old chickens were provided at the rate of 70,000 per month. This was increased to 150,000 per month by Sept. 1980. Cost per chicken to small

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farmers was about 25 ¢. Surveyed farmers reported high levels of acceptance of the chickens at the outset. Other plans were to provide sheep, turkeys, goats and rabbits to help replace the depopulated pigs.

Hurricane David struck the Dominican Republic on August 31, 1979. It was at first feared that the program would have to be discontinued for 3 months, but fortunately it was decided on September 13, 1979 to continue as scheduled. As a result of the hurricane there was an electricity blackout at the ASF laboratory for about 3 weeks and all materials, reagents and samples being kept in the deep freeze and refrigerators were removed and stored at different locations around town. Fortunately, no deleterious effects were experienced at the laboratory, although field operations were suspended for about 3 weeks.

THE SENTINEL PIG PROGRAM

Specifications for the importation of sentinel pigs were drawn up which required that they not have evidence of exposure to hog cholera, brucellosis, tuberculosis and transmissible gastroenteritis. A pig buyer was selected in the U.S. through a low bid procedure to assemble pigs which met the requirements, which required Yorkshire pigs weighing about 45 pounds, from "Specific Pathogen Free" herds. These animals were to be shipped by air to an airport near La Romana in the east.

The first shipment of 237 pigs arrived in June 1980 and were taken in special, disinfected trucks to a quarantine station in El Seibo. It was decided to build a pig reproduction center there also to breed some of these pigs for future use of the offspring as sentinels. This center also could be used later for growing improved pigs for the rebuilding of the Dominican pig industry.

In July and again in November 1980, a total of 611 sentinel pigs were placed on 126 premises which had been affected with ASF or which were suspected of being affected. They were encouraged to roam around in search for food and thereby increase their exposure to potential ASF virus sources. Their concentrate ration was furnished from Program funds and with the exception of a few deaths unrelated to ASF, the pigs did well and were treated with special care and affection by the people, who were pleased to see their hopes of keeping pigs being raised again. By December 1980 the sentinelization of the Eastern Region had been completed. Blood samples had been taken at 45 and 90 days and none of the pigs had shown serologic evidence of ASF , hog cholera, brucellosis, pseudorabies, or TGE. On January 22, 1981, these pigs were moved to selected sentinel sites in the Central Region, the next region chosen for sentinelization.

REBUILDING THE PIG INDUSTRY IN THE DOMINICAN REPUBLIC.

Plans have already been drafted for a repopulation program, and external funding for program costs and credit for purchases are being sought. The Dominican Government has agreed that adequate surveillance for various swine diseases must be maintained. Another facet of the plan is the intention to distribute pigs to small farmers through local cooperative organizations. The plan calls for a system of permits and official controls at least for the initial stages of the repopulation process. The program plans to import some 10,000 head of breeding stock by the end of 1981 which, in addition to the sentinel pigs, are projected to expand to a national herd size of million pigs by the fourth year, or by the end of 1985. Under fairly optimum production coefficients the program expects to meet domestic demand for pork by the end of 1986.

THE ASF OUTBREAK IN THE DR

The outbreak itself is difficult to analyze epidemiologically. The disease had probably been present in the DR for at least 5 or 6 months before a definitive diagnosis was made in July 1978, and no reliable data exist for this early period. The outbreak was probably reaching its peak at this point and was already widely distributed in the country.

The news that ASF was present in the country caught everyone unprepared. No suitable laboratory facilities or laboratory expertise were available. Animal health field personnel had not been trained to deal with the disease and did not have the organization or vehicles for an emergency of this kind. To further complicate the situation, there was a change of Government in August 1978. This resulted in major changes in the veterinary services staff, with the result that toward the end of 1978 the ASF program was completely reconstituted and had to develop a program with completely new personnel.

The data available for the July - December 1978 period are primarily laboratory results for tissue samples from pigs at outbreak sites. Very few sera were collected during this period, and practically no epidemiological investigations were made at the disease foci. Also, the tissue samples submitted usually arrived with a minimum of information about clinical findings, or herd morbidity or mortality.

During July, August and September of 1978, as the news about the ASF outbreak spread, the popular impression was that pork meat from infected animals was harmful for human consumption. Consequently, the demand for pork decreased sharply, and the price dropped in a similar fashion. As a result there was a rush by hog farmers to report affected herds, so that they could be compensated for their animals by the Government at the maximum price. This in turn resulted in a flood of tissue specimens into the ASF laboratory for diagnosis.

As soon as the program publicity began to take effect and the population realized that pork consumption was not dangerous, demand for pork went up again,

along with the price, and there was a sharp drop in the number of herds reported with ASF, and a consequent drop in the submission of specimens to the Laboratory. This coincided with the reorganization and reduction in field personnel in the program, which further reduced the number of samples. Therefore, it is difficult to judge how much of the drop in reported foci in the latter part of 1978 was due to an actual drop in incidence and how much to anomalies in reporting.

From January to June 1979, the program was mainly concerned with staffing and organizational problems in initiating the eradication campaign to be funded with the 6 million dollar US AID loan. Very few serum samples were collected and few tissue specimens reached the laboratory, either because the disease was subsiding in the country, or because there were few people in the field to attend to reports or search for affected herds.

By July, 1979, the program had been fully staffed and a plan had been developed to eradicate the disease as rapidly as possible. There was now a need to locate as many remaining disease foci as possible and a large serum survey was organized. Essentially, specimens were collected almost at random from existing herds, mainly in areas where outbreaks had been known to occur. The animals sampled included "patio" pigs in pens, "finca" pigs running loose, and pigs coming to slaughter. The information accompanying the specimens rarely included much more than the date of collection and name of the owner of the pigs.

The laboratory results for serology were usually reported by date of examination of the specimens. Since there were periods with backlogs of specimens, it is possible that some specimens were collected 1 to 2 months before they were examined and recorded. However, the number of positive sera from July 1979-Dec. 1980 was low and the percent of positivity by three-month periods for this period probably would not show any appreciable trend even if the data were arranged by data of collection.

Some of the readily available disease data are given below:

TABLE 1

NUMBER OF PROPRIETORS WITH ASF (PREMISES AFFECTED) BASED EITHER ON POSITIVE TISSUE OR SERUM SPECIMENS: (By date of examination).

1978	JULY - 113		OCT - 1
	AUG - 91		NOV - 9
	SEP - 24		DEC - 8
	OCT - 64	1980	JAN - 5
	NOV - 11		FEB - 2
	DEC - 3		MAR - 0
1979	JAN - 25		APR - 2
	FEB - 8		MAY - 4
	MAR - 4		JUN - 1
	APR - 14		JUL - 1
	MAY - 4		AUG - 4
	JUN - 0		SEP - 2
	JUL - 5		OCT - 1
	AUG - 6		NOV - 1
	SEP - 8		

TABLE 2

LABORATORY EXAMINATION OF TISSUE SPECIMENS

(By date of examination)

MONTH AND YEAR		POSITIVE FOR ASF	NEGATIVE	TOTAL SPECIMENS
1978	JULY *	16	0	16
	AUG	48	41	89
	SEP	128	211	339
	OCT	26	80	106
	NOV	8	38	46
	DEC	6	22	28
1979	JAN	16	14	30
	FEB	7	9	16
	MAR	7	8	15
	APR	14	2	16
	MAY	3	4	7
	JUN	3	3	6
	JUL	2	21	23
	AUG	0	7	7
	SEP	0	0	0 **
	OCT	0	12	12
	NOV	0	13	13
	DEC	0	12	12
1980	JAN	0	11	11
	FEB	0	4	4
	MAR	0	2	2
	APR	0	4	4
	MAY	0	8	8
	JUN	0	4	4
	JUL	0	10	10
	AUG	0	34	34
	SEP	0	9	9
	OCT	0	8	8
	NOV	0	27	27

* From July 23, 1978

** The ASF laboratory was out of service during Sept. 1979 because of a power interruption as a result of Hurricane David Aug. 31, 1979.

TABLE 3

LABORATORY EXAMINATION OF SERUM SPECIMENS

(By date of examination)

MONTH & YEAR	POSITIVE FOR ASF	NEGATIVE	TOTAL SPECIMENS
1978 AUGUST	38	63	101
SEPT.	3	12	15
OCT.	0	15	15
NOV.	3	19	22
DEC.	13	3	16
1979 JAN.	10	39	49
FEB.	4	10	14
MAR.	5	10	15
APR.	10	116	126
MAY	9	135	144
JUNE	2	647	649

TABLE 4

SERUM SPECIMENS PROCESSED AT THE ASF LABORATORY JULY 1979 - DEC. 1980

(By date of examination)

MONTH & YEAR	POSITIVE FOR ASF	NEGATIVE	TOTAL	% POSITIVE
July-Sept. 1979	23	4682	4713	0.49
Oct-Dec. 1979	23	955	978	2.39
Jan-March 1980	8	1541	1549	0.52
April-June 1980	11	2848	2859	0.39
July-Sept. 1980	8	1865	1873	0.43
Oct-Dec 1980	1	326	327	0.36

As can be seen from the above data, there was a considerable number of foci reported in July, August and September, 1978, with a fairly consistent drop from then on. The last clinical case of ASF with mortality and demonstration of virus was on July 9, 1979, and no active foci, with clinical cases, were found after this date.

The results of the serum surveys starting in June 1979 show a very low rate of positivity for ASF, and according to reports all the positive animals were asymptomatic. Evidently by the time the depopulation program went into action in July 1979, there were practically no known active ASF foci left.

Very few clinical or pathological studies of the affected herds were carried out. However an excellent audiovisual unit was prepared by one of the technical advisors, consisting of a large series of color slide transparencies and an accompanying sound track, describing the clinical and post mortem appearance of pigs affected with ASF during the outbreak in the DR.

Evidently the clinical and pathological picture resembled the so-called "subacute" type of disease seen in Brazil and Spain. Of special interest is the report of a high rate of abortions in affected sows, and the impression in one large herd that was studied that the disease spread fairly slowly and that the means of spread were difficult to explain.

A review of the geographic distribution of the disease (see Exhibit 1) indicates that it was found in all pig producing areas, with a concentration of foci and affected premises in a number of centers (San Cristóbal, Monte Plata, Puerto Plata, Sosúa, Santiago, La Vega, Bonao, Cotuí, Las Matas de Farfán and Higuey).

DEPOPULATION

The depopulation of the Eastern Region was completed February 25, 1980, and in the rest of the country by Sept. 1980. There has been some speculation as to why the depopulation program went so well and could be terminated so quickly. Probably a crucial factor was the determination and dedication on the part of the Government of the DR, up to the highest levels, to carry the program to a successful conclusion. When the swine farmers realized that the pigs of all operators, both large and small, were being killed, they understood that the Government was entirely committed. This, together with the notice that all pigs found after a certain date (August 31, 1980) would be considered public property and confiscated, convinced them that it would be to their advantage to market their pigs before this date.

Another factor that was instrumental in the program's success was the cancelling of the "herds in observation" program. Even though the project design called for complete elimination of all pigs in the country, in Oct. 1979 the ASF program officials decided that a number of large well-operated swine herds with no evidence of ASF infection could be kept under strict surveillance and maintained throuthout the program to serve as a nucleus for future repopulation. Fortunately, it was decided in January 1980 to cancel this program, because it was realized that although these herds did not have ASF, they were infected in varying degrees with hog cholera, brucellosis, pseudorabies, leptospirosis, and probably a number of other diseases, which could also be eliminated by getting rid of these herds, and starting over from scratch.

Another consideration was the fear on the part of the small pig farmer that his pigs were being killed while those of the large operator were being saved. With the cancellation of the "HIO" program, these fears were eliminated.

COMPENSATION

The intention was to compensate the farmer for pigs slaughtered during the eradication campaign, but there was also interest in insuring that the owner would report diseased swine and also be willing to market live ones. Therefore, the compensation price was set arbitrarily at RD$1.00 per kilo live weight. At the time, this was slightly higher than the going market price, although later as pigs became scarcer, the market price went up over RD$1.00, and most farmers preferred to market their pigs commercially.

Sick or exposed pigs were sacrificed at the outbreak sites with succinylcholine and buried. Healthy pigs picked up during the depopulation sweeps by the brigades were trucked to slaughterhouses. The owners were given certificates to be cashed in later at the Government Agricultural Banks. An estimate of the live weight of all animals compensated for was carried out at the site by appraisers from the Agricultural Bank, who accompanied the brigades.

By and large, there were very few complaints about the compensation system. Pig owners were paid at fair value, and even though there was some delay in the early days of the program, the great majority of the owners were paid.

THE SENTINEL PIG PROGRAM

The pigs brought into the DR for the sentinel program were obtained through a carefully designed program to guarantee that they were disease free, of desirable quality and purchased at reasonable prices. A bid procedure was followed and the pigs had to be tested previous to shipment for HC, PR, leptospirosis, brucellosis and TGE, and certified free of contact with mycoplasma, atrophic rhinitis, erysipelas and a number of other diseases. Before delivery they were checked for quality and conformance to contract specifications by veterinary personnel from the DR ASF program, and then kept in quarantine for at least 10 days before shipment.

The pigs purchased were transported by plane to Miami and then La Romana, DR which is the closest airport to the El Seibo Quarantine Center. Shipments were made at night and the pigs were trucked directly to the El Seibo Center, where they were kept for one month before distribution to farms selected for sentinelization. The pig purchasing program in its entirety was exceptionally susccessful.

The sentinel program in the Eastern Region was designed to use at least all known or suspected ASF foci as sites to keep the pigs. Some responsible person was hired locally to care for the pigs, and usually 5 pigs were assigned to each site.

Feed concentrate rations for these pigs were supplied by the Program. The pigs were generally confined for ten days until they were considered acclimated and then they were released into the neighborhood to forage for themselves. Through free movement of the pigs in the area it was hoped to give them the maximum opportunity to contact ASF if there were any residual virus still left in the surroundings.

The care and health status of the sentinel pigs were supervised by ASF veterinary personnel who were charged with making daily visits to check the pigs, and to collect blood samples from each pig at least once every 45 days, or twice during the 90-days sentinel period, and fecal samples every 21 days. Any pig

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found to be clinically ill or any that died were to be examined clinically, or by autopsy, and appropiate specimens collected for laboratory examination.

Of the 611 pigs placed at 126 different sites in the Eastern Region and Samaná, none became ill with anything resembling ASF. There were six deaths evidently due to intoxication and one death due to pneumonia. Fecal examinations did reveal a variety of intestinal parasites. The serum specimens from 2 different bleedings were completely negative for ASF, HC, PR, TGE and brucellosis. These pigs were moved out of the Eastern Region on Jan. 22,1981, at the end of the sentinel period and have now been relocated on 67 different sites in the Central Zone. The schedule for the remainder of the sentinel pig program is as follows:

Region	Date of Start	No. of Pigs to be Moved
Central	January 1981	500
Northern	May 1981	350
Northcentral	July 1981	200
Northeastern	September 1981	500
		1,500

The latest shipment of 500 sentinel pigs arrived from the U.S. during December 1980 and January 1981. The first shipment of 250 head have now been placed on 12 sentinel sites in the central region and the remaining 250 are still in the 30 days quarantine period at the El Seibo Quarantine Center.

A number of cases of lameness developed in pigs brought in and placed immediately at the El Seibo Quarantine Center in newly constructed pens on concrete floors, with no bedding, and with daily washing of the pens. When these animals were placed on dirt in fenced areas outside, most cases of lameness cleared up. Two or three gilts apparently had genetic-related problems, and 1 boar and 1 gilt suffered trauma-related injuries which have not yet cleared up.

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In selecting sites for the sentinel program, it was decided that "foci" discovered in 1979 and 1980 should be given higher priority than those reported in 1978. This decision was based on the idea that by the time the sentinel program started almost 2 years would have passed from the time of discovery of the 1978 foci, and it was felt that it would be unlikely that the ASF virus could survive in the field for this period of time. Therefore, in the order of the priorities established, the most recent foci were given the most importance as sentinel sites.

This would appear reasonable except that practically all the 1979 and 1980 foci are based on positive ASF serology results. As far as can be determinated no clinical cases or deaths were involved, and the possibility that these asymptomatic carriers would seed the environment with much virus is minimal.

Although the premises where the 1979 and 1980 cases were found should be used for sentinel sites, the 1978 foci should not be neglected. There is less and less chance that any remaining virus could survive, but few countries have had much experience with the maximum survival time for the ASF virus, and the opportunity to check the 1978 sites should not be lost.

FERAL PIGS (CIMARRONES) In the DR

Previous reports have stated that some 60,000 feral pigs are running loose in various isolated areas of the country. The source or basis for this figure could not be ascertained and in the opinion of a number of the ASF program officers, there actually are far fewer. In any case these animals are completely wild, have practically no contact with people or livestock in settled areas and are extremely difficult to capture. In a few areas of the country where farmers would sometimes turn their pigs loose to forage and then collect-them after extended periods, there might have been minimal contact between feral pigs, particularly the boars, and some of the domestic sows.

The ASF program is attempting to evaluate the possibility that the feral pig population is infected with ASF. Persons who make a livelihood of capturing these pigs are paid to catch them in different areas and blood and tissue specimens are collected for laboratory examination.

The method of catching wild pigs is interesting. The hunter goes out with a pack of 10 or 15 trained pig dogs. One dog is especially trained to pick up the scent of the pigs. When it does it follows the spoor, until it runs down the pig. At that time, the other dogs come up, brought to the scene by the baying of the first dog. Three or four dogs then attack the pig, biting and holding on, particularly around the snout. The other dogs encircle the pig, preventing its escape, until the hunter arrives at the scene.

The survey of these animals has been carried out for the program by two veterinarians and two assistants. A veterinary-assistant team will hire a pig hunter in one of the mountainous areas where wild pigs are known to be found. The hunter and his dogs are hired by the day or per pig caught. The team accompanies the hunter, and when a pig is caught they collect the appropiate specimens (blood, spleen, gastrohepatic lymph nodes, liver, lungs tonsils, heart and kidney) which are kept refrigerated until they are brought to the laboratory. In some areas,

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tree snares are used, by attaching a rope to a tree, bending it over a path used by the wild pigs, and having the pigs trip the snare as they run along the path. To date, 7 known "cimarrón" areas have been covered, including all those in the Eastern Region, and 68 wild pigs have been captured and sampled, with completely negative results.

Capture of feral pigs in 4 remaining areas will continue until these areas are sampled. Although the survey when completed will be representative geographically, an estimation of the number of specimens that would be sufficient is difficult to make without better information about the total population of wild pigs in any of these areas.

It should be mentioned that the wild pig hunters could not recall ever coming across any sick, dying or dead pigs. It is therefore unlikely that any sizeable epizootic of ASF has ever affected the wild pig population.

At the present time there is actually little information as to whether these pigs are even susceptible to ASF, at least to the strains of virus which were prevalent during the outbreak in the country, although one young "cimarrón" pig was captured and injected with ASF virus at the Program Laboratory, and died with typical signs of the disease. It would be of scientific interest to subject a few more of these pigs to challenge with ASF virus and determine their clinical response, and whether they could serve as asymptomatic carriers. One difficulty with this research is that these pigs die quickly in captivity.

Although the possibility that the wild pig population may be a reservoir of ASF virus in the DR will probably never be determined with any degree of certainty, enough negative evidence exists to continue the program as planned, to proceed with the sentinel program in additional areas and to initiate the repopulation program in the Eastern Region as scheduled.

TICKS AS POSSIBLE VECTORS FOR ASF IN THE DR

The ASF program has carried on an organized search for Ornithodoros (soft) ticks, known to be vectors and reservoirs of ASF in other areas. To date, 107 sites where pigs were kept in considerable numbers have been surveyed with completely negative results. Search for ticks on pigs slaughtered during depopulation, on feral pigs and on sentinel pigs also did not reveal any ticks.

One of the collection methods used in the search for soft ticks is "dragging" with a piece of cloth in contact with the ground or vegetation where the ticks are waiting for a passing host. The ticks cling to the cloth if they are present in the area. Carbon dioxide traps are also used since the breath of the animal host is an attractant for the ticks. Dry ice can be used as source of CO_2 but the program has had some difficulty in obtaining this item, since it is not manufactured in the DR and has to be brought in from U.S.

HAS ASF BEEN ERADICATED FROM THE EASTERN REGION?

The judgement as to whether ASF has been eradicated from the Eastern Region depends on the answers to a number of other questions:

1) Were any native domestic pigs left after depopulation and what are chances that they may still be carriers of ASF virus ?
2) Were any of the feral pigs in the National Parks or other isolated areas ever affected with ASF and are any of these swine still infected ?
3) Were ticks of the Ornithodoros species (soft ticks) present in the DR as external parasites of the swine population, do they still exist here, did they serve as vectors of ASF virus, and do they still harbor the virus ?
4) Does the ASF virus still exist in viable form at some outbreak sites, in burial pits, in slaughter houses or in refrigerated meat left over from the outbreak period ?

ADEQUACY OF THE DEPOPULATION PROGRAM:

Complete depopulation was accomplished by Sept. 1980, according to program officials. Since that time field brigades have been conducting surveys everywhere in search of missed or hidden pigs. From Oct. 1980 to date only some 200 pigs were found.. In interviews conducted by the Rural Sociologist member of the Team, the impression gained was that all pigs remaining (if any at all) had been hunted down and consumed for the traditional Noche Buena (Christmas Eve) celebration. Many of the farmers interviewed said they had hunted through the hills outside their towns for pigs rumored to still exist. Their double motive was to keep part of the meat from any pigs found and to insure complete depopulation, which they realized was a requirement for repopulation to begin.

According to available evidence, there is very little likelihood that any sizeable number of native domestic pigs are still left in the DR.

FERAL PIGS:

To date 67 feral pigs have been caught and sampled for ASF virus or antibodies. All were negative. Although the swine sampled came from all of the known areas where the pigs can be found in the Eastern Region, the number of pigs examined is probably less than would be needed to provide sufficient statistical confidence in the results. However, given the difficulty in capturing or trapping these animals, the minimal contact they are liable to have with domestic pigs in the future and the completely negative results to date, the ASF program has little choice but to proceed with its program in spite of the minimal risk that these pigs may constitute.

TICKS:

Ornithodoros ticks have never been reported in the DR. A survey of 107 different farms in the Eastern Region and other areas that raised pigs previously has produced completely negative results. Although field surveys to search for these ticks will continue, the evidence so far seems to suggest that they are not present in the DR.

SURVIVAL OF THE ASF VIRUS AFTER DEPOPULATION:

The sentinel program in the Eastern Zone and the Samaná Península produced completely negative results on the 124 sites used, which included practically all the known or suspected ASF foci. Some foci in this area may not have been reported and theoretically the virus may still be harbored on some of these, but the risk becomes less important as time goes on. According to recent reports the ASF virus can survive in some protected form (in dried blood, or tissues for example) for up to 400 days. Since the last known clinical case of ASF was reported on July 6, 1979 or 1 1/2 years ago, there would seem to be a minimum of risk that the virus still exists at outbreak sites, especially in view of the extended hot, dry periods found during part of the year in the DR.

It is crucial that the sentinel program be carried out with the same care in the remaining 6 regions. Certainly all known and suspected foci should be supplied with sentinel pigs, and if the negative results continue for the remainder of the sentinel period, there would be little likelihood that the virus still exists in viable form in the field.

The ASF Program officials claim that all known slaughterhouses were adequately cleaned and disinfected during and after the outbreak and now do not constitute any risk. Also, that all stocks of local pork or pork products have by now been consumed or destroyed. A government order was issued that all pork and pork products were to be sold by November 1980 or be confiscated. According to program officials, their personnel have been checking markets routinely, and locally produced pork cannot be found.

THE PROBLEM OF ASF IN HAITI

ASF was confirmed in Haiti by the Plum Island Laboratory in December 1978, some six months after it was diagnosed in the DR. It is assumed that the disease spread into Haiti from the DR and had been present a number of months in the Artibonite Valley before laboratory confirmation. Some 300,000 pigs were reported to have died with ASF in Haiti and the disease is thought to have spread to all parts of the country. There are reports at the present time that the incidence of ASF in Haiti has dropped sharply and that very few sick or dead pigs are reported. It is likely that the disease has already stabilized there and although few outbreaks are now being seen, there probably exists a large reservoir of asymptomatic infected carriers.

Through the efforts of FAO, an ASF laboratory service was set up in Port-au-Prince, and for a period of time the FAO laboratory advisor in Santo Domingo would spend one week a month there assisting the local laboratory personnel. To gain some idea of the level of infection of the swine population in Haiti with ASF, a serum survey sponsored by FAO was carried out in various parts of the country in 1979. Some 1,368 sera were collected and examined with the IEOP test and 93 or 7% sera were found to be positive for ASF. Although this percentage is fairly low, the positive animals were found widely distributed. It is assumed that practically all these animals were asymptomatic and some were probably chronic carriers of the virus. Although there was some question as to the reliability of the IEOP test used, in individual cases, it is felt that it gave a good impression of the presence or absence of infection on a group or herd basis.

Except for the slaughter by the Haitian military of some 20,733 pigs along the Dominican border, shortly after the disease was discovered in the DR, no organized control or eradication program has been carried out there.

Some 10 - 15,000 Haitians are brought to the Dominican Republic every year to work in the sugar cane harvest. This is based on a government-to-government

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agreement. The movement of these workers is controlled and they come in through Malpassé-Jimaní, usually in November or December, and stay until June or July of the following year. These workers bring a considerable amount of food with them and they are routinely checked as they cross for any pork and pork products. During January,1981 some 250 lbs. of pork meat was confiscated from the most recent group that came into the DR.

Of much more concern are the Haitians that cross over into the DR illegally. These have been estimated to be about 10-15,000 per year. We can assume that they also come with a supply of food and this could very likely include pork meat in many instances.

It was also reported the boar meat is sometimes used in the "lua" voodoo ceremony and this might be another reason for the Haitians living in the DR to bring pork in illegally.

Another concern is that a good part of Haitian DR border area is mountainous, sparsely populated and very difficult to control. There is evidently free movement in both directions and a constant intermingling of the local inhabitants. It is now reported that pigs have been brought back into the same border area from which they were originally eliminated in July 1978.

A brief field visit by the Team sociologist to a town on the Haitian side of the border, about 12 kilometers from Jimaní, turned up two brood sows with seven and 5 pigs each, and another seven pigs, just on one street. Further search probably would have turned up many more.

The ASF program officials have been aware of the risk of reintroduction of the disease from Haiti and have considered it in their planning. At the very outset of the program a 15 Km. strip along the border was depopulated and has been maintained free of swine. In planning for repopulation the program intends to leave a much larger area along the border (see Exhibit 11) free of swine indefinitely and not repopulate there until the disease has been eradicated in Haiti. This will create a considerable hardship for the local population, and

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unless some other provisions are made this will increase the chances of smuggling of pigs or pork into the area from Haiti. To prevent this, the DR should consider providing the inhabitants of the area with pork at special subsidized low prices. Other measures being considered include the subsidized supply of goats, poultry, turkeys, rabbits, and ducks to small farmers in the area as a substitution for swine.

On January 21, 1981 the USDA declared that an animal health emergency existed for the U.S. because of the presence of ASF in Haiti, which was considered to represent a serious threat to the U.S. swine industry. By this means it will be possible for the U.S. Government to authorize the use of its funds in cooperation with the Government of Haiti and with other governments and international organizations, to carry out an ASF eradication program. According to the latest information, the project will be administered through IICA*, with financial and technical support from the U.S., Canada and Mexico. These governments together with the World Bank and the IDB are also interested in the subsequent development of an improved swine industry in Haiti, after ASF has been eradicated. According to current plans, this program should begin to organize and recruit personnel in April 1981 and actually go into operation in October 1981. ASF program officials are interested particularly that when the depopulation operation begins in Haiti that it start along the Dominican border and proceed west.

* Instituto Interamericano de Ciencias Agrícolas.

THE ASF LABORATORY

Laboratory services for ASF did not exist in the DR at the time of the initial diagnosis in July 1978, but these were established during the next few weeks through the provision of technical assistance, equipment and supplies from the USDA, the Plum Island Animal Disease Center and FAO. A functioning diagnostic service was quickly installed at the Central Veterinary Diagnostic Laboratory at San Cristóbal, where hemadsorption and direct and indirect immunofluorescent antibody tests were carried out on specimens submitted from the field. Local Laboratory personnel were trained, and by Oct. 1978 a veterinary immunologist from Plum Island on assignment to FAO was detailed on a full-time basis.

The facilities provided for the ASF laboratory at the San Cristóbal Central Laboratory did not prove to be satisfactory for various reasons, primarily because of the lack of provisions for security and the risk that the hog cholera vaccine production facilities there would be contaminated with ASF virus. Consequently, the ASF services were moved to another location, a refurnished residence at the outskirts of Santo Domingo.

These premises were occupied in April, 1979 and supplied as quickly as possible with the necessary personnel and equipment. At the present time the technical staff consists of a director, an assistant director, and a pathologist, all veterinarians, and 8 laboratory technicians. In addition, a veterinary immunologist on loan from Plum Island is assigned to the laboratory on a permanent bases, with his salary paid out of the Program loan funds. These personnel evidently are sufficient to handle the routine work load at the present time, which consists primarily of samples collected as part of the sentinel pig program.

The laboratory is currently supplied with an impressive array of equipment and is probably one of the best equipped small swine diagnostic laboratories in Latin American. In fact the laboratory is so generously endowed with high-power equipment that it has been experiencing occasional power overloads.

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At the present time routine tests for the sentinel pigs and the pigs being maintained at the El Seibo Center for eventual repopulation include the hemadsorption, indirect and direct immunofluorescence and the ELISA tests for ASF, the card test for brucellosis, the serum neutralization and the direct immunofluorescence tests for pseudorabies, hog cholera and transmissible gastroenteritis, and fecal examinations for parasites.

There were a number of changes in procedures used at the laboratory. From July to December 1978 the IEOP test was used with serum specimens to check for ASF antibodies. Starting in December 1978, any sera with positive titers in the IEOP test were checked for confirmation with the indirect immunofluoresence test. In November 1979, the ELISA test was substituted for the IEOP test, with positives still being checked with the IIF test.

The ASF laboratory has from time to time developed some backlog of specimens, primarily because of late arrival of materials and reagents from commercial suppliers. Provision of supplies from Plum Island and the NADL at Ames have not presented any problems.

The ASF laboratory can not really be considered a secure laboratory, because of basic structural deficiencies. Showering-out facilities that have been installed recently are now in routine use, and are a definite improvement. However, the sewage from the laboratory is not treated in any special way, a window opening directly to the outside is used to receive specimens, there is a direct opening from the washing and sterilization area to the outside, a recently installed incubator is located outside the laboratory proper, separate post-mortem facilities are not available, and autopsies are conducted outside the laboratory proper.

The laboratory has a rule which is followed rigorously that anyone visiting the laboratory should not visit the field, particularly the sentinel pigs, for at least one week afterwards. Along the same lines, the program should insist that laboratory personnel have no contact with livestock. It would be well for the program to review routine security regulations at high security

laboratories such as Plum Island and Ames and at the CDC Laboratories at Atlanta, GA. and try to adapt them to the ASF laboratory, even if in modified form.

At one time it was expected that the ASF laboratory would be used in a regional ASF training program to be sponsored by FAO, but there is some question whether this is still being proposed. The laboratory is not really suitable for this purpose, since it is too small to accomodate groups of students and does not have classroom space. Also, because of the deficiencies in security, it would be advisable not to use it for inoculation of animals with ASF virus for demonstration purposes.

Original field specimens from swine positive for ASF are still being kept at the Laboratory, in the event that it was finally used as a training center and swine were to be inoculated for demonstration. In view of the security risk, and the uncertainty about the FAO training program, it would be advisable to dispose of these specimens, or to send them to Plum Island for safekeeping.

The laboratory is located on the main Santo Domingo-Santiago highway, and in the event that this road is broadened into a freeway, as has been proposed some time ago, the laboratory would have to be relocated again. No provision has been made for this in funds budgeted for the program and special funds would have to be obtained. If a new laboratory can be built, consideration should be given at that time to more adequate security provisions, and possibly more suitable facilities for training, if that program is still being considered. Also, consideration should be given to enlarging the present services and facilities to have the laboratory serve as a general swine diagnostic laboratory, at the eventual termination of ASF eradication program.

Although the laboratory is adequately staffed at the present time for current needs, considering its long-term needs, it would be advisable to send one or two laboratory scientists for one to two years of training in the United States, at specialized animal disease centers and particularly at Plum Island

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and Ames. In the meantime, it would be worthwhile to continue the services of the current laboratory advisor until these technicians can return.

It has been recommended that the ASF laboratory participate in quality check reviews, perhaps on a semiannual or annual basis. This would involve receiving a number of unknown specimens from Plum Island and Ames and running them as a check on laboratory accuracy. This would serve to keep up staff interest in maintaining a high-level of competence and provide a sense of pride on their accomplishments.

The laboratory is now without telephone or radio communication with the Central Office. This would seem to be an essential requirement for a laboratory of this kind. Although telephone installation may be difficult or impossible at the present time, radio communication should be possible to arrange.

The laboratory now depends on the Central Diagnostic Laboratory for the supply of tissue culture media and some other basic supplies, but is expected soon to be able to be self-sufficient in this regard. This would be essential if the laboratory expects to maintain a state of readiness to operate on an emergency basis, in case of a possible resurgence of ASF in the country.

QUARANTINE PROGRAM

The Animal Export/Import Quarantine program in the DR is conducted by the ASF program. The program personnel consist of 8 veterinarians and 24 inspectors who are stationed at the 4 international airports, 9 seaports and at the one official border station at Malpassé-Jimaní, on the DR-Haitian frontier. The service seems to be well organized and supervised and operates on the basis of standard procedures for this type of program.

The basic Operations Handbook used by the staff is adopted from a manual published in Spanish by OIRSA, which was adapted in turn from manuals used routinely by the APHIS Plant and Animal Protection Service at airports, seaports, and border stations.

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The Director of the service seems very knowledgeable and well prepared, and has participatedin a training tour of animal quarantine facilities and operations in the continental United States and Puerto Rico. Also, Dr. José Ferrer who was formerly in charge of animal health programs for OIRSA and is a specialist in this type of program, has visited the DR recently, and spent a week reviewing the animal quarantine program here.

Provisions for technical assistance for the remainder of the program contemplates bringing in an animal quarantine specialist from the U.S., presumably a Spanish-speaking officer of the APHIS Plant and Animal Quarantine Service, for a short-term technical assistance assignment. This would serve further to strenghthen the program.

It should be realized that the initial examination of baggage of an arriving airline passenger is handled by the customs inspectors, who call the quarantine service personnel only if they have some problem and need assistance. Therefore, the first level of protection is the customs inspector and if he is negligent or lax, prohibited materials could be introduced in spite of the best efforts of the Quarantine program. This applies also to the military posted along the Haitian-Dominican border.

One serious deficiency in the program is the absence of an operating incinerator at the International Airport in Santo Domingo for garbage removed from incoming planes, some of which come directly from countries with ASF, such as Spain and Haiti. The garbage is now being burned at a site at the perimeter of the airport. Evidently the incinerator is available and is on the point of being assembled and installed. This holds true for the three other airports also. While no immediate risk exists, as soon as the swine repopulation program begins, there always will be a chance that ASF could be reintroduced. It should be remembered that ASF presumably was introduced into the DR in early 1978 by the feeding of garbage from the Santo Domingo Airport to pigs.

Along these lines, it would be well for the ASF program to consider prohibiting the keeping of pigs near airports or seaports when the repopulation

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program goes into operation. Also, they should be kept away from the immediate vicinity of the ASF laboratory.

THE REPOPULATION PLAN

Veterinarians from the ASF program and the Secretariat of Agriculture have developed a 5 year plan for rebuilding the pig industry. At the end of the 5th year they estimate a population of 1,400,000 head, with the production of about 112,000 metric tons of pork meat. This will meet a domestic demand estimated at 15 Kg/person/year for 7 million people. They are counting on a high level of efficiency from the imported pigs and on improved overall management, facilities, health care and feed.

This plan details the breeding herd system which would produce and distribute breeding stock to large, medium and small farmers. A pig raising scheme has been designed through agricultural cooperatives to provide opportunities for people with lower incomes to participate in the rebuilding program. Pig movement from farm to farm or to slaughter would be strictly controlled by a system of permits and vehicle check points.

The total funding estimated for the program is RD$67 million. RD$43 million is for credit to private producers, RD$16 million is earmarked for feed purchase and RD$6 million for purchase of pigs. A major item of RD$14 million is budgeted for salaries of government personnel. Presently, IDB is interested in further investigating the possibilities of supporting this program.

The Dominican Republic will be going through the unique experience of repopulating a country completely free of pigs. If the program is carried out properly, it can be of enormous benefit to the pig industry in the DR. At the very least, the experience gained and the lessons that could be learned for other countries that might find themselves in a similar situation could prove invaluable. USAID would do well to assist with technical assistance to carry out the program,

or at the very least, to help record the experience.

The plan for repopulation will be reviewed by a IBD team which is expected to arrive in the DR next month. A basic feature of the plan is the intention to limit the distribution of pigs initially to commercial producers and cooperative organizations. Three main reasons are given for this policy:

1. The need to control the extension of credit and the permits to import new pigs.
2. The need to facilitate the disease surveillance of these pigs by limiting the number of sites where they will be kept.
3. The need to maintain a high level of genetic quality and husbandry of the developing swine population of the country.

The net result of this policy will be that the small farmer or householder who would like to keep a few pigs in his backyard or "patio" will be unable to do so, at least for the first 3 or 4 years. This will constitute a radical change in social custom in rural areas and will certainly be unpopular.

There will surely be political pressure on the government to return to traditional practices. This question will very likely become an important political issue, especially in the next Presidential election campaign in 1982, and it will be interesting to see how long this policy can be maintained by the Program.

It would be wise for the Program to continue using the concept of "sentinelization" during the early phases of repopulation. In other words, every site where pigs are introduced for the first time should be kept under veterinary observation, at least weekly, for the first year or two, to make sure that if any illness is seen in the pigs it is detected quickly. Also a disease reporting system should be organized so that swine owners or attendants will request assistance between visits, as soon as anything alarming is seen.

TECHNICAL ASSISTANCE

The ASF program was designed at the outset to utilize the technical assistance services of a disease eradication specialist from the USDA-APHIS, who would be able to obtain additional technical assistance from the USDA and other sources whenever the need arose. During the 1 1/2 years of the programs' existance, an impresive array of technicians and consultants have been brought to the DR for varying period of time (see Exhibit 7). Although these visiting experts have provided an invaluable service, it has placed a burden on the USDA technical advisor, who has had to arrange for their recruitment and assignment to the program, and the coordination and support of their activities in-country. It might have been advisable in the beginning to provide for one or two additional permanently assigned technicians who would have been able to supply some of these technical services on a regular, continuing basis. There seems to have been a need particularly for a Spanish-Speaking consultant to monitor operational and epidemiologic surveillance, and an administrative officer, also Spanish-Speaking, who would have handled much of the heavy load of paperwork that the technical advisor has been dealing with.

In the initial arrangements to provide technical assistance for the program, the USAID Mission in the DR requested personnel who would have Spanish language capabilities. The USDA was evidently unable to supply a person with the technical expertize necessary who also was proficient in Spanish. The technical advisor who was assigned has done a very commendable job in spite of a Spanish language limitation, but some problems have arisen from time to time in the provision of continuing, reliable translator/secretarial/typist services required for the resident program advisor and the visiting technicians.

Also, primarily because of the fluctuating number of visiting technical advisors, there have been some problems at times, in obtaining suitable transport.

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This could possibly have been avoided by insisting that the ASF Program provides the necessary transport, as specified in the PASA.

There has been a serious office space problem. The Senior Technical Advisor has one very small office at the ASF Program Office, which he shares with 2 secretary/translators. There are no facilities for having a private conversation with anyone and there are always a stream of visitors coming in and out. Another small office is provided by USAID in a leased building near the main Mission Office. This is shared with 3 or 4 other USAID technicians with other programs, all of whom share the use a bilingual secretary. No office desk space is available for technicians working with the ASF Program on a short-term basis.

UNPLANNED CHANGES IN PROJECT DESIGN

A number of changes were made in the project design as the program developed. The most significant was the decision to proceed with the swine depopulation of the entire country, without waiting for the outcome of the pilot project in the Eastern Region. In view of the early success with depopulation in the east, there was every reason to assume that the same success could be achieved in the rest of the country and there appeared to be no reason to wait any longer to proceed. The Team feels that the Program made a wise decision, and subsequent events have supported this.

Another change in design that was not anticipated was the decision to try to save some of the better herds. This had not been envisioned in the original project proposal. Fortunately, this plan was cancelled before it materially affecred the program.

An additional change was the use of loan funds for the construction of the El Seibo Quarantine and Breeding Center. While not contemplated originally, it was considered justifiable because of the rapid progress of the program and the pressing need for a Center to supply additional pigs for the late phases of

the sentinelization.

A number of other less significant changes can be mentioned. Use of funds for aerial photography was dropped when it became obvious that the depopulation program was succeeding without this procedure. Certain heavy equipment costs for burial pits were eliminated when the number of new foci dropped sharply in 1979. A number of changes were made in the projected technical assistance needs. For example, a laboratory architect may not be needed if a new laboratory is not built before the termination of the project.

COMMODITY PROCUREMENT

To expedite purchase of certain supplies and equipment for the Program a $25,000 fund was established in the U.S. by USAID, to be administered by the USDA through the PASA. This was to be used for emergency purchases of small items urgently needed by the Program, and generally for the laboratory. This system worked quite well and reduced the time required for procurement of these items considerably. Other commodities were obtained through regular channels.

INSTITUTIONALIZATION

The ASF program will maintain its identity, personnel, vehicles, etc. during most of the repopulation program, for the next 3-4 years. This would be worthwhile, and would serve to keep up at least a basic surveillance of the repopulation procedures, establish a disease reporting and investigation system and be able to deal quickly with disease outbreaks of any kind, particularly of ASF. In this regard it is essential that the program maintain an emergency task force in readiness, and a manual of operating procedures (emergency plan).

The name of the program probably will be changed eventually to indicate its responsibility for repopulation and the reference to ASF dropped, but the program structure will be maintained as a special unit in the Secretariat of Agriculture, rather than incorporate it into another existing program.

EVELOPMENTS OF SCIENTIFIC INTEREST

Because of the difficulties encountered in the early days of the program, it was not possible to document the outbreak in a satisfactory fashion. However, there have been a number of developments in the program that merit attention. One is the decision to use the ELISA test on a routine basis after a successful laboratory trial. This experience has been documented and submitted for publication in the American Journal of Veterinary Research by staff members of the Plum Island Laboratory and the ASF Laboratory in Santo Domingo. Along these lines, the Plum Island Laboratory has reported on the characterization of the virus strains isolated in the Dominican Repbulic.* This work showed that the ASF strain of virus from the DR produced low mortality and comparatively less severe gross and microscopic lesions, confirming that these isolates, together with those from Brazil, were of low virulence.

Of definite value and a considerable contribution to animal disease eradication practice has been the body of knowledge and experience gained by the DR ASF Eradication Program in the actual elimination of an original population of 1 1/2 million swine. This will certainly be of value in other countries which have to operate similar programs, such as Haiti.

* Proc. 82nd and 83rd Annual Meetings of the USAHA, 1978 and 1979 respectively.

CONCLUSIONS AND RECOMMENDATIONS:

1. There is reasonable assurance that the domestic swine population has eliminated from the DR.
2. Based on the experience with the sentinel pig program in the Eastern Region and the Samaná Península, there is reasonable assruance that ASF has been eradicated from this area.
3. The sentinel pig program should be continued in the rest of the country as scheduled, with the same care and surveillance as practiced in the Eastern Region.
4. Surveys of the wild pig population have not resulted in evidence of any kind that these pigs were ever affected with ASF, or could be serving as a reservoir of the disease. It is not practical or necessary to try to eliminate these pigs, and in any case they do not appear to be a risk to the program, and repopulation should continue as planned. The wild pig surveys should be continued until all areas are covered.
5. Surveys for Ornithodoros ticks (soft ticks) in the DR have been completely negative so far, and there is no evidence that these arthropods exist or ever existed in the DR.
6. The laboratory personnel appear to be adequate to carry out the expected routine services for the next year or two. However, in looking to future needs, it would be advisable to send one or two laboratory scientists for long-term graduate training at recognized animal disease centers. Until these persons return, it would be worthwhile to continue the assignment of the current laboratory advisor.
7. The work at the laboratory could be carried out more easily if:
   a) Telephone or radio communication were provided
   b) Additional outer office space were provided
   c) Provision were made to avoid power overloads.

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d) More lead time were provided in ordering laboratory supplies and equipment.

8. The ASF laboratory should participate in a semi-annual or annual specimen check review with the NADL at Ames and the PIADL.

9. The security of the laboratory could be improved by the following measures:

a) Double window to receive specimens

b) Elimination of ASF virus from the laboratory

c) Provision of adequate post-mortum facilities inside the laboratory.

d) Incorporate the incinerator inside the laboratory

e) Establish some type of decontamination for the sewage system

f) Keep door to outside in the cleaning and sterilization area closed at all times.

g) Check the ventilation filter system.

h) Keep pig farms away from the immediate vicinity of the laboratory.

i) Make sure that laboratory personnel do not have contact with livestock, particularly pigs

j) Not use the laboratory for ASF disease demonstrations.

10. Although repopulation may constitute some risk until the sentinel pig program is completed in the entire country, the program should be able to start this program, at least in the Eastern Region, in the next few months, as long as adequate disease surveillance measures are carried out.

11. In planning for the repopulation program, provision should be made for a large enough veterinary field staff to maintain an adequate disease surveillance program.

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2. Although it may be impractical to insist that "Specific Pathogen Free" pigs be brought in for the repopulation program, the basic "disease-free" requirements hould be maintained as far as possible.

13. The repopulation program should try to make adequate provision for the distribution of pigs to the small farmer or pig raiser, either through rural cooperatives, or some other suitable system, which still would permit some type of control and surveillance of the program.

14. The DR should consider the use of PL 480 funds for the repopulation program.

15. The program should consult with livestock authorities in Malta where complete swine depopulation for ASF was carried out and where repopulation is now being planned.

16 A considerable area along the Haitian-DR border should be kept free of pigs until there is a reasonable assurance that ASF has been eliminated in Haiti. To reduce the possibility that the inhabitants in that area would smuggle pigs or pork in from Haiti, the sale of pork at subsidized low prices there should be considered. Also, livestock of different kinds (goats, chickens, ducks, turkeys or rabbits) should be offered to the population to serve as substitutes for pigs. This type of program should be promoted in other parts of the country also.

17. Plans are now being made to carry out an ASF eradication program in Haiti. The current disease-free status of the DR cannot be maintained indefinitely as long as the disease exists there and every effort should be made to carry out the program in Haiti to an early successful conclusion. It would be beneficial for the professional personnel who will operate the Haitian ASF eradication program to have the opportunity to profit from the experience of the DR personnel by visiting the program here and meeting the staff on a personal basis. When the depopulation program does begin in Haiti, it would be advisable to start along the Dominican border and more toward the west.

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18. The ASF program should prepare an Emergency Plan and a Task Force to deal with any outbreaks of swine disease, particularly ASF. In line with the development of an Emergency Plan and Task Force, it would be worthwhile for the Program to carry out test exercises from time to time, to provide training for the staff who would be involved with animal disease emergencies.

19. The ASF program should maintain an ongoing training program for its veterinary field personnel, particularly in the clinical diagnosis and treatment of swine diseases and in epidemiological investigation procedures.

20. Quarantine services at all external and internal control points should be reinforced. Incinerators should be installed and used at all international airports.

21. The raising of pigs should be prohibited in the vicinity of all international airports.

22. Whenever possible technical advisors to the project should have an adequate Spanish language capability. If not, funds should be allocated for adequate translation and interpretation services.

23. The long-term assignment of a bilingual administrative officer and a bilingual epidemiologically-oriented operations technical advisor would have benefited the program.

24. If funding for continuation of the technical program necessary for the successful rebuilding of the pig industry is agreed upon but there is a disbursement time lapse from the termination date of AID support, it would advisable to continue US AID support through this transition period.

25. Field trials on the acclimatization and productivity of imported pigs raised under the physical and economic conditions of the small producer should be carried out without providing subsidized feed. This information would be of value in making future projections of pig production.

26. The ASF program staff, the Government officials and the technical advisors involved with the program are to be commended for their dedicated service

and the impressive success achieved to date in their efforts to eradicate ASF from the DR.

Annex A

THE ECONOMIC IMPACT OF THE AFRICAN SWINE FEVER ERADICATION PROGRAM IN THE DOMINICAN REPUBLIC - PRELIMINARY REPORT BASED ON INVESTIGATIONS IN JANUARY 1980 AND JANUARY 1981.

E. Hunt McCauley, D.V.M., M.S.

The outbreak of African Swine Fever (ASF) in the Dominican Republic during the Spring and Summer of 1978, brought reaction from many neighboring countries, particularly from the United States, where the introduction of ASF would cause an estimated impact of over $2.25 billion in increased consumer prices alone.[1]

Pig production is important in the economic development of the Dominican Republic, both from the standpoint of human nutrition and a source of foreign exchange through the export of pork products. Although the greatest production comes from commercial producers, the scavenging pig owned by low income or rural poor people is significant, because it converts otherwise unusable resources (household garbage and crop waste) to an income source. This is frequently referred to as "the piggy bank". Therefore, from many socio-economic standpoints, the investment in improving production efficiency through improving the animal health environment has potential benefit.

The execution of a disease eradication program is complex and costly and is done because the benefits are perceived to be considerably greater than the cost. Periodically, in the course of such a program, officials ask or are asked, "What is the payoff to this effort?". This study is aimed at determining the benefits and costs of the ASF eradication effort in the Dominican Republic. Hog Cholera (HC) would also be eradicated in this program. This particular report is still preliminary in its collection and analysis of the economic data and its benefit/cost analysis technique. As the program continues, more accurate data will be collected, so that conclusions can be presented in a final report later.

Though this study is retrospective in the sense that the eradication program is about completed, the economic indications are important presently to decision-makers. Also, such a study, through adjustment of data, has use in providing indications about the benefit/cost relationships for decisions about the disease control and eradication in countries similar to the Dominican Republic (for example, Haiti).

TIME PERIODS IN WHICH BENEFITS AND COSTS ARE MEASURED

The division of costs of eradication from costs of control is somewhat arbitrary, because the date on which the decision and commitment of funds for eradication is not well defined. For this preliminary report, August 1979, the date of the design of the project requesting an AID loan and grant to eradicate ASF is used. Prior to that time, efforts to control the spread of ASF through slaughter of pigs on infected and suspect premises were in progress and, although eradication was a serious and possible objective, the commitment to this goal had not been clearly made. They were dealing with a crisis.

After the eradication and repopulation efforts have been carried out, the pig production will return to the point of satisfying the domestic demand and later of supplying export products. See Figure 1. Again, we have to accept some arbitrary decisions since this date can only be projected speculatively now. For this report, it is assumed that pork production under ASF and HC free conditions meets domestic demand in the year 1986. After that, this more efficient production, will supply pork for export. In Table 4, two pork production projections are shown. One represents the estimated projection had they decided to "live with" ASF and HC. The other represents the projection estimated to result from their decision to eradicate ASF and HC and repopulate with pigs having improved genetic production performance and free of other diseases, such as Mycoplasma infections, Atrophic Rhinitis Transmissible Gastroenteritis, Brucellosis and Tuberculosis.

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FIGURE 1

TIME PERIOD ASSUMPTIONS FOR ESTIMATING COSTS AND BENEFITS

JULY 1978 ASF DIAGNOSED	AUGUST 1979 ERADICATION STARTED	JANUARY 1982 DOMESTIC PRODUCTION STARTS	JANUARY 1987 DOMESTIC PORK PRODUCTION STARTS TO SUPPLY EXCESS FOR EXPORT	DECEMBER 1991 END OF BENEFIT ESTIMATION
	2.33 yrs.		5 yrs.	
1. 136,000 pigs destroyed,	1. 15,000 pigs bought for local resale of meat by ASF Program. Total of RD$1,000,000 spent in compensation, but actually recovered through sale of meat.-		1. Avoid ASF control programs costs of RD$2,900,000 per year.	
2. Total of RD$7,400,000 actually spent in compensation for pigs destroyed.-	2. 5,000 pigs bought for resale through "Venta Popular" by INESPRE.-		2. Avoid HC vaccination costs of RD$210,000 per year.	
3. Program Costs of RD$270,000 were spent by GODR.-	3. Total program costs of $6.2 million (U.S.) for eradication.-		3. Surveillance program costs estimated to be RD$350,000 per year.	
	4. Avoided spending RD$ 6,770,000 for control program costs.		4. 15% increase in production efficiency being free of ASF and HC and other diseases.	
			5. 5% increase in efficiency due to improved stock.	

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rapidly and is now supplying domestic demand. Many pig producers have shifted their resources to poultry production. To help compensate for some of the temporary supply problems, INESPRE imported 2804 metric tons (RD$3,600,000 C+F) of poultry products in 1979 and 5,000 metric tons (RD$6,600,000 C+F) in 1980. They don't plan to import any more in the future. INESPRE sold these products to wholesale houses at a fixed price (RD$.70) in 1980 which was some RD$0.6 to RD$0.15 below their purchase price. The impact of the ASF program on net foreign exchange earnings from poultry is not calculated in this study.

In Table 2, the beef production, consumption and export-import situation is presented. Tables 1 and 3 show the pork and cooking oil imports. Keep in mind that the benefits achieved by buying "the ASF and other disease free status package" come from the increased efficiency of future pig production as compared to pig production under conditions of endemic ASF and other diseases principally hog cholera.

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TABLE 1

PORK IMPORTS

YEAR	IMPORTS			
	INESPRE		PRIVATE	
	QUANTITY (M.T.)	VALUE (RD$ C & F)	QUANTITY (M.T.)	VALUE (RD$ C&F)
(Prior to 1979 Pork Imports were negligible)				
1979 (1)	0	0	545	872,000
1980	3,050	5,700,000	3,000	5,700,000

(1) Based on interview with an executive of one of the largest pork processing plants in the D.R. This pork was imported mostly in loins and hams which were processed and sold mainly in urban centers in Oct-Dec 1979. Value calculated at $1,500/mt FOB U.S. and freight, at $2,500 per 55,000 lbs.

(2) Information provided by INESPRE. In 1980 they issued importation permits for some 3,000 mt. of pork, lard and by products. The quantity is an estimated carcassweight equivalent. The value is estimated at the same price INESPRE paid for the pork products they imported. It is assumed that all the imports for which permits were issued were indeed imported.

IIM1/mg

TABLE 2

BEEF PRODUCTION, CONSUMPTION AND EXPORTS (1)

YEAR	PRODUCTION (M.T.) (2)	CONSUMPTION (M.T.)	EXPORTS(M.T.)	EXPORTS MILLIONS RD$(FOB)
1973	38,800	28,800	10,000	11.3
1974	39,000	29,800	9,900	9.3
1975	37,100	31,800	5,300	4.7
1976	42,000	31,600	8,400	8.3
1977	35,700	34,400	1,300	1.2
1978	37,500	36,000	1,500	2.3
1979	39,000	37,200	1,800	3.6
1980	43,000	41,600	1,700	3.1
1981 (3)	47,000	38,000 to 42,000	5,000 to 8,000	9.6 to 10.9

(1) Quantities are in "carcass weight equivalents" which is calculated at 1.37 times the weight of boneless beef.

(2) Production quantities are from the Secretaría de Ganadería. They represent quantities reported by packing houses plus 20% local slaughter.

(3) The figures for 1981 exports are based on estimates by Dr. Frank Campusanos, Economist at CEDOPEX. CEDOPEX is going to allow 3,000 metric tons of boneless beef to be exported in Jan-April of 1981 and 6,000 in Oct-Dec.1981. It appears that the U.S. will not be restricting beef imports in 1981. The 1981 value was based on a 5% increase over the price in 1980.-

.../

TABLE 3

IMPORTATION OF COOKING OILS (1)

YEAR	QUANTITY (METRIC TONS)	VALUE (DOLLARS-COST & FREIGHT)
1976	36,400	$ 23,400,000
1977	24,200	21,200,000
1978	37,600	27,800,000
1979	61,000	49,900,000
1980	56,000	54,500,000

NOTE: Average value for year 1976 through 1978 = $24,133,000

Increase in 1979 and 1980 is $ 25,767,000 and $30,367,000 respectively.

(1) All cooking oils are imported by INESPRE for distribution through normal commercial channels in the DR. Note the increase in 1979 and 1980; part of which may be due to the lack of domestic lard.

.../

CALCULATIONS OF COSTS

1. Program Costs:

The loan and grant agreement calls for $6,200,000 (RD$8,375,000) for technical services, supplies and importation of sentinel pigs.

2. Compensation:

Some 5,000 pigs were bought at RD$1.00/Kg live weight. The meat was sold at RD$0.65/lb through the "Venta Popular" Program of INESPRE;[2] the rest was sold by the ASF program. The difference in the price paid to producers and that returned to INESPRE through resale is RD$0.05 lb. of meat or RD$0.07 per Kg. live weight.[3] This indicates a cost of RD$22,750 to government in unrecovered compensation costs for 5,000 pigs at an average weight of 65 Kg/head.
Presently, there are no estimates available for additional cost to INESPRE for administration, meat processing or distribution of this meat through the "Venta Popular" Program.

3. Increased Imports of Pork Products:

Just prior to the ASF outbreak, the Dominican Republic was on the verge of exporting pork to Venezuela. Since that time, no pork has been exported. Since October 1979, pork imports from the US. have started in quantity. About 400,000 lb. of pork (mostly loins and hams) per month have been imported.[4] Pork imports for 1979 and 1980 are shown in Table 1.

4. Losses of "scavenging pig" production:

Poor farmers operate some 53% (fincas pequeñas) of the pig producting farms in the Dominican Republic and have from 0 - 10 pigs on hand. It is estimated that these small farms (44,538 farms) have an average of 4.4 pigs per farm with an offtake of 35% of 50 kg pigs (pigs weaned per sow = 4).[5] If we assume that one-half of this production is a true opportunity loss, because of loss in ability to harvest resources of little or no other use, than the annual loss would be about 34,000, 50 kg pigs per year. At a price of RD$1.00 per kg., this would be a RD$1,700,000 annual loss or RD$3,966,000 for this eradication period.

5. Decrease in Beef Exports:

Presently this is estimated to be RD$6,000,000. This is based on the indication that the beef industry was starting to produce sufficiently to regain the ex-

.../

port sales position it had in 1973-1976. The domestic demand for beef created by the loss of pork production reduced the opportunity for beef exports assuming the U.S. market was open.

TABLE 3

COSTS ESTIMATED FOR THE ASF ERADICATION PROGRAM

August 1979 through December 1981, in the Dominican Republic

	SOURCE	RD$
1.	Program Expenses for Eradication	8,375,000
2.	Unrecovered Compensation from "Venta Popular"	22,750
3.	Loss of Foreign Exchange from Pork Imports 1979+1980	12,272,000
4.	Loss of "Scavenging Pig" production	3,966,000
5.	Pork Imports 1981 Estimate	11,700,000
6.	Decrease in Beef Exports. Rough estimate 1979 through 1981	6,000,000
	SUB-TOTAL	36,335,750
a.	Less Costs avoided to operate an ASF control program	6,770,000
b.	Less animal feed not imported for pig production under hypothesized "live with" ASF and HC.	?
c.	Less estimate of pork imports needed had the DR decided to live with ASF and HC: 20% of item 3 and 5.	4,794,000
	Total	24,771,000 ?

.../

...ATION OF BENEFITS - 1982-1991

...ue avoidance of control program costs:

...ing with ASF and HC under a control program would require on-going costs to ...e Dominican Republic Government. In the early period, May 1978 through ...ch 1979, the following compensation and program costs were incurred.

...$8,500,000 was spent for compensation for pigs destroyed or bought for ...esale of meat. If we assume that the compensation for the estimated 20,000 ...igs bought for resale of meat does not represent a loss of resource, then ...e rest (for 136,000 pigs destroyed) of the compensation becomes a loss or ...st. This would be RD$7,400,000 for this period. However, in a control program that is successful or fairly so, the needs for destroying pigs should be less. Also, it must be kept in mind, that some of this compensation was spent with eradication as a goal, so are not truly "control" costs.

Disbursements for program costs by two government agencies to control ASF were reported to be:

1) Sanidad Animal, September 19, 1978 to June 26, 1979 - RD$67,077.
2) Fondo Especial para el Desarrollo Agropecuario (FEDA), December 2, 1978 to August 31, 1979 - RD$202,043.

...s would be a total of RD$269,120 (or about RD$270,000). The total compensation and program costs then were RD$7,400,000 plus RD$270,000 or RD$7,670,000.

...ther approach to making this estimate is to extrapolate from the experiences ...controlling ASF in Spain. They estimate they spend the equivalent of ...4,300,000 per year for program and compensation to control ASF. If this is ...rapolated on the basis of the relative pig population (1/5) an estimate for ... a program in the Dominican Republic would be RD$2,900,000 per year.

...purposes of this preliminary study this extrapolation, RD$2,900,000, will ...d rather than that amount spent in the early stages of the ASF outbreak ...e Dominican Republic, because it is judged to be high for an on going ...rol program.

...the case of Hog Cholera, the avoidance of vaccination cost is used as the ...rol cost. If we assume that one-half of the off-take (60%) of an estimated

.../

1.4 million hog population are vaccinated every year then 420,000 doses of HC vaccine would be bought and applied. At a cost of RD$0.50 per dose and application, RD$210,000 per year would be saved by HC eradication.

2. Foreign Exchange Earnings:

Increased exports of pork and beef are estimated based on a projection of increased pork production after the pig industry is rebuilt. Table 4. Also it is assumed that there would be beef production available for export due to a sparing of the domestic consumption by the availability of pork. The quantity used for this estimation is based on the annual average prior to the ASF outbreak, i.e. 1975 through 1978.

The benefits are summarized in Table 5.-

.../

TABLE 4

COMPARISON OF ESTIMATED PORK PRODUCTION, CONSUMPTION AND EXPORTS UNDER DIFFERENT DISEASE CONDITIONS JAN.1982 THROUGH DECEMBER 1991.

YEAR	Projections under conditions of ASF, HC and other Disease Free and Improved Genetic Performance (1) 1000 Kg. CWE.			Projections based on previous production levels with 20% decrease due to endemic ASF (2) 1000 Kg. CWE.		
	Production	Consumption	Exports	Production	Consumption	Exports
1982	200	200	0	18,000	18,000	0
1983	600	600	0	19,000	19,000	0
1984	2,000	2,000	0	20,000	20,000	0
1985	7,500	7,500	0	21,100	21,100	0
1986	29,250	29,250 (1)	0	22,200	22,200	0
1987	32,170	29,980	2,190	23,400	23,400	0
1988	35,380	30,730	4,650	24,600	24,600	0
19	38,910	31,500	7,410	25,900	25,900	0
1990	42,400	32,290	10,110	27,200	27,200	0
1991	46,646	33,000	13,640	28,600	28,600	0

1) This projection is made with the assumption that rapid repopulation will lead to pork production which will meet presumed domestic demand in 1986. Presumed domestic demand is estimated at 4.5 Kg. CWE per person per year. In 1977 production excess became available for export. This production of 22,500 metric tons divided by a population of 5 million is the presumed demand The demand in 1986 therefore is 6.5 million times 4.5 Kg. or 29,250,000 Kg. After 1986 a 10% per year increase in production and a 2.5% increase in demand is assumed.

2) According to Secretary of Agriculture and CEDOPEX, the 1977 production of pork was 22,500 metric tons of carcass weight equivalent. For these estimates it is assumed that in 1982 the production could have returned to that level less 20% or 18000 metric tons, after the ASF outbreak and a hypothetical decision was made to live with ASF instead of doing the eradication. It is assumed that production increased 5% per year after that.-

SUMMARY OF BENEFITS FROM THE ASF ERADICATION PROGRAM 1982 THROUGH 1991

BENEFIT	RD$
Avoidance of Control Program for Endemic ASF	29,000,000
Avoidance of HC Vaccination Cost	2,100,000
Foreign Exchange Earnings	66,006,000
Pork exported 1987-1991, total. 38000 M.T. CWE at 1980 Price FOB American Port of RD$1,737 per metric ton CWE for pork imported to DR.	
Beef available for export 1986 through 1991 at the average export quantity for 1975 through 1978 of 4125 metric tons per year at a 1980 price of RD$1,823 per metric ton CWE. FOB Santo Domingo	37,600,000
Total (preliminary)	134,706,000

.../

At this point in this analysis, the benefits as I have estimated them considerably outweigh the costs. The following comments are important to consider.

1. Repopulation is assumed to be successful in acheiving a production which satisfies domestic demand by 1986.
2. Losses to pork producers, pork procesors and associated industries due to depopulation and upset and/or shutdown are known to occur. In this study these losses are assumed to be transient. Many of these resources were shifted to another production system and are recovered in a short time. This is not assumed for the "scavenging pig" production as these resources have very little other productive utilization.
3. Though the benefits are estimated to occur over a 10 year period, they are not discounted nor are values inflated in this preliminary report.
4. The costs to the GODR in the year of Aug 1978 - Aug 1979 are not included because these costs more accurately reflect the need to deal with the crisis of multiple outbreak of ASF rather than the decision to carry out an eradication program.
5. There will be some necessary on-going surveillance costs to continue an animal health environment which allows the projections I have used. As the budget for the repopulation plan and the diagnostic laboratory is further developed, a better estimate can be used. Table 6 shows a preliminary estimate which may include costs other than surveillance.
6. There is a question about the impact of the pig depopulation on cooking oil imports. These imports were considerably greater in 1979 and 1980 (RD$55 million). The effect of the ASF eradication program on this increase is being studied.
7. During the early years of the repopulation there will probably be a need to import some pork and perhaps some loss of beef export possibilities. This can be estimated once the data for 1981 is available.
8. The money spent for the ASF eradication program resulted in some long-term institution building benefits, such as trained personnel and diagnostic laboratory improvement. Although secondary, these are important to the future of the livestock industry.
9. There would be a saving in imported feed grains that would have been used for pig production. The difference in this quantity from that which would have been used had ASF been allowed to be endemic is a reduction in cost.

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19. Also it is important to keep in mind that if it had been decided to "live with" ASF, pork and perhaps other comodities would not be acceptable for import to most countries.

REFERENCES

1. McCauley, E.H. and Sundquist, W.B., "Potential Economic Consequences of African Swine Fever and its Control in the U.S." Staff Paper, P.79-11, April 1979. Dept. of Agricultural and Applied Economics, University of Minnesota, St. Paul, MN.

2. INESPRE - Instituto Nacional de Estabilización de Precios, the Government body which is charged with price stabilization.

3. (Price per live weight Kg/2.2) $\left(\frac{1}{65\% \text{ meat yield}}\right)$ - (sale price/lb meat)
= 1.00 · (1) - 0.65 = RD$5.05 per lb. meat sold or RD$.07 per Kg liveweight

4. Based on interview with an executive of one of the major pork processing companies.

5. Based on data compiled in 1975/76 Agriculture Sector Survey.

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TABLE 6

PROPOSED COSTS FOR SURVEILLANCE

PORTION OF REPOPULATION - 5 YEARS (1)

	ITEM	RD$ 1000
1.	Supplies	70
2.	Machinery and Parts	125
3.	Equipment	225
4.	Vehicles	610
5.	Technical Assistance	120
6.	Salaries	14,650
7.	Travel Expenses	1,900
8.	Gasoline and oil	1,920
9.	Publicity	165
10.	Shipping and storage.	60
11.	Materials	150
		19,995

1) Taken from the preliminary plan for repopulation.

NOTE: Funds for a new diagnostic laboratory are not included. An estimated RD$500,000 would be required for this construction.

Annex A

TABLE 7

DATA ON TRADE BALANCE AND BALANCE OF PAYMENTS

	U.S. Agricultural Trade to the D.R.[1] (Deficit-Millions of Dollars)	Balance of Payments[2] Millions of RD$
1972	(153.7)	-------
1973	(177.1)	-------
1974	(260.9)	13.4
1975	(457.4)	65.0
1976	(295.5)	(30.2)
1977	(369.5)	69.9
1978	(236.4)	(8.0.7)
1979	(254.2)	(115.1)
1980	(236.2)	144.7

1) From U.S. Trade Data. Nearly all of the agricultural trade for the Dominican Republic is with the U.S. The major export product is sugar. 1980 figure is estimated for Nov. and Dec.

2) From Central Bank Data. The 1980 figure is estimated. The major change is due to increase in 1980 sugar price.
Parenthesis is deficit to the D.R.

SOCIAL IMPACT ANALYSIS OF THE AFRICAN SWINE FEVER ERADICATION PROGRAM IN THE DOMINICAN REPUBLIC

January 11 - February 7, 1981

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Table of Contents - Social Impact Analysis

INTRODUCTION

The social impact of the program has shown up in many ways. While part of these impacts are evident also in the analysis of the communication program a more detailed analysis was undertaken. An overview of the sample studied, and an attempt to reconstruct the animal inventory on these farms provides a basis for assessing the impact of the program. Then some consideration is given to different impacts at various stages of the program. While part of this story is told in chapter two (project history) we have expanded on issues that had a differential impact, usually affecting small farmers more than larger farmers. A factor of ongoing importance was the emergence, shortly preceding the ASF outbreak, of large-scale commercial pig operations. Their presence created a different set of issues than would have arisen in a swine production sector comprised mainly of small and subsistence (backyard/patio) production. The fact that many farms were at a stage of rapid expansion further exacerbated the impact of the disease.

Many farmers in the Cupey area were moving rapidly into commercial hog production. They stated how difficult it was to buy brood sows anywhere, since everybody else was also expanding. They were thus quite willing to buy from the farmer who was getting rid of sick pigs. This resulted in more rapid and widespread dissemination of the disease than probably would have happened in a normal period when expansion was not going on. That several specialized in brood sows and sold all the baby pigs probably resulted in an even more rapid spread of the disease.

An initial issue was whether all farms would be depopulated, or only some. This was considered in terms of an alreadyreduced level of farm earnings from the hurricanes. Farms with a fairly good resource endowment could more easily shift operations, while those that were close to poverty levels had less possibilities.

After tracing the pre-existing situation, we consider different reactions to the eradication campaign by farmers, and a section on other special interest efforts to politicize the program. (The political situation following the election was an ongoing source of problems.) We then look at the farm animal inventory and other agricultural impacts of the eradication at the farm level. A detailed analysis of inventory changes among differing size operations within the small farm group shows some interesting changes. Analysis of national data on overall food consumption puts the role of pigs in the nutritional situation in a more limited context than many have attributed to them. To analyze local nutritional impact of the program, we look at disposition of the money from pigs that were sold as part of the eradication and how this differs from prior sale of pigs. For households that use pigs as an emergency source of cash, having to sell the pigs at a time when there is no pressing need for money may result in a different pattern of expenditure, and a consequent shortage when other problems arise, such as medical and educational expenses.

A fairly close look at changes in food bought and in food consumed after the eradication comprises the next section. We then look at institutional aspects of the program, such as the expanded reliance of

and involvement with technical support institutions. Some issues on the farm level impact of the larger changes discussed in the economic analysis are also addressed here, especially the farm level reaction to the new pigs and expectations for them.

The reactions to the eradication campaign formed part of the farmer response to the agencies involved. Their (farmers') understanding of how the program would work, as well as their reactions to the sentinal pigs when they started to arrive laid the groundwork for repopulation and farm level interpretations of how it would work. The ongoing worry about presence of pigs on other farms was more or less laid to rest, but the presence of pigs in Haiti continued to worry both farmers and technicians. Sentinelization could not proceed in the west, and repopulation efforts would also thus be postponed. Some farmers thought they might never see pigs again, and suggested that if this were the case, maybe the government should just get pork to them to eat.

Nutritional and marketing issues in repopulation are then briefly addressed. This includes some observations on urban consumers and the worries the program has reawakened for them. Technical assistance recommendations are considered both in terms of USAID current positions on the matter, and in terms of Dominican counterpart team capabilities. Some observations on the role of field research and farm visits, especially with regard to developing an interdisciplinary sensitivity are included.

SOCIAL IMPACT ANALYSIS

Overview of Farms Studied

Table 1 reflects the farm structure characteristics used in establishing the three size groupings (larger, medium, and small farms). No size of landholding criterion was used in the small group, as a feeding operation with a large number of pigs could hardly be included. We thus took as "small", those farms with 20 pigs or less. If the farm exceeded 400 tareas, it was considered a middle size operation even if it had less than 20 pigs. This was because there was usually a cattle herd also present, and pigs may have been a secondary activity.

Middle size operations were considered as those with 20 to 50 pigs, or less than 20 pigs and over 400 tareas of land, but less than 1,000 tareas of land.

Large farms were considered as those having over 50 pigs or over 1,000 tareas of land.

While other criteria could have been employed, the ones outlined above divided the farms into fairly even size groups. More detailed analysis (such as by farm enterprise type) was beyond the "pile and count" method employed in lieu of quick computer accessibility and turnaround time.

Should an additional criterion need introduced, it should probably be number of sows. One farm -9- had 20 of its 29 pigs as sows, but was left in the middle group, in part because of having 65 tareas. They had sold a lot of little pigs. Should these pigs have still been there, the farm would have been considered a large farm.

TABLE 1.

SAMPLE OVERVIEW - SOCIAL ORGANIZATION OF PRODUCTION

	Respondent ID #	Tareas Owned	Tareas Rented	Total Pigs Owned	Sows	Grown Pigs Sold	Baby Pigs Sold	Total Pigs Consumed	No. Died	No. Sacrificed
BARAHONA	1	1		12		2		10		
	2	5000		40		38		2		2
	3	20	70	28		12	12	2		
	4	60	30	35		33		1		1
	5	15		4		2		2		
	6	25		10		6	2	2		
JIMANI	7	200		35	8		21	6		8
	8	16		8						8
	9	65		32	20	8		10	6	8
	10	50		13	3	3		4		3
	11	55		25	2	1	10	1	2	11
PARAIDO	12	1000		22	3	17		2	(sold)	
	13	2000[1]		50	10	34		6	(sold)	
	14	1000		17	2	12		4		1
	15	400		60	8	30		5	8	17
ELCUPEY	16	4000[2]		575	150		400	25	(sold)	
	17	1300		110	60	30		30	(sold)	
	18	1800[3]		300	52	70	100	30	(sold)	
	19	200	600	300	38	200	12			50
LAGUAMA	20	6		6	(Data for these areas not available)					
	21	50		5	The change to more detailed analysis of small farm animal inventories meant exclusion of this data from later interviews and analysis.)					
	22	500		7						
	23	500		25						
	24	5		2						
LAEMA	25	2000		111						
	26		1	6						
	27	¼		3						
	28	1720		20						
	29	50		5						

TABLE 1 continued.

	Respondent ID #	Tareas Owned	Tareas Rented	Total Pigs Owned	Sows	Grown Pigs Sold	Total Pigs Consumed	No. Died	No. Sacrificed
S. F. V. I. C. E. N. T. I. L. L. O	30	600		3					
	31	530		41					
	32	30		17					
	33	4		7					
	34	200		32					

Owned jointly by 3 brothers

2. 7 in family, undivided estate (sucesion)

3. Owns with father

(sold) means some pigs which were sacrificed were counted by the farmer as having been sold.

The three groups should be considered for illustrative purposes, not as some essential nature of the farming system as it exists in the Dominican Republic.

Respondent 11 had 25, but 21 were baby pigs on hand at the time. Since there was a fairly good land parcel (50 tareas), it was left in the middle size group.

IMPACTS

Pig eradication within context of already reduced farm incomes

The hurricanes left a backlog of reduced family farm earnings among many of the swine production operations. If we view the farm as a multi-product operation in which a variety of crops, animals, and off farm activities together yield the overall family income, we then can look at alternatives to hog production. Some farms switched to goats or poultry to pick up some of the earnings lost when the pigs were killed. Large-scale imports to meet consumer demand to some extent may have depressed the price for these products.

A further issue is the overcropping of many lands that has set off erosion and soil deterioration. Hansen (1980) suggested that a reduction in farming intensity would be necessary if conservation measures were to be enacted. On top of an already depressed farm earnings situation (resulting both from pig eradication or crop disruption from the hurricanes) it may be difficult to arouse interest in conservation. Restoration of hog production into these operations could raise family income back to a point where some other reductions, such as reduced farming intensity, would be feasible. In the context of current low earnings, any such effort would meet with substantial objection.

One interesting sideline of the pressure to politicize the campaign arose when the debate about whether to leave some farms (usually larger ones) with their pigs alive under observation, or to proceed with total eradication. The Cuban technical assistance program was committed to such a strategy, including an offer to provide a very large number of serum testing services among other items. In a full page newspaper ad (Appendix) the pork producers association (DR) picked up the argument, by suggesting that they be included in the debate about which strategy to follow. In the course of developing their position, they stated that it was not the U.S. Government, nor the technical recommendations of U.S. employees to eradicate, but rather the position of the Government of the Dominican Republic. GODR, interestingly enough, decided the political implications of leaving the very large farms with their herds, at the same time the smaller farms were being eradicated, would be very difficult to explain. The Cuban Government thus ended up being joined by large scale farmers, who for their part, tried to exonerate the U.S., and at the same time, lay the responsibility for the program on the GODR. Which came first: The bedfellows or the politics?

Agricultural Impact of Eradication

Larger farms adapted mainly by switching the combination of enterprises/activities, but did not experience appreciable difficulty. The loss of pigs meant that most dairy farms abandoned cheese making, since they could not feed the whey to pigs. They shifted, mainly to marketing whole milk through a powered milk plant, with little drop in overall farm earnings. This did mean in cases where there were hired hands on the farm less overall work for them. One beef farmer mentioned that it was more difficult to sell cows locally, since people had less money (no pigs to sell) with which to buy beef.

TABLE 2 How Farms Adjusted to Eradication

Large	Medium	Small	
2	1	1	No pigs to raise, but no big change
4	2		Depend more on cattle
	2		Depend more on crops
	1	2	Depend more on goats
		1	Depend more on chickens
2	3	8	Worse all around, lost out, gave up trying
3			Shortage of cash or cash flow problem, but not poorer overall
		1	Poorer, especially have problem with emergencies
	1		Does hired farm work to make up for shortage

The only large farmer who said he gave up trying had a large brood sow operation, but few cattle and not enough land to work strictly in crop production or to build a dairy herd. He is actively trying to get pigs to begin again, and was quite upset at others in the Puerta Plata area who had held up the sentinelization stage by concealing pigs. He had himself put considerable effort into hunting down concealed pigs and reporting them.

Some farmers simply switched to other animals and had no appreciable reorganization of their farm operation. Those in Cupey who switched to dairy had been using earnings from the sale of pigs to finance dairy herd expansion even prior to the eradication. One farmer there shifted into milk purchase and delivery to a cheese factory, obtaining a loan to buy a truck. Others shifted from making cheese at home to selling whole milk to a powdered milk factory. This was because cheese no longer was financially viable without pigs to use the whey (suera), which was a major part of the pigs' diet.

Farmers in El Cupey did not rely as much on garbage for pig feed as in other places studied in the west. The commercial nature of their

operations was one reason for this. In addition, the soil in their area was too poor to support subsistence items such as platano, potatoes, and yucca. Having to buy these products resulted in their more judicious use. Some caution is needed in interpreting their replies here. The above crops could probably grow anywhere. An alternative explanation is that their larger acreage and more commercial nature of production has both provided sufficient cash to buy subsistence crops and a high enough return on their labor by way of larger production units, to make subsistence production less attractive.

Only one of the El Cupey farmers indicated a loss due to inability to use garbage for pigs. Others either had not used it previously or now fed it to chickens and dogs. In both Jimani and Barahona, garbage was a fairly major component in the smaller operations. This was in part because the respondents were in large cities and had their pigs mainly as patio (backyard) operations as opposed to the more commercial operations. (For a more detailed discussion, see the section on enterprise type.)

The most predominant response among both small farmers and among those with middle size operations was that of overall deterioration of thier situation. This was often followed with a question of what was our (United States) government going to do about it, and some expectation that help was due them, since they had cooperated with the program. Quite obviously, a request for help would not be a logical followup to a statement that things were fine, so some caution needs to be exercised in interpreting this answer. A more detailed analysis of animal inventory change was conducted for the smaller farms to see the extent of the shift on small farms. This was deemed necessary given the repopulation plan that would preclude reintroduction of pigs into the small farm operations.

Small farm impact for different swine hard sizes

For the five farms with very small swine herds only one had previously sold pigs. All owned chickens (flocks of 12-25) before the eradication, and all still owned chickens (flocks of 10-30). Looking at individual flock changes[1] we see that two declined (24 to 10, 15 to 12), two remained the same, and one increased (20 to 30). One of these also depleted his turkey flock from 9 to one, selling three for emergency cash needs, and consuming the others. The remaining one is sick, and reason given for eating the others was so that they would not die. (One remebers Tevya, from Fiddler on the Roof--"when a poor man eats a chicken, you can be sure one of them is sick.") This same farm family had also depleted their goat herd from 15 to 9, having recently[2] sold 5. The other two farms that previously had goats also declined in number (15 to 8 and 5 to 4).

Selling chickens was not that common prior to losing the pigs. Only one in this group had previously sold chickens, and continues to sell them. He also had sold and continues to sell some goats. One who had not sold chickens before now does sell some, and has more recently begun to sell goats.

For the small farms with small (6-10) swine herds, three had sold pigs before. All but one had a sizeable decrease in chicken flocks (12 to 0, 45 to 25, 25 to 18, and 12 to 4). Two who had previously sold chickens no longer do. One of these had sold rabbits, but no longer raises or sells them. The other tried raising ducks after the eradication, but after they were stolen the first time did not replace them. Another (who had not sold chickens) had begun selling goats after the eradication, and now keeps his goats to eat, no longer selling them. It thus appears that this group had to make up for absence of pigs by selling fewer chickens and goats, and by eating more than previously. Their flock and goat herd sizes were not appreciably larger than those of farmers with very small swine herds who

had not sold pigs, chickens, or goats before, but apparently their reliance on sale of pigs created a different pattern of later response.

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1. The accompanying table reports results in the same order for each respondent. It is complicated, thus the detailed description here.
2. By <u>recently</u> we mean after the eradication.

TABLE 3 REORGANIZATION OF SMALL FARM ANIMAL INVENTORY

SIZE OF PIG HERD	NUMBER OF FARMS	How Many Pigs did you sell?	CHICKENS # owned before	# owned now	# sold before	# sold now
1) 0 - 5	5	0,0,0,0,2	20,12,24,15,20	20,12,10,12,30	0,0,0,9,0	5,0,0,6,0
2) 6 -10	5	6,0,5,3,0	20,12,45,25,12	20,0,25,18,4	0,0,5,3,0	0,0,0,0,0
3) 11-15	2	2,0	30,9	15,2	2,0	0,0
4) 15-20	1	0	20	2	0	0

	GOATS OR OTHER SMALL ANIMALS # owned before	# owned now	# sold before	Sold now
1)	15T9,0,0,0,5T0	8T1,0,0,0,4T1	0T3,0,0,4,0	5,0,0,4,0
2)	8,0,R20,P0,0	5,0,R4,D2,0	4,0,R6,D0,0	0,0,R0,D5,0
3)	0,0	T3,0	3T,0	
4)	T6 P0	T1 P18	T0 P0	T0 P0

1) 0 - 5 (very small)
2) 6 - 10 (small)
3) 11 - 15
4) 15 - 20

Of the three small farms with herds larger than 10 pigs, only one had sold pigs previously. They also had sold some chickens.[1] Both this farm and another had sizable drops in their flock size (30 to 15 and 20 to 2), while the remaining farm also dropped from 5 to 2 chickens. The one who had sold pigs had also raised turkeys prior to eradication. He had gradually reduced his flock from 6 to 1, shifting recently to 18 doves, from which he hopes to get eggs both for consumption and sale.

We could venture a conclusion that among the larger operations (still within the small farm group) the impact of eradication appears to be greater, at least in terms of reorganization of the animal inventory, and extent of marketing as opposed to home consumption, than was the impact on the smallest operations. The smallest operations have never come to depend on "normal" marketing of their animals, and as one widow said, "it has always been so tight that losing a little more does not make that much difference." She reported that her friends had begun to trade school books (rather than sell a pig to buy new ones) and to use hand-me-down uniforms for school, or simply go without. There appeared to be some resistance from the school teacher, but it looked like the mothers were winning out.

Nutritional Status - Some Macrostructural Aspects

Appendix II includes information from the FAO provisional food balance sheets, which allows for some general observations of the nutritional situation prior to the depopulation. The population grew steadily from 3.36 million in 1963 to 4.95 million in 1974. During this period total caloric

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1. The author has tried throughout to refer to farms (not just to farmers). Also, when only one farm is being discussed, the use of they means the farm family members. Use of "he" would be terminologically simpler, but an inaccurate depiction of how things are done.

intake rose from 1862 per day to 2211 per day. The vegetable portion of this amount increased from 1647 to 1944, while the animal portion rose from 225 to 267. There thus appears to be a general improvement in nutritional level, both with regard to total and to animal based calories during this period. Information for later years was not available. Cereals comprised nearly a third of this total, with rice being more than twice as important as wheat, and four times as important as corn. (This is in part due to the very early decimation of the indigenous population from heavy work on sugar plantations.) Both sugars and fruits account for over 330 calories per day, with meat, eggs, and fish (very minor) accounting for 108 calorees. Milk exceeds the preceeding three (130) and oils amount to 233 calories, with 206 from vegetable sources. We thus have considerable basis to judge the nutritional impact of swine eradication as fairly limited from a caloric standpoint for the overall society.

With regard to protein, the total grammes per day available per capita increased from 39.9 in 1963 to 45.4 in 1974. The animal portion grew less rapidly (14.3 to 15.6) than the vegetable portion (25.6 to 29.8). Pulses were the major component (6.9 and 7.7 in the respective years) with rice next (5.2 and 7.5) followed by milk (5.2 and 7.1). Milk surpassed meat in 1974, having been 4th in 1963. (Meat was 5.7 and 6.2, respectively). Fruit dropped somewhat as a protein source, from 3.8 in 1963 to 3.7 in 1974. Once again, we see little cause for extreme concern about the impact of eradication of pigs from an aggregate nutritional standpoint.

We do not mean to deny the importance of pigs to the economy of those families who rely on them for a major share of their expendable income, much of which can goto buy other foods if needed.

Having considered the national data on food supply we turn now to survey results.

Dietary Change & Family Nutritional Impacts of Eradication

Seven on the larger farmers reported shifting to other foods or buying more, with little deterioration in diet. Seven smaller farm families, five of those on middle size operations, and three of the larger farm families reported a drop in quality or amount of food eaten as a direct result of losing their pigs.

TABLE 4 Change in Diet after eradication

Large	Medium	Small	
3		1	No pork in diet, rest same - no worse. May not have eaten pork before.
1		1	No pork, more chicken
	1	1	No pork, more goat
2	1	2	More purchased chicken (pollo gringo)[1] and beef
		1	Have to buy more food
	2		Eat other things (no change in buying)
1			Still eat pork, but harder to get
3[2]	5	7	Worse all the time, eat less and not as good of food

1. Local people now eat several of their own chickens, instead of a pig, when there is a special day. This leaves few to sell, and we have to buy "Pollo gringo".

2. We always ate mostly beans and rice, but at least we had some bacon in the beans before.

Two farm families each reported more consumption of chicken and goat grown on their own properties. Five reported more consumption of purchased (imported) chicken. One reported more purchased food without specifying, and two others simply said they ate other things without specifying any change in quality or amount purchased.

In summary, twelve of the middle and smaller farmers (24 in total) or half saw their eating habits as having deteriorated. For those who ate little pork this was due to decreased purchasing power both from a decline in earnings and from an increase in prices of other foodstuffs in the absence of pork.

We turn now to a consideration of how reimbursement funds were used compared to prior use of money from sale of pigs. Where prior sales usually happened when money was needed, the conditions surrounding the eradication, especially the uncertainty of payment, resulted in many eating their pigs or killing them

TABLE 5 USE OF MONEY FROM PIG SALES

Money from eradication					Prior use of Money from the sale of pigs			
LF	MF	SF	Total		LF	MF	SF	Total
1	6	10	17	Received none (ate pigs, did not sell)			1	1
	2	1	3	Food	1	4	2	5
1		1	2	General household expenses	1	4	7	12
3			3	Upgrade property (business)				
2			2	Paid production loans				
1			1	Paid other debts				
2			2	Bought cattle/calves	3			3
				Bought pigs / expand or replace	4		2	6
	1	1	2	New Furniture/household improvement				
				Children's education	2	2	1	5

Do not total 34 because of some who did not answer.

and sharing with neighbors, rather than the possible loss without compensation. In this case, many who had not previously eaten their own pigs did so. For others selling them or having them killed even with compensation, often meant they had funds at a time when there may have been no pressing need. For this reason, we simply asked how they had previously spent hog sale proceeds, and examined whether this differed from use of compenastion payments.

Prior receipts had gone mainly for household expenses, to purchase new pigs (especially among larger operations, with some also using pig sales to finance cattle herd expansion), purchase of food (especially among middle size operators, with smaller farmsdoing less of this) and for education.

Most of the smaller and middle size operations reported receiving no compensation, in many cases having eaten their pigs, while larger operations mainly used their money to expand or shift production operations

Impacts of the Program on Relationships with the Government and Other Organizations

In addition to the direct, on farm changes caused by the eradication of ASF, additional changes were set in motion. By shifting the on-farm pig population to disease-free stock, three consequences occured:

1) Enhanced production from pigs due to better conversion of food to meat

2) More (and healthier) pigs in each litter

3) Enhanced service capability of SEA to deliver services to farm people, as well as receptivity from farmers to assistance.

While information on the rate of gain does not include efficiency of the new pigs in converting "fruta de palma" or plaintain skins, they have readily adapted to eating these. Local acceptance of the pigs was greatly improved by this. Whether the termination of subsidized feed expenses will change this picture is an issue to be closely followed in repopulation.

Against the "better pigs" criterion must be weighed to issue of who will get pigs. Most farmers interpreted the information campaign to mean eradication of all pigs whould be followed by repopulation (on fairly short time frame) to <u>all</u> former producers. In the Spanish program, there was some evidence that larger farmers, by double fencing, were able to upgrade their herds and externalize to cost of the endemic ASF to smaller farmers. In this case, the issue, for smaller farmers, is whether they will have any pigs at all. The current patio system requires a minimum of labor input, and pigs utilize mainly currently unused food. In Cupey producers stated that fruta de palma was getting to be in short supply. This resulted from several farmers expanding patio systems essentially in commercial operations, and increasing the number of pigs per farm (or per publically available tarea of feeding area), rather than keeping their pigs in a confinement operation.

While services to hog farmers (including information on the program, as well as execution of the eradication campaign) have taken a quantum jump over previous programs, in terms of number of farm visits, amount of information conveyed, these services were specific and required little followup at the farm level. Surveillance to insure early detection of new problems is a different matter than transfer of technology to help monitor and increase the efficiency of the farm operations following introduction of new pigs during repopulation. The latter calls for an overall farm management program drawing from research on swine nutrition (especially ability of the new pigs to adjust to indigenous feeding programs).

Quite probably the new hog farming systems will be larger in scale and geographically more concentrated within each area. This will mean reduced efficiency in utilization of existing feeds such as fruta de palma, platano skins, and garbage, where foraging has been the major pattern. Enclosed pens will either mean these products have to be transported to the pens or replaced by other (usually purchased) inputs. As the pigs themselves will also be purchased, there will be a much higher reliance of cash flow than with the previous farming system.

The eradication program eliminated available pork from local sources. Efforts to keep the price of poultry low had several effects on chicken raisers (or more appropriately - farmers who sold some chickens). While most said the preferred local chickens to imported ones, a few also reported difficulty selling them due to cheap chickens from abroad. ("Pollos gringos" also can mean chickens from commercial operations within the country. Some farmers pointed to competition from these

operations as preceding the eradication. Quite likely these operations were a special group of beneficiaries.)

While the major social impact of the program was reviewed in terms of reorganization of agriculutral production and family economic and nutritional well-being, a further impact was the reaction to the overall program, especially with regard to willingness to cooperate with the program, and the overall impressions of how well it was carried out. We found a surprisingly high level of cooperation with the brigades, both in terms of not resisting an action as traumatic as surrendering their pigs - the source of much of their financial security, and for many a regular part of their earnings as well - and in terms of providing information to help locate other pigs. We had expected at least some reluctance to inform on others who had pigs, based on the assumption that farmers would side with each other more than with the government - as represented by the brigades. Results reported earlier (section on extent of depopulation) showed not only a willingness to report those concealing pigs, but a strong realization that such people, rather than outsmarting the government, were in fact sabotaging their own neighbors. (Table 6)

A longer term result is a higher level of confidence in the government than may have existed previously. We turn not to a consideration of farmer reactions to the actual manner the eradication was carried out. (TABLE 7)

TABLE 6

Survey Reports on Presence of Pigs.

Given the difficulty in covering the region to look for pigs, we adopted a strategy of asking directly about rumors of pigs in that area, then followed up with a question about whether they had heard of any pigs hidden elsewhere.

Only two of the 34 respondents mentioned that they had heard rumors of pigs still being around. One said he doubted the rumors, and that he himself had not seen any pigs or heard of any pigs. The other was a "gentleman farmer" (absentee) who only came out (to La Enea) on weekends, and seemed to be doing his best to say everything negative he could.

The answers to the probe are listed in their entirety:

1. Some people say there are, but I do not think so.
2. I would be the first one to find them. I got wiped out, and have spent a lot of time hunting them. I have nothing else to do now.
3. There are no pigs here, or hidden elsewhere that I know of.
4. People talk about them still being there in other places. Some people even still find them but not here.
5. Everybody hunted all over at Nochebuena, and many offered a lot of money, and still did not get any. They must all be gone.
6. People say there are still pigs here. Those who hide them are jeopardizing everybody else, and deserve to have them stolen.
7. If I knew of any, I would denounce the owner and get rid of them.
8. If there were any pigs I would know. I know everything that happens around here.
9. Some people in the east may still have them, but there are none here.
10. Only wild pigs in the mountains.
11. None here and none come in from Haiti - it is prohibited.
12. Some were hidden earlier, but were found. (at Christmas or before)
13. If I knew of any, I would tell the owner to get rid of them.
14. Many people say there are still pigs in Saona. They should kill them all and start over.
15. People hunted all over here and found none. Some hunters from Higuey still get comarrones in the hills.
16. I was in the guardia and hunted all over for them. Found none.

Given the interest in tracking down these rumors, we listed the places from which the above answers came:

Barahona 3,5,9,10,12,13
Jimani 3,3,3,11,11
Partido 1,3,3,4
El Cupey 2,3,6,7
La Guama 3,3,3,10,14
La Enea 1,3,5,8,15
San Fco. Vincentillo 3,3,12,12,16

TABLE 7

Farmer Reactions to how the Eradication was Carried Out.

Large	Medium	Small	
Generally Positive			
2		4	No trouble, was not bad (no positive statement)
4	6	6	Well organized and executed
3	5	7	Had to be done, no other choice
1	1		At least they told us why they did it. (Ellos son los sabios, Yo soy burro.)
Generally Negative			
1		2	Had to have force behind them, people did not cooperate freely.
2		1	Poorly organized
	2	1	Did not believe in ASF even when they killed the pigs, but had to go along with them.
	1		Now they owe us pigs. (Where are they?)
1	2		It was a bad thing. They took away our pigs.
14	17	21	(total comments, some gave several) overall total 52

As discussed in the analysis of the communication campaign, some farmers only heard of the disease when the brigades came to their farm. It is thus not surprising that 13 of the total 52 reactions were negative. Sixteen statements were made that it was well executed, with another four indicating lack of any negative impact. Another fifteen stated it had to be done, with two expressing appreciation that they were told why. Apparantly they had had previous experience with government actions for which no explanation had been offered. One farmer summarized a common feeling: "When you have never even seen the sickness or any large scale evil like this before in your life, and then you see it, and they come and wipe out your livelihood, it is very hard. At least they were well behaved and seemed sad to have to do it. We knew it had to be done."

There did not seem to be any difference in positive or negative statements for different size groupings of farms.

Technician contact and farmer reactions

Many farmers had not received assistance or had not even been contacted by agency workers, except for the brigade visits. While their reaction to the eradication effort was mainly one of support, this was based on widespread acceptance of the need to get rid of the pigs. Farmers also expect the government to continue to support veterinary services through later stages of the program. This applies not only to smaller farmers, who probably could not afford to pay a private veterinarian, but also to larger operators.

Government veterinarians mentioned in joking that the ASF campaign did a lot to solve a potential unemployment problem among veterinarians. They pointed to the limited ability of the private sector to support non-government veterinarians (in private practice). This in part accounts for the aggressive role assumed by SEA technicians in carrying out the eradication program, and their view of themselves as playing a major part in the repopulation program.

A question arises as to the best combination of technical skills to supply the various technical assistance needs of different size farm operations. While the veterinarians were optimistic about the future expansion of cooperatives to work with small farmers, there seems to be a fairly limited basis for this optimism. Most producers see the repopulation effort as leading to their getting pigs for their own farms. Most experience with cooperatives has either been as input suppliers (getting inputs for their own farm at a cheaper rate through group

purchases) or as output sellers. Most members of the FPA (Dominican ASF team) envisioned producer coops as a fairly easy thing both to create and to expand. Such efforts probably will require a different type of expertise than that held by the veterinarians. It will also probably require a much more detailed technician input role both to help set up production coops and to ensure their viability than did the eradication campaign, where farm visits had a specific purpose and were of short duration.

Knowledge of the sentinal pig program

Four small farmers and four middle size farmers reported that they did not know at all about sentinal pigs. Seven farmers reported generally positive, but incorrect impressions of their purpose. (Three small farmers said they were pretty and healthy. One large and a middle size farmer said they seemed to be adjusting to the environment here. Another middle size farmer said they were to help poor people who do not have any pigs.

Of those who were misinformed or not correctly informed and who held a generally negative opinion (three in total) one was a small farmer who said they were only for rich people who had pens for their pigs; one was a large farmer who said he did not believe they even existed, since there were none for him or in his area; and the other (also a larger farmer) said they should also get them so they could keep working with pigs.

Of the eight partially correct impressions, six stated that they were to be used as breeding stock, but had no idea of the disease monitoring purpose, (four large farmers, one medium, and one small

one). Two small farmers thought they had come because there were no other pigs there, but saw the new ones neither as breeding stock nor as disease monitors.

Of those holding technically correct perceptions of the purpose of the pigs four were larger farmers, three were middle size farmers, and five were samll farmers. There thus did not seem to be an appreciable size factor in correctness of perceptions.

Farmers called them "gringo pigs" and said they would not do well, but have been surprised. Pigs adapted well to roaming around and foraging/scavengering what they could. Many walk through back yards - some in towns - and through houses. People have come to like their pink color - at first said they did not look like criollos (native pigs).

The fact that they are disease free means they gain weight a lot faster (not feeding a bunch of parasites also). In addition they are higher rate of gain by breeding for several generations and this will show up. Future benefit (and surprise) will come when they have 10-12 per litter, instead of just 5-6 as now. For those able to get pigs as breeding stock this will be a clear benefit. For those who have to buy their pigs (the smaller producers) hopefully larger and healthier litters will translate into lower cost pigs. Whether this happens depends on how prices are established and the ability to enforce adherence to price policy. With the pressure to build up herd sizes, a fairly hig price would be the result of a policy of leaving it up to market forces.

REPOPULATION ISSUES

The continuing threat of Haiti

As the field work was nearing completion, and as Secretary of Agriculture Bergland was nearing the end of his term, he declared Haiti an emergency country, enabling additional money to become available for work there. Field work along the border pointed out the need for such support. Two brood sows with litters and twelve additional pigs were seen running loose on a quick trip through Font Pariesien, just across the border in Haiti. Presumably many more pigs would have been seen on a more detailed search. The 15 kilometer quarantine strip has not been maintained free of pigs. This accompanied by the high levels of poverty in many of the towns along the border (many of which were placed there for border security purposes by Trujillo, rather than for any production possibilities of the area) will translate into pressure to resume production from infected pigs if some other action is not undertaken. Also, should eradication in Haiti proceed along lines similar to those followed in Dominican Republic, there is reason to assume a much higher level of sale of pigs. Haitians are not sufficiently wealthy to simply eat their pigs. Given the backlog of not even having pigs available, much less being able to afford them, many border residents on the DR side may buy Haitian pork - especially if a rapidly executed campaign results in forcing down the market price of pork in Haiti. On top of many farmers feeling they have a right to new pigs to begin production on their own, these pressures will create a future threat of reintroduction of the disease, should some preventive steps not be taken.

One rather simple solution would be to institute a pig lottery (or a pork lottery for so many pounds of meat). Given the low purchasing power in the region, most would not be actually buying that much pork anyway, but the symbolic meaning of having a chance to get some would do much to restore the knowledge that at least pork would be available. A more complicated procedure could be to expand consumer coops to sell pigs grown in the east.

Combining Repopulation with Other Rural Develoment Efforts

Plans for production on cooperatives of small farmers there could keep within the cooperative sector the fairly high profits that will accrue within the initial period of marketing domestically grown pork, should this pork be marketed through a cooperative federation such as one with which Peace Corps volunteers are currently helping IDEECOOP to establish. Another possibility would be to use the coop to keep pork prices low, but such efforts seem doomed to failure. Simply capturing the profits from pork sales as a way to create a stronger cooperative system would have the additional benefit of expanding access to other goods in a region of the country where poverty has kept coops at the consumer level on a very rudimentary basis where they exist at all.

If we take the idea of using[a] new product (pigs) as a way to build on organizational efforts already underway, a variety of other prospects, such as women's clubs, youth groups (such as 4-H), church and community development organizations, farmers' associations come to mind. All these groups were used in communicating the objectives of the eradication, and thus have links established with (and expectations of benefits from) the eradication program.

At present, USAID had no plans to cover additional costs beyond the termination of the (reprogrammed) eradication loan. This position rests in large part on the Mission having designated the eradication project as one having little rural development, poverty alleviation focus. The data presented amd the overall purpose of the eradication effort support this interpretation - there is little way to say poor farmers have benefitted, and unless proposals such as those here made are considered, smaller farmers will in many cases either stay outside the repopulation program, or will need a much higher level of organizational development assistance than currently envisioned.

Animal Choice as Appropriate Technology

It is not very often that a whole country has a choice of what to do about an entire population of any given animal. The eradication has been complete insofar as we can tell. Problems arising from the continued presence of pigs in Haiti have been discussed in earlier sections of this report. We now turn to some other issues about what animals to reintroduce.

Many folk beliefs about the new (gringo) pigs have been seriously challenged by experiences with the sentinel pigs. Fears that they could not adapt to backyard diets (palm fruit, platano skins, household garbage, especially) have been put to rest, at least for farmers in the eastern region. One unfortunate side effect of this is that it has added further momentum to the speculation that pigs will soon be available to all farmers, including for backyard production. The question of which type of pig thus appears to have already been answered, at least in theory. Should there later be a change in repopulation toward either allowing greater freedom in cross-breeding pigs, or toward backing off or being unable to confine breeding operations to the purebred farms as is currently envisioned, some additional criteria come into consideration.

We wish to call attention to work done on performance of indigenous pigs in response to diets of cassava and other local foodstuffs at CIAT (international center for tropical agriculture) under the leadership of Jerome Maner. By selecting pigs that seemed to put on weight faster than their litter-mates, and crossbreeding these, offspring were found to show even greater increase in rate of gain than either of the parents. This thus suggests that considerable freedom could be allowed in breeding, should some lessons of this sort accompany the program. As currently

envisioned, rather high levels of technical supervision, along with very stringent policing to prevent smaller scale operations from going into the breeding business, may become an unnecessary program cost.

A further issue in animal choice is not just that of purebred versus some other combination, but that of which animals to consider. Given the rather poor experience with production coops up until this time, and the continued threat of reintroduction of the ASF from Haiti, the future for small scale pig producers appears to be one of considerable risk. Past experience with both goats and chickens gives some reason for optimism. Should some modest improvement in animal health, especially innoculations, be put into effect, it could well happen that smaller farmers would have more meat to eat and more animals available to sell, both at lower cost to the government, and with lower risk to the farmers.

Quite obviously, the strong cultural attachment to pigs is one factor that will make such a policy open to criticism. The issue to be considered is, however, whether the criticism from those who hope they will get pigs or those who get them, then lose them again, will be more difficult to deal with over time. Much experience with poor farmers in other countries suggests that technical changes in agriculture often do little to benefit the situation of the poorest farmers. More comprehensive structural changes have to accompany the introduction of a new package of technologies. Modest improvements in existing farming systems both require less behavioral adaptation on the part of farmers, and carry with them fewer risks should they turn out wrong.

Social Impact Recommendations

1. Communication campaign needs to educate people in all regions of the country about the sentinal pig program, especially giving attention to the timetable for each region. Farmers feel they have done their part in killing their pigs, and in helping convince recalcitrants to kill theirs. Their perception from earlier information in the campaign messages was that when the pigs were all killed, repopulation would begin.
2. Meat (from imported or from locally domestically produced pigs) should be made available on a cheap, regular basis in the western region. Pork from Haiti will be less likely to come in if there is some regular supply. People there cannot afford to buy very large amounts, but the total absence of pork there, along with information that other regions are being repopulated will translate into more pressure to consume pork.
3. Further efforts to make other small animals available (chickens, ducks, goats, especially) should include careful attention to insuring high health standards of these animals. This includes a short course or other form of training existing veterinarians in care of these animals.
4. Careful attention should be paid to how new pigs are marketed as they become available, both for consumption, and baby pigs for fattening. A reservoir of resentment at having their pigs killed will lead to opposition, should prices be too high, or should there be evidence of favoritism in allocation the new breeding stock and feeder stock.

5. Organizations active in communicating about the eradication campaign should be enlisted to help develop cooperative production efforts. Such voluntary activities as Peace Corps and Heiffer Project International could add much needed technical assistance at a time when SEA will be very busy.

ANNEX B

APPENDIX I

appendix to "Social Impact Analysis of African Swine Fever Eradication Program, Dominican Republic, January 11-February 7, 1981
James W. Converse Visiting Assistant Professor and Agricultural Sociologist Kansas State University

Region or Country[1]	Population Estimate Mid-1977 (millions)[2]	Birth Rate[3]	Death Rate[3]	Rate of Natural Increase (annual, percent)	Number of Years to Double Population[4]	Population Projection to 2000 (millions)[4]	Infant Mortality Rate[7]	Population under 15 Years (percent)[8]	Population over 64 Years (percent)[8]	Life Expectancy at Birth (years)	Urban Population (percent)[8]	Per Capita Gross National Product (US$)[8]
LATIN AMERICA	336	36	9	2.7	26	608	78	42	4	62	59	1,030
MIDDLE AMERICA	85	42	8	3.4	20	174	70	46	3	62	56	1,060
Costa Rica	2.1	29	5	2.4	29	3.6	38	44	4	68	41	910
El Salvador	4.3	40	8	3.2	22	8.6	58	46	3	58	39	450
Guatemala	6.4	43	12	3.1	22	12.2	80	45	3	53	34	650
Honduras	3.3	49	15	3.5	20	6.9	117	47	2	54	31	350
Mexico	64.4	42	7	3.5	20	134.6	66	46	3	63	62	1,190
Nicaragua	2.3	48	14	3.4	20	4.8	123	48	3	53	49	720
Panama	1.8	31	5	2.6	27	3.2	40	43	4	66	50	1,060
CARIBBEAN	28	30	9	2.1	33	44	75	41	5	64	45	970
Bahamas	0.2	20	5	1.4	50	0.3	35	44	3	66	58	2,600
Barbados	0.2	19	8	1.1	63	0.3	38	34	9	69	44	1,260
Cuba	9.6	22	6	1.6	43	14.9	29	37	6	70	60	800
Dominican Republic	5.0	46	11	3.5	20	10.7	98	48	3	58	44	720
Grenada	0.1	26	8	1.9	36	0.1	32	—	—	63	15	370
Guadeloupe	0.3	28	7	2.1	33	0.5	44	40	5	60	48	1,240
Haiti	5.3	36	16	2.0	35	7.9	150	42	4	50	20	180
Jamaica	2.1	30	7	2.3	30	2.8	26	46	6	68	37	1,290
Martinique	0.4	22	7	1.6	43	0.5	32	41	5	65	50	1,540
Netherlands Antilles	0.2	20	5	1.5	46	0.4	28	38	5	62	48	1,590
Puerto Rico	3.2	23	6	1.7	41	4.1	24	37	7	72	58	2,300
Trinidad and Tobago	1.0	24	6	1.8	38	1.3	34	40	4	66	12	1,900
TROPICAL SOUTH AMERICA	183	37	9	2.8	25	337	84	43	3	61	59	960
Bolivia	4.8	44	18	2.6	27	8.7	108	42	4	47	34	320
Brazil	112.0	37	9	2.8	25	205.0	82	42	3	61	59	1,010
Colombia	25.2	33	9	2.5	28	47.1	97	43	3	61	64	550
Ecuador	7.5	42	10	3.2	22	14.7	78	45	4	60	41	550
Guyana	0.8	32	7	2.4	29	1.3	40	44	3	68	40	560
Paraguay	2.8	40	9	3.1	22	5.3	65	45	4	62	37	570
Peru	16.6	41	12	2.9	24	31.2	110	45	3	56	55	810
Surinam	0.4	37	7	3.0	23	0.9	30	50	4	66	50	1,180
Venezuela	12.7	37	6	3.1	22	23.7	49	45	3	65	74	2,220
TEMPERATE SOUTH AMERICA	40	23	9	1.4	50	52	63	31	7	67	79	1,340
Argentina	26.1	23	9	1.3	53	32.9	59	29	8	68	80	1,590
Chile	11.0	24	8	1.6	43	15.8	77	36	5	63	76	760
Uruguay	2.8	21	10	1.1	63	3.4	45	28	9	70	81	1,330

FAO ROME 1977 PROVISIONAL FOOD BALANCE SHEETS (available through UNIPUB, Box 433 Murray Hill Station New York, NY 10016

(APPENDIX II)

PER CAPUT FOOD SUPPLIES

DOMINICAN REPUBLIC

(INFORMATION AVAILABLE AS AT 22/12/77)

ITEM/QUALITY	1961-63	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
POPULATION (THOUSANDS)												
	3869	3988	3723	3822	3945	4073	4205	4343	4486	4635	4790	4951
CALORIES (NUMBER PER DAY)												
GRAND TOTAL	1872	2097	1969	2004	1964	2090	2043	1981	2034	2113	2142	2211
VEGETABLE PRODUCTS	1647	1840	1747	1753	1659	1736	1786	1717	1773	1847	1873	1944
ANIMAL PRODUCTS	225	256	222	251	245	264	257	264	261	265	269	267
GRAND TOTAL EXCL ALCOHOL	1837	2095	1932	1965	1872	1967	2000	1942	1992	2072	2102	2172
CEREALS	467	509	493	485	473	511	511	481	479	554	578	623
WHEAT	108	110	100	140	139	144	142	108	96	144	158	139
RICE	265	298	331	279	252	291	279	287	287	308	318	381
MAIZE	89	63	53	59	75	66	75	74	84	87	87	90
MILLET AND SORGHUM												
ROOTS AND TUBERS	170	178	171	168	160	159	162	159	163	168	166	167
SUGAR AND HONEY	298	305	270	292	275	326	312	283	301	302	312	334
PULSES	119	146	123	133	118	109	127	121	135	123	119	132
NUTS AND OILSEEDS	27	26	33	41	31	28	32	30	27	25	27	31
VEGETABLES	13	14	14	18	19	21	15	18	19	20	20	19
FRUIT	393	398	389	386	339	334	376	372	392	387	384	386
MEAT AND OFFALS	77	86	72	79	71	73	75	77	78	83	85	86
EGGS	11	11	11	12	12	12	12	13	13	12	14	14
FISH AND SEAFOOD	14	23	21	19	13	16	15	16	13	12	10	8
MILK	97	113	103	121	123	133	129	134	131	129	132	139
OILS AND FATS	127	239	233	199	220	227	227	227	226	229	241	233
VEGETABLE OILS AND FATS	101	211	208	176	195	198	203	203	201	201	213	206
ANIMAL OILS AND FATS	27	29	23	24	24	29	24	24	25	27	28	28
STIMULANTS	14	13	14	14	15	15	12	11	13	13	13	13
SPICES	3	3	2	2	2	2	2	2	2	2	2	3
ALCOHOLIC BEVERAGES	35	41	37	39	32	34	35	39	42	41	39	39
PROTEINS (GRAMMES PER DAY)												
GRAND TOTAL	39.9	45.1	39.7	43.7	40.9	42.7	43.7	42.1	43.2	44.6	44.4	45.4
VEGETABLE PRODUCTS	25.4	28.2	26.3	27.5	26.0	26.2	27.3	25.5	26.9	28.7	28.5	29.8
ANIMAL PRODUCTS	14.5	17.2	13.7	16.2	15.0	16.8	16.5	16.6	16.4	15.9	15.9	15.6
GRAND TOTAL EXCL ALCOHOL	39.8	45.2	39.7	43.6	40.9	42.6	43.6	42.0	43.1	44.5	44.3	45.2
CEREALS	11.2	12.1	11.4	11.6	11.7	12.4	12.5	11.5	11.3	13.5	14.1	14.8
WHEAT	3.5	3.6	3.2	4.5	4.5	4.6	4.6	3.5	3.1	4.7	5.1	4.5
RICE	5.2	5.9	6.5	5.5	5.0	5.6	5.5	5.7	5.7	6.1	6.3	7.5
MAIZE	2.3	2.1	1.4	1.5	2.0	1.7	2.0	1.9	2.2	2.3	2.2	2.3
MILLET AND SORGHUM												
ROOTS AND TUBERS	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.7
SUGAR AND HONEY												
PULSES	6.4	8.5	7.1	7.7	6.9	6.4	7.4	7.1	7.9	7.7	6.9	7.7
NUTS AND OILSEEDS	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5
VEGETABLES	.5	.6	.6	.8	.8	.9	.6	.7	.8	.8	.8	.8
FRUIT	3.8	3.9	3.3	3.8	3.4	3.4	3.7	3.6	3.8	3.8	3.7	3.7
MEAT AND OFFALS	5.7	5.5	5.4	5.5	5.3	5.5	5.6	5.6	5.7	6.0	6.1	6.2
EGGS	.9	.9	.9	.9	1.0	.9	.9	1.0	1.0	1.0	1.0	1.0
FISH AND SEAFOOD	2.5	3.8	1.9	3.2	2.3	2.8	2.7	2.6	2.2	2.0	1.6	1.3
MILK	5.2	6.5	5.5	6.5	6.4	7.2	7.3	7.4	7.4	6.9	7.2	7.1
OILS AND FATS												
VEGETABLE OILS AND FATS												
ANIMAL OILS AND FATS												
STIMULANTS	.5	.7	.9	.9	.9	.9	.7	.6	.7	.6	.6	.5
SPICES	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
ALCOHOLIC BEVERAGES	.1	.1	.1	.1		.1	.1	.1	.1	.1	.1	.1
FAT (GRAMMES PER DAY)												
GRAND TOTAL	37.	50.9	48.5	47.0	48.3	49.0	49.5	49.7	49.5	50.7	52.1	51.7
VEGETABLE PRODUCTS	22.5	35.4	34.4	32.1	33.3	33.2	34.2	33.8	33.6	34.0	35.1	34.6
ANIMAL PRODUCTS	14.7	15.6	14.1	14.9	14.9	15.8	15.3	15.9	15.9	16.8	17.0	17.1
GRAND TOTAL EXCL ALCOHOL	37.1	50.5	48.5	47.0	48.3	49.0	49.5	49.7	49.5	50.7	52.1	51.7
STARCHY ROOTS	1.5	1.5	1.6	1.7	1.8	1.8	1.9	1.6	1.9	2.1	2.2	2.1
SUGAR	.4	.4	.3	.5	.5	.5	.5	.4	.3	.5	.5	.5
PULSES	.4	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.6
FRUIT	1.1	1.0	.6	.7	.9	.8	.9	.9	1.0	1.0	1.0	1.1
MEAT AND OFFALS												
EGGS	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4
FISH AND SEAFOOD												
MILK	.6	.7	.6	.6	.6	.5	.6	.6	.6	.6	.6	.6
NUTS AND OILSEEDS	2.5	2.6	2.3	3.8	2.9	2.5	2.9	2.7	2.4	2.6	2.5	2.6
VEGETABLES	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1
FRUIT	4.9	4.9	4.8	4.8	4.6	4.5	4.5	4.4	4.4	4.3	4.2	4.1
CEREALS AND OFFALS	5.8	6.0	5.3	5.7	5.4	5.5	5.6	5.8	5.7	6.3	6.5	6.4
EGGS	.7	.8	.8	.8	.8	.8	.8	.8	.8	.8	.9	.9
FISH AND SEAFOOD	.3	.7	.3	.5	.3	.4	.4	.5	.4	.3	.3	.3
MILK	4.8	4.5	5.3	5.2	5.7	5.8	5.8	6.1	6.1	6.2	6.3	6.2
OILS AND FATS	14.3	27.1	26.9	22.5	24.8	25.7	25.7	25.7	25.5	25.8	27.2	26.4
VEGETABLE OILS AND FATS	11.4	23.5	23.4	19.5	22.1	22.4	23.1	23.0	22.7	22.8	24.1	23.1
ANIMAL OILS AND FATS	3.0	3.2	3.6	2.6	2.7	3.3	2.7	2.7	2.8	3.1	3.1	3.1
STIMULANTS	.8	.8	.8	.8	.8	.9	.8	.8	.9	.9	1.0	1.0
SPICES	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
ALCOHOLIC BEVERAGES												

ANNEX B

FOOD BALANCE SHEET

DOMINICAN REPUBLIC

(INFORMATION AVAILABLE AS AT 22/12/75)

POPULATION (THOUSANDS) 4794

YEAR AVERAGE 1972-74

WEIGHT UNIT: THOUSAND METRIC TONS
NUMBERS(HEAD): THOUSAND UNITS

COMMODITY	PRODUCTION INPUT	PRODUCTION OUTPUT	IMPORTS	STOCK CHANGES	EXPORTS	GROSS DOMESTIC SUPPLY	DOMESTIC UTILIZATION FEED	SEED	MANUFACTURE	WASTE	FOOD	PER CAPUT SUPPLY KILOGRAMS/YEAR	GRAMS	PER DAY CALORIES NOS	PROTEINS GRAMS	FAT GRAMS
GRAND TOTAL									FOOD USE	NON FOOD USE				2156	44.8	51.5
VEGETABLE PRODUCTS														1889	29.0	34.6
ANIMAL PRODUCTS														267	15.8	17.0
GRAND TOTAL EXCL ALCOHOL														2117	44.7	51.5
CEREALS														586	14.2	2.2
WHEAT		103		+10		93			91	2						
WHEAT/FLOUR	91	84	7			71			17			54	11.3	31.0	113	3.7 .4
WHEATFLOUR/MACARONI	17	17			1	16						16	3.3	9.2	33	1.1 .1
WHEATFLOUR/BREAD														.1		
WHEAT/GRAIN	91	18				18	18									
RICE PADDY		218				218		7	205	7						
RICE PADDY/MILLED	205	153	36	+7		182						162	33.7	92.4	337	6.7 .6
/BREAKFAST CEREALS													.1	.2	1	
RICE PADDY/GRAIN	205	16	-			16	.16									
BARLEY/MALT			6			6			6							
BARLEY MALT/EXTRACT			1			1			1							
MAIZE		47	50	+4		92	49	1	42			43	8.9	24.5	88	2.3 1.1
MAIZE/FLOUR	42	40	3			43										
MAIZE/GRAIN	42	1				1	1									
OATS			6			6	1					6	1.2	3.2	12 .4 .1	
SORGHUM		14				14	13			1						
/INFANT FOOD			1			1						1	.1	.4	1 .1	
ROOTS AND TUBERS															167 1.7 .4	
POTATOES		26	1			27		2		3	22	4.6	12.7	9	.3	
SWEET POTATOES		97			3	94				19	64	17.6	48.2	42	.5	.1
CASSAVA		230			5	155	16			20	159	33.3	91.1	92	.5	.2
YAMS		29				29				3	26	5.4	14.8	13	.3	
ROOTS TUBERS NES		35			10	25				3	21	4.4	12.1	11	.1	
SUGARS AND HONEY														317		
SUGAR CANE		9448				9448			9448							
CANE SUGT/SUGAR RAW	9448	1290			1051	145			145							
SUGAR NON-CENTRIF	149	133		-8		141						141	29.4	80.7	312	
CANE SUGT/PC.SUGAR	9448	329		-14	280	62			62							
/SUGAR CROPS NES			2			2						2	.3	.9	3	
HONEY		2			1	1						1	.2	.5	1	
PULSES															128 7.4 .6	
BEANS DRY		49	4			34		1		1	32	6.7	18.4	62	3.5 .3	
BROAD BEANS DRY		6				6						6	1.2	3.2	11 .8 .1	
PEAS DRY		1				1						1	.1	.4	1 .1	
CHICKPEAS														.1		
PIGEON PEAS		29				29				1		28	5.8	15.8	53 3.4 .2	
NUTS AND OILSEEDS															29 .5 2.6	
COCONUTS		1				1						1	.2	.5	1	.1
COPRA														.1		
GROUNDNUTS/CAKE		8				8	6									
GROUNDNUTS IN SHELL		65				65		3	77	4	1	.3	.7	3	.1	.2
GROUNDNUTS/KERNEL	77	54				54			54							
GROUNDNUTS SHELLED/CAKE	54	36			1	29	29									
SOYABEANS		65			8	57			26			31	6.5	17.7	23 .3 2.2	
SOYABEAN FLOUR	26	5			1	8			8							
SOYA CAKE	8	3				3	3									
SOYABEAN OIL CRUDE			1			1						1	.1	.3	1	.1
SOYA OIL													.1	.2	1	.1
SUNFLOWER SEED		4				4			2							
SUNFLOWER SEED/CAKE	2	1				1	1									
VEGETABLES															19 .8 .1	
ONIONS		3				3						3	.6	1.6		
TOMATOES		4				4						3	.7	1.9		
FRUIT EXCL BANANAS		84			1	83			19		4	54	12.3	33.8	7 .3 .1	
BANANAS		12			2	9					1	8	1.7	4.7	1	
CITRUS FRUIT		1				1						1	.1	.3		
GRAPES		3				3						2	.5	1.4		
PINEAPPLES		13			4	9					1	8	1.7	4.7	1	
OTHER FRUIT		41				41					2	19	4.3	10.9	4 .1	
COFFEE		5				6					1	5	1.1	2.8	4 .1	
COCOA													.1	.2		
TEA													.1	.2		
VEGETABLE OILS NES		4			2	2						2	.4	1.2		
/VEGETABLES IN SUGAR													.1	.2		
MISCELLANEOUS PROCESSED NES	15	12	6		8	6						6	1.2	3.3	1	

BEST AVAILABLE DOCUMENT

ANNEX B

34

FOOD BALANCE SHEET

DOMINICAN REPUBLIC

(INFORMATION AVAILABLE AS AT 22/12/75)

POPULATION 4752 (THOUSANDS)

WEIGHT (WGT) THOUSAND METRIC TONS
NUMBERS(NOS) THOUSAND UNITS

YEAR AVERAGE 1972-74

COMMODITY	PRODUCTION INPUT	PRODUCTION OUTPUT	IMPORTS	STOCK CHANGES	EXPORTS	DOMESTIC SUPPLY	FEED	SEED	MANUFACTURE FOOD USE	MANUFACTURE NON FOOD USE	WASTE	FOOD	PER CAPUT KILOGRAMS /YEAR	PER DAY GRAMS	PER DAY CALORIES NOS	PER DAY PROTEINS GRAMS	PER DAY FAT GRAMS
FRUIT															384	3.7	4.2
BANANAS		303			21	284	31				31	223	46.5	127.3	83	1.0	.4
PLANTAINS		617			2	614					93	522	108.9	298.3	224	1.8	.6
ORANGES		63				63					6	56	11.7	32.2	9	.2	
LEMONS LIMES		11				11					1	10	2.0	5.5	2		.1
GRAPEFRUIT POMELO		4				4						4	.7	2.0			
APPLES			1			1						1	.2	.6			
PLUMS/DRIED PLUMS														.1			
GRAPES													.1	.2			
GRAPES/RAISINS														.1			
MELONS CANTALOUPES		1				1						1	.2	.5			
MANGOES		143				142	31				21	90	18.7	51.3	15	.1	.1
AVOCADOS		128			2	126	17				13	96	20.1	55.1	32	.4	2.9
PINEAPPLES		16				16					2	14	2.9	8.1	3		
FRUIT FRESH NES		75			2	73			11		7	54	11.3	30.9	14	.2	.2
/FRUIT PREPARATIONS NES	11	8	1		3	6						6	1.3	3.5	1		
MEAT AND OFFALS															84	6.1	6.4
CATTLE(NOS)		220	1			221			221								
CATTLE(NOS)/BEEF(WGT)	221	38			7	31						31	6.5	17.9	39	2.5	3.1
BEEF/PREPARATIONS														.1			
CATTLE(NOS)/OFFALS(WGT)	221	8				8						8	1.6	4.3	5	.8	.1
SHEEP(NOS)		2				2			2								
SHEEP(NOS)/MUTTON(WGT)	2																
SHEEP(NOS)/OFFALS(WGT)	2																
GOATS(NOS)		24				24			24								
GOATS(NOS)/MEAT(WGT)	24												.1	.2			
GOATS(NOS)/OFFALS(WGT)	24																
PIGS(NOS)		379				379			379								
PIGS(NOS)/MEAT(WGT)	379	17				17			3			14	2.9	8.0	19	.9	1.7
PIGMEAT/BACON HAM													.1	.2	1		
PIGMEAT/SAUSAGES														.1			
PIGS(NOS)/OFFALS(WGT)	379	1				1						1	.2	.4		.1	
CHICKENS(NOS)		259e3	1250			27233			27233								
CHICKENS(NOS)/MEAT(WGT)	27233	27				28						28	5.8	15.8	29	1.7	1.4
MEAT NES/PREPARED														.1			
EGGS															13	1.0	.9
HENS(NOS)/EGGS(WGT)	2210	20	1			21		2			1	18	3.7	10.2	13	1.0	.9
FISH AND SEAFOOD															10	1.6	.3
FRESHWATER DIADROM FRESH WHOLE		1				1						1	.1	.3			
DEMERSAL FRESH WHOLE		2				2						2	.3	.9		.1	
DEMERSAL/CURED			3			3						3	.7	1.9	4	.7	
PELAGIC FRESH WHOLE		2				2						2	.5	1.3	1	.2	
PELAGIC/CURED			1			1						1	.3	.7	1	.2	
PELAGIC/CANNED			2			2						2	.5	1.2	2	.3	.1
MARINE NES FRESH WHOLE		3				3						3	.6	1.6	1	.2	
MILK															131	7.0	6.2
COWS(NOS)/MILK(WGT)	325	328				328			24		16	288	60.1	164.8	107	5.4	5.6
COW MILK/EVAPORATED COND			4			4						4	.9	2.5	8	.2	.2
COW MILK/COW SKIM MILK	14	13				13						13	2.7	7.5	3	.3	
COW SKIM MILK/DRIED			5			5						5	1.0	2.7	10	1.0	
COW MILK/CHEESE	10	2				2						2	.4	1.0	3	.2	.2
OILS AND FATS															234		26.5
VEGETABLE OILS AND FATS															206		23.4
SOYBEANS/OIL			6			7						7	1.4	3.9	34		3.9
GROUNDNUTS SHELLED/OIL	54	23	12	-4		31				6		25	5.2	14.1	125		14.1
COPRA/COCONUT OIL	8	5			3	3						3	.6	1.5	14		1.5
OLIVES/OIL													.1	.2	2		.2
COTTONSEED/OIL	2		6			6						6	1.3	3.6	32		3.6
ANIMAL OILS AND FATS															28		3.1
CATTLE(NOS)/FAT(WGT)	221	1				1						1	.3	.7	6		.6
/TALLOW			11			11				11							
SHEEP(NOS)/FAT(WGT)	2																
GOATS(NOS)/FAT(WGT)	24																
PIGS(NOS)/FAT(WGT)	379	2				2			2								
PIGFAT/LARD	[illegible]	4				4						4	.8	2.2	19		2.2
COW MILK/BUTTER	14	1				1						1	.1	.3	2		.3
SPICES															2	.1	.1
PEPPER WHITE BLACK														.1			

FOOD BALANCE SHEET

DOMINICAN REPUBLIC

(INFORMATION AVAILABLE AS AT 22/12/79)

YEAR AVERAGE 1972-74

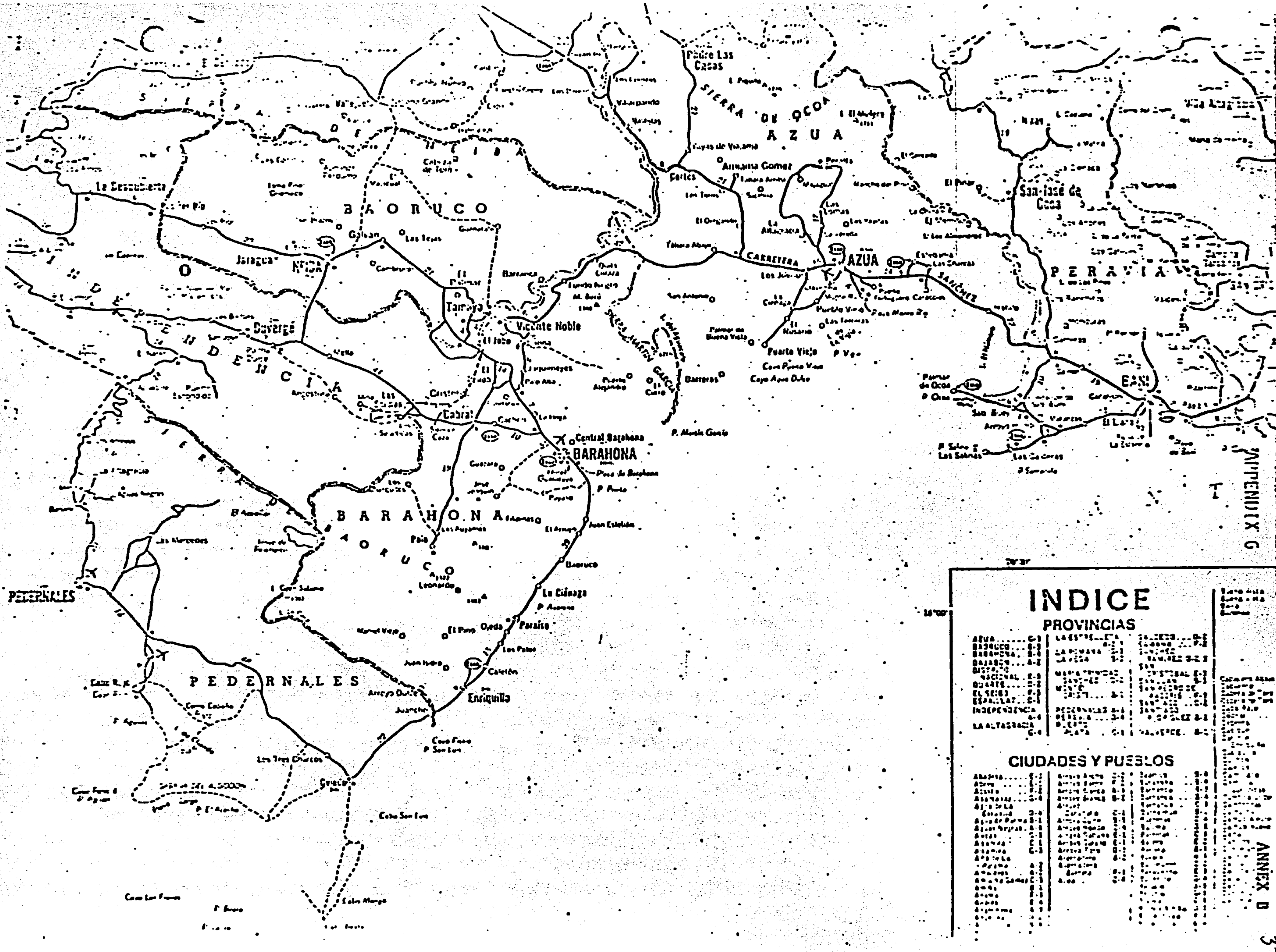
POPULATION (THOUSANDS) 4772

WEIGHT (WGT) THOUSAND METRIC TONS
NUMBERS (NOS) THOUSAND UNITS

COMMODITY	PRODUCTION INPUT	PRODUCTION OUTPUT	IMPORTS	STOCK CHANGES	EXPORTS	DOMESTIC SUPPLY	DOMESTIC UTILIZATION FEED	SEED	MANUFACTURE FOOD USE	MANUFACTURE NON FOOD USE	WASTE	FOOD	PER CAPUT SUPPLY KILOGRAMS/YEAR	GRAMS	PER DAY CALORIES NOS	PROTEINS GRAMS	FAT GRAMS
CHARRED CEREALS													.1	.1			
BRAN, SHARPS, FEARES														.1			
CEREALS NES			1			1						1	.2	.5	2	.1	.1
STIMULANTS															13	.6	1.0
COFFEE GREEN			48		31	17			17								
COFFEE HULLS/ROASTED	17		13	-1	4	10						10	2.1	5.8	3	.5	
COCOA BEANS			36	.2	27	7			2			4	.9	2.4	1	.1	1.0
ALCOHOLIC BEVERAGES															40	.1	
BARLEY MALT/BEER			43			43						43	9.1	24.8	10	.1	
GRAPES/WINE													.1	.2			
VERMOUTH WINE APERITIFS /DISTILLED ALCOHOL			17			18						18	3.7	10.0	30		

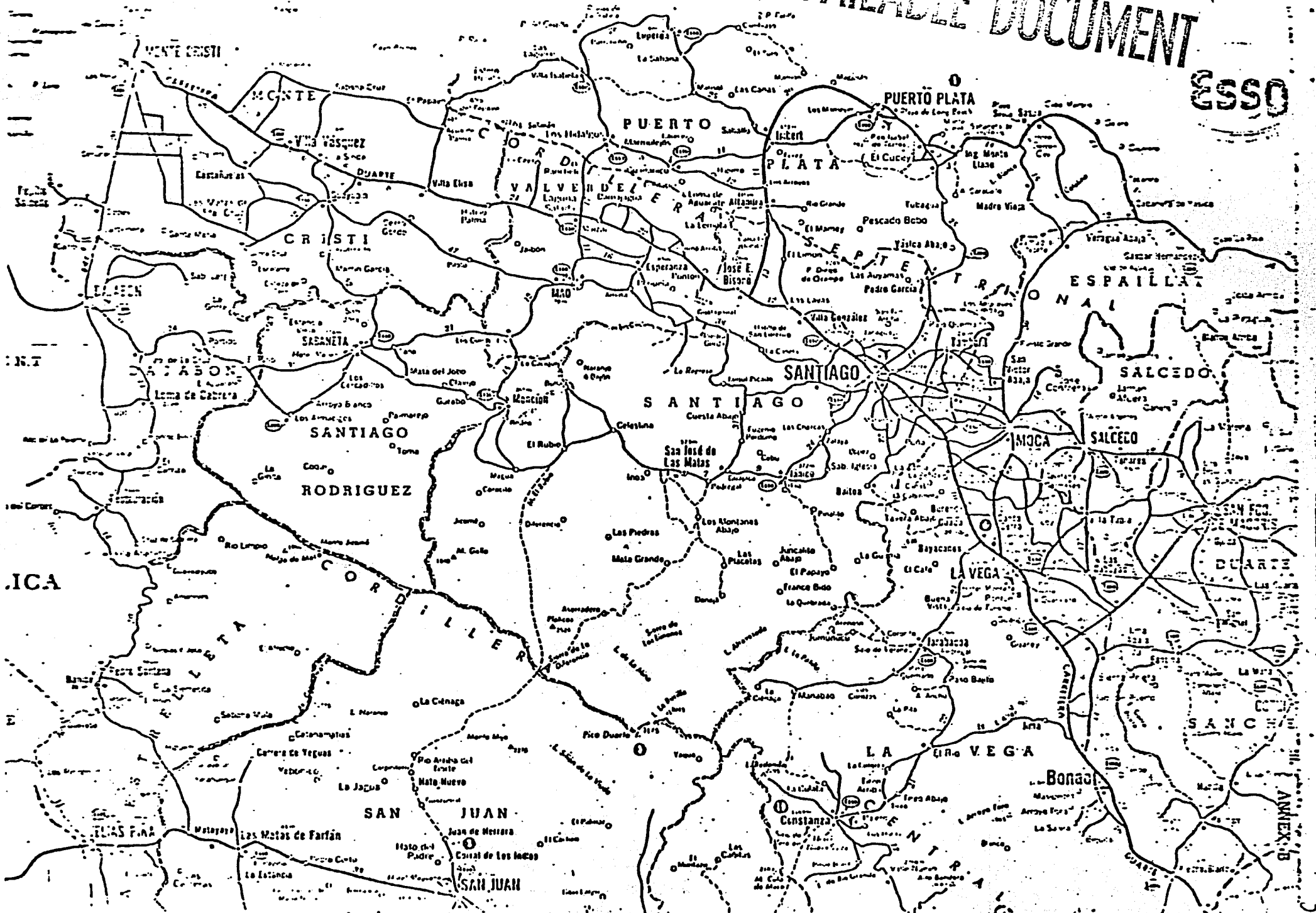
ANNEX B

...is ... family is a creative way to help them help themselves.



APPENDIX G

ANNEX D



SECRETARIA DE ESTADO DE AGRICULTURA
Comisión de Alto Nivel para la Erradicación
de la Fiebre Porcina Africana
Secretaría Ejecutiva

El centinelo el centinelo
Cuanto tiempo vay quedar
Porque no tiene, porque le falta
Piernas fuertes para montar

Dice que las puercas nuevas
Van vivir con los grandotes
Dice que es prohibodo
Casar con criollo padrotes

El sentinelo...

Dice que la sentinela
Ya tiene muchas ganas
Encontra con cimarrones
Andapar por las montñas

El centinelo...

Llamdo consultores
Analizaron la grandehucco
Este grupo recomenda
Matar un par de los mulatos

APPENDIX 8

LISTIN DIARIO May 14, 1980 p. 11-a

AL PUEBLO DOMINICANO:

Antes las informaciones infundadas que han sido difundidas, en el sentido de que el Gobierno de los Estados Unidos de Norteamerica, es el responsable de que se eliminen los cerdos del pais, queremos aclarar que en todo momento la posición de las autoridades de esa nación ha sido y es la de respaldar al al Gobierno dominicano en lo que éste decida co respecto al control e erradicación de la Fiebre Porcina Africana del país, e que en ningun momento el Gobierno de los Estados Unidos ni sus funcionarios han recomendado la eliminación de los cerdos en la Republica Dominicana como medio para erradicar esta enfermedad.

Se ha comprabado en los Estados Unidos, con la eliminación del Cólera Porcino sin el uso de vacunas ai sueros, que es posible erradicar una enfermedad sin tener que destruir la totalidad de una especie, siempre y cuando se emplean los medios de sanidad adecuadas y se tomen las medidas de mutuo acuerdo entre las autoridades gubernamentales, los productores de cerdos y processadores de carne de cerdo.

Por lo tanto pedimos que se les permita a los productores y a los procesadores participar en las discusiones y las deciones concernientes al control y/o erradicación de la Fiebre Porcina Africana.

ASOCIACIÓN NACIONAL DE PRODUCTORES DE CERDOS, INC.

Dr. Alfonso Gomez, Presidente

ANNEX C

EVALUATION OF THE COMMUNICATION CAMPAIGN OF THE AFRICAN SWINE FEVER ERADICATION PROJECT DOMINICAN REPUBLIC
January 11 - February 7, 1981

James Converse
Visiting Assistant Professor and
Agricultural Sociologist
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final draft April 2, 1981.

COMMUNICATION CAMPAIGN - HISTORY

The initial objective of the campaign was to explain the nature of ASF to people in the Eastern Region as part of the preparation for the beginning steps of the larger program. At the outset, efforts to confine the disease to foci and to eradicate there only resulted in a limited public information effort in keeping with these objectives. Efforts focused on educating people to the nature of the disease, with an eye toward re-establishing confidence in consuming pork. Prices had dropped considerably, and many producers were undergoing considerable losses. The campaign thus was targeted at both consumers and producers at this stage.

Part of the campaign was the direct production of radio and newspaper releases at the national level. An additional effort to coordinate targeted news press releases on related events or corresponding stages in each region with a series of local visits to many organizations (churches, farmer, housewife, and youth associations).

As the containment/foci approach gave way to realization of a need for total eradication, the information campaign also had to be redirected and intensified. Carlos Grabely spent three months intensive efforts in the eastern region during this period (project files - CG field visits). Effort in both stages was focused on convincing both producers and consumers that the disease was not simply a new form of Dandi (hog cholera). This included information on what the disease was, as well as some general idea of how it was transmitted. Conflicting local versions of sources of the disease showed up in field work. The most widely accepted version of the origin of the disease is that it

was introduced to a hog farm near Santo Domingo from garbage from an Iberia airlines (Spanish). This farmer noticed his pigs getting sick and quickly sold them. This caused a fairly rapid dissemination of the sickness. Another version (heard in Cupey and in San Juan de la Maguana) is that two Spanish engineers working in San Juan brought pork (canned hams in one version) with them from Spain, and that some of it found its way into garbage eaten by local pigs.

The first poster used was "Esto no debe continuar" (this should not go on) showing a campesino (farmer)* standing beside a dead pig with a look that mixed confusion and sadness. Clever use of facial expressions was one key to the high level of success of the program. Since many of the campesinos had only limited levels of literacy, (if they read at all) visual depictions had to do much of the job of conveying meaning.

Part of the major problem encountered with such dual purpose efforts was to convince everybody that the pigs needed to be killed at the same time that confidence in the safety of eating the meat had to be re-established. This became more important with the shift to total eradication, rather than containment, as the campaign relied heavily on convincing farmers to sell pigs for consumption to reduce the number that would have to be purchased by the brigades.

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*The author follows throughout the convention of calling respondents "farmers". The campaign addressed them as "porcicultores". Survey evidence indicates that pigs have always been one among a variety of farm animals for most smaller operators. There is also a hidden assumption that they will all once again be involved in pig raising--an issue still to be resolved.

In large part, news releases and other official announcements in the press were directed toward all producers as a group, or all consumers as a group. Efforts by special interest groups to get exemptions from the program would have done much to stifle enthusiasm, had they succeeded. The message that all pigs had to be eradicated, and that any sick pigs would hurt all producers was given credibility by the decision to eliminate all pigs, rather than leaving some farms under observation with herds intact.

Following the nationwide efforts, a more detailed regional strategy was developed, with community specific activities to be undertaken prior to the arrival of brigades in the area.

The strategy within each community can be summarized as follows:

1) Radio announcement declaring the immobilization of pigs within the region (could not be shipped out) and the opening of military checkpoints. (Ten announcements per day).

   The announcement also advised immediate payment through the local branch of the agricultural bank. This announcement was appended to the radio broadcast 15 days before the arrival of the brigades. The reason for this was to not undermine the effort to get farmers to sell or consume as many pigs as possible before the brigades came.

2) Imposition of the checkpoints, while not directly part of the control-information campaign, did serve to direct more attention to the radio messages. (Many respondents to the survey reflected a high level of caution in believing what they heard on the radio, especially in an election period).

Several high level military and civilian officials tried to exert their influence to avoid having their vehicles searched. Short newspaper items sometimes referred in general to such items. This both gave added exposure to the need for control, and also emphasized that everyone in the country was a potential contributor to the spread of the fever, and thus subject to the same regulations. Stick-on suitcase labels for travellers also advised of this fact.

3) The radio message stated that "if we kill the pigs now, we can then reintroduce them." No statement was made about how long this would take. The effort then was to reduce the resistance to killing pigs. The result of not placing a time period on repopulation was to create hope for rapid replacement of the pigs. This meant a possible problem at a later stage of the project. (Many feared their chickens and cows would also be killed or confiscated. The message was specifically about pigs. Unconfirmed rumors during field interviews stated that some people acting as officials did take other animals at times.)

4) Keeping careful track of rumors on field visits.* Track down sources as carefully as possible. Resist efforts to politicize the campaign by responding directly to rumors. Be careful of statements that would lend credibility to rumors.

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* A possible source of confusion for some was the appearance in their back yards, fields, and streets of an (air-dropped) information sheet promising to pay for their pigs based on weight. No price was given, but the reference to weight led some to think they would be paid the market price. Part of the boomerang effect of restoring confidence in pork consumption was that those who got compensation from the brigade (1 peso per kilo) may have been selling at below the market rate at any later

5) After brigade finished canvass (sweeping) of area, declare non payment for pigs still in the area. While no announcement was made of giving a reward (usually half the meat) for revelation of concealed animals, such a practice was followed in some cases, and no public statement was made to counteract reports of this. This had the effect of sanctioning informers. It also had the carryover effect of making a few local people think the police or military in the brigades skipped people so they could later come back and get their pigs themselves. Talk with various policemen, private guards who had previously been policemen, and other observations lent some credence to this account. Many of them viewed this as justified recompense for the long hours worked and the negative image they gained when having to take away pigs from people they might know.

Three additional posters were distributed later in the campaign. One showed a pig looking very much like an outlaw, and carried the statement "Wanted, alive or dead". Equating the pig with an outlaw did much to creat a subtle shift in campesino (farmer) identity from themselves as the ones who were being deprived of their pigs (and thus the ones who would hide them) to the ones who would help find the pigs. The other poster showed the triumphant farmer holding up a pig that looked very

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stage in the campaign. A further problematic issue was the decision to sell pork at low prices through "ventas Populares" (popular stores). In areas where farmers were still trying to sell their own pigs, this depressed the price. In other places where people had sold all their pigs already (at a low price) their cynicism was justified by finding the "reduced price" at the venta popular still to be more than they had received.

disgruntled at having been found. A final poster showed the triumph of the campaign in the eastern region with a map showing areas where there were no pigs.

A record with merengue (Dominican music) telling of the program was released, as was a mock boxing match between the sentinel pigs and the ASF virus. Both items did much to raise public interest and to build on the radio announcements, newspaper advertisements and press releases, posters, and reports through local meetings. An informational fotonovela (comic book format) was developed from a series of posters depicting the purpose of the sentinel pigs. (The originals for the posters won a prize at the Feria de Salcedo, a national agricultural exposition). This book was distributed in schools in the eastern region.

In most radio broadcast efforts, a national announcement, over all stations in the country, was made a various stages of the campaign. Later on, specific announcements were made over local stations about region-specific aspects of the campaign. Following reports of hidden pigs near Puerto Plata, a broadcast stating the last day on which payment could be made (11/16) was aired separately from the general news about the campaign. This lead some farmers to think it (the notice) had come from other people (ladrones - Thieves, interested in taking their pigs) and further strengthened efforts to conceal pigs. The ongoing public confusion about whether the nonpayment notice was true, and whether the declaration of pigs as public (state) property was also true, was a source of ongoing resentment in the area. Resolution of the issue awaited the pre-Christmas "theft/appropriation" of three suckling pigs "successfully" concealed for over a year after the end of the campaign. Confusion arose then about whether the lady who owned them had a right to report them as "stolen." (No report was made).

A technical advisor from FAO was involved at various stages of the media development project. Good technical quality of the material, as well as the ingenious use of cartoons and facial expressions did much to add to the effectiveness of the campaign.

Later stages following regional efforts

On April 15, 1980, a nationwide broadcast declared all pigs still alive to be state property. This cleared up a lot of the confusion from different levels of enforcement and locally necessitated announcements. Up until this time, much of the use of the media had been locally oriented, especially with regard to enforcement and dealing with infractions. While the local or regional focus permitted communication efforts to be tailored to problems as they arose in specific regions, it also added to confusion in other areas. A fairly large number of farmers reported listening to stations from outside their region; in some cases the broadcasts mentioned the area to be covered by the action they were announcing. Even in these cases, farmers in other regions assumed the same criteria would be applied to them when the program arrived there. Failure to adjust their timetable to the one announced in the broadcasts became one of several factors in their holding on to their pigs, but felt they could stall or outwait the brigade and sell their pigs at a higher price after the heavy period of killing and the price depression thereby induced had passed. There is little information available of the effect of prohibiting the flow of meat between regions, or the price variation at different stages of the eradication within each region.

It would probably take several dissertations on long time series of data that nobody bothered to collect to sort this all out. The resulting localized confusion was probably a major "windfall profit" to the commun-

...ation campaign, in that it precluded the emergence of any broad-based opposition to the eradication program. In this sense, the efforts by some opposition groups to politicize the campaign perhaps, by adding to the already existing uncertainty, ended up undermining opposition to the campaign.

Prior to examining the survey results about the farm level reactions to the campaign, we will consider briefly the nature of the sample. More detailed information on respondents is included in the social impact analysis.

Sample selectivity and issues in generalizing to the larger population:

A continuing question in any field survey is that of selectivity: to what extent does the group actually interviewed represent the larger population of farmers in the region ? The regional director in the southwest (Clemente Rodriguez Gonzalez) stated that very few farmers lived out in the countryside. Most live in small villages or on the margins of the larger cities. This was especially true in more sparsely settled areas, such as the southwest: In more densely settled regions, there were more people living outside of the town.

The initial sample plan included getting names from the list of those who received compensation. To this list would be added others whose names came up in field visits as ones whose pigs had died or otherwise been disposed of prior to the brigade coming, and some whose pigs were taken, but who received no compensation. In the southwest this was a confusing issue. Many people received forms for payment that did not correspond to the actual situation. For some the number of pigs actually owned was wrong (often overestimated by local politicians wanting to curry favor before elections). For others they had no pigs at all, or

had consumed or sold them before the brigade arrived, but still attempted to receive payment for them. (Some felt they had sold their pigs at a poor price, expecting to also collect from the brigade for them. A few openly admitted that they were trying to cash in on a good situation where there was already a high level of confusion. In any event, these issues made it difficult to assure a fairly representative sample.

A further issue with regard to sampling is the time period chosen for making the observations. With the holiday season just over, the experienced deprivation - not having a pig to roast for Nochebeuna - was very real. This undoubtedly heightened somewhat the accounts about effect of absence of pork from diets. A further issue is which stage of the program is currently being implemented in the region.

All of these issues arise in any field program. We merely recount them to give some appreciation for the limitations on the data. Having traced the project's evolution, as well as the detailed history of the communication campaign, these issues can be more easily understood.

MASS MEDIA USAGE

Almost everyone listens to the radio at least three times per week (Table 1). Interestingly, it is among the larger farmers that we find the lowest level of use. In two cases this is because they live in Santo Domingo during the week, and come out to their farm on weekends. Both emphatically avoid radio or other "interventions" while in the countryside. This means they hear news in the capital but are involved in pig production in an area where the stage of eradication is different, and information about what is going on from local sources may not be picked up.

All but a very small number reported listening to news as one of their major program choices, with each size group having one or two listing "pelota" (sports) or music, not news.

Newspaper readership was substantially lower for all three sizes of operators (Table 2). The middle size farmers reported higher readership, four reading the more than one paper per week, and only two reporting no readership. Four larger farmers reported not reading the paper at all, the same number as smaller farmers. With regard to type of news chosen to read, all but a few of those who read papers said they preferred news items such as politics, the national situation, editorial comments, etc. One store owner who rented a little land, and who had tried chickens only to see them all die of an infection, then tried goats and had lost all of them but one, said he would read any news that was good news, but was tired of bad news.

Three farmers in El Cupey specifically excluded politics from the section of the paper they read. Whether this is because they were the subjects of considerable pressure for not killing their pigs was not specifically ascertained.

TABLE 1

FREQUENCY OF LISTENING TO RADIO

	Daily	Less Than 3/weeks	None	Total
Large Farms	7	4	0	11
Medium	8	2	0	10
Small Farms	9	3	1	13
Total	24	9	1	34

TABLE 2

NEWSPAPER READERSHIP

	Daily	2 or More per Week	Only Per Week or less	None
Large	1	4	2	4
Medium	2	1	5	2
Small	3	2	4	4
Total	6	7	11	10

TABLE 3

RECEIVED BULLETINS

	Yes	No
Large	4	7
Medium	3	7
Small	3	10
Total	10	24

TABLE 4

FRIENDS GIVE TECHNICAL INFORMATION

	Often	Sometimes	Never
Large	4	4	3
Medium	3	5	2
Small	-	4	9
Total	7	13	14

Technical bulletins are performing only a limited function in information dissemination (Table 3). Only ten of thirty-four reported receiving them, and for some of these, the reference was to instructions for application of medicines left by a veterinarian. There was no appreciable difference in usage by size of operation.

With regard to informal channels of information (Table 4) seven of the thirty-four farmers (all in the middle and large farm groups) reported frequent use of friends for information. (Some referred to short courses and field demonstrations as part of this source.) Nine out of thirteen in the small farm group reported never receiving information from friends.

SOURCE CREDIBILITY

Farmers in the large and middle groups reflected some selectivity in what they accepted as true from the radio. Seven of the eleven in the large group and six of the ten in the middle group said you had to pick and chose from the many things that came over the radio (Table 5). Only one in each group stated you could not believe (most) radio information. In the small farm group, listeners either believed radio reports (10) or did not believe them (3) with none saying they had to be selective. Of the total sample, only three stated that information received over the radio was of little or no use.

Much higher levels of credibility were accorded newspapers by all groups (large 7; medium 6, and small 10). The small farm group included three who said newspapers could not be belived either. None of the respondents stated that newspapers were of little or no use. (Table 6).

TABLE 5

SOURCE CREDIBILITY - RADIO

	Believe	Selective	Not Believe
Large	4	6	1
Medium	3	6	1
Small	11	-	2
Total	18	12	4

TABLE 6

SOURCE CREDIBILITY - NEWSPAPER

	Believe	Selective	Not Believe
Large	7	3	1
Medium	6	4	-
Small	10	-	3
Total	23	7	4

We thus see fairly clear differences in the amount of information received from different sources by farmers in the different groupings. We also see differences both in source in which they believe, as well as amount of confidence expressed in each source, with newspapers being more trusted than radio, and larger and middle groups being more likely to evaluate than simply discount as false information they receive.

We turn now to information about how farmers reacted to the information campaign.

INITIAL AWARENESS OF THE CAMPAIGN

Table 7 gives the results for how farmers first heard of the existence of African Swine Fever. Radio announcements were the most common source for all groups. Technician contact prior to the visits by the brigades was the second most frequent source for the sample as a whole, with about the same number in each group reporting this source. We thus have no basis to suggest that one group was more or less well served in this regard.

Newspaper reports and visits from the brigade (at the time of the eradication) were almost tied for third and fourth place, but with an important difference. In all cases where farmers reported the newspaper as a source, they had also heard about it on the radio. For those giving the brigade as a source, only two (one large farmer who heard on the radio, and one small farmer who had had a veterinarian (tecnico) come visit) had awareness of the campaign prior to the arrival of the brigade. For an event as traumatic as having your pigs taken away for disposal, the absence of prior information was quite a problem for five of the seven, (two small farm operators, and three middle size operators).

When asked about the time of initial awareness of the fever, three responded they had heard of it in 1977. Two of these stated emphatically that it was not African fever, but Dandi (their name for cholera) that was simply a little stronger than previous hog cholera outbreaks. Twelve farmers reported 1978, and six gave 1979 as the time they heard about it. Four could not remember a date, but said it was before the brigades came. Five additional ones found out only as the brigades came to their village or town to begin eradication (which they simply

TABLE 7 ANNEX C

SOURCE OF INFORMATION ABOUT EXISTENCE OF ASF FOR DIFFERENT SIZE FARM OPERATIONS

	Radio	Newspaper	Technicians	Brigades	Friends	Government or Union
Large	7	3	4	1	1	
Medium	4	2	3	3	1	2
Small	6	3	3	3	2	
Total	17	8	10	7	4	2

TABLE 8

TIME OF INITIAL AWARENESS OF ASF EXISTENCE FOR DIFFERENT SIZE FARM OPERATIONS

Large	Medium	Small
	1977	1977
		1977
		2/78
5/78		
6/78	6/78	1978
8/78	8/78	8/78
10/78	9/78	12/78
2/79		
1979	1979	1979
1979		
11/79		11/79
Before	Before	
Before		Killing
	Killing	Killing
	Killing	Killing
1980	Doesn't Know	D.K. D.K

Before means before brigade arrived. Killing means when they did "la matanza"

called "killing"). One did not hear of it until 1980, and three did not remember when they first heard of it. There were no appreciable differences in time of awareness between the different farm size groups.

A more detailed understanding of the dynamics of the information campaign can be constructed from Table 9. Those reporting knowledge prior to 1979 included 4 in Barahona, two of whom heard from technicians, one from the brigade (his response of 1977 is quite probably in error) and one from a government briefing session (he was the alcalde in Cabral, outside Barahona toward Duverge). None of these people reported the radio or newspaper as a source of their information. One in Jimani reported technicos and the brigade, another radio. Major efforts in mass communication were then targeted on the east. Four of the six reporting knowledge prior to 1979 gave the radio as one of their sources. (The other two listed friends who probably heard it on the radio and relayed it, as per the "two-step flow" hypothesis of information dissemination theory).

Only three farmers in the North mentioned knowledge of the fever prior to 1979. Two listed the radio as their major source, and one listed friends. Four additional farmers were informed in 1979, and one stated he did not know about it until 1980. (This may have meant he had refused to believe the reports until then, as this was one area of considerable resistance to the eradication program).

Reactions to Finding Out About ASF

Among the various ways we assessed the impressions farmers held about ASF was simply asking them in an open-ended question. Given the

Time of initial awareness of ASF in communities surveyed.

[illegible]ona	Jimani	Partido	El Cupey	La Guama	La Enea	San Francisco Vincentillo
1977 B						1977 RP 1977 AT
[illegible]/78 C			5/78 RB		2/78 R	
[illegible]/78 T			6/78 A			
[illegible]/78 T	8/78 TB 8/78 RP			9/78 R		9/78 RP
		10/78 R			12/78 A	
		2/79 T			2/79 RB	
[illegible]/79 A		1979 R	11/79 RT	11/79 RP	1979 RPT	
		1979 R				
				B RP		
	K B	1980 R		Killing B		
	K B					
	K B					DK RT
[illegible]K RT				DK R	DK B	DK R

B - Brigade

G - Government

T - Technician

A - Amigos (Friends)

R - Radio

P - Periodico (Newspaper)

DK - Don't Know

Killing (at the time the brigade killed the pigs)

importance of this information, we have reproduced it as given by the farmers, with only slight rearrangement to facilitate understanding the answers (Table 10). We came up with eight general sets of responses ranging from sadness (the most common reaction) through adjusting to the new economic reality, to resignation, to trust in the government (the least common response.) A more structured part of the assessment included three fixed-response items.

When asked specifically whether they did or did not believe the news about ASF, thirteen stated that they did not believe it. Four of these were in Barahona, four in La Guama, four in La Enea, and one in El Cupey. Six of those who doubted the news were smaller farmers, three were in the middle size group, and four were larger farmers. Disbelief in the news was thus fairly specific to three of the seven places studied. There was a slightly higher level of disbelief among the smaller farmers, which is surprising, given their greater tendency to accept news without questioning it.

Only six of the farmers said they were not worried about the news, fewer than half of the number who said they did not believe it. In part this is because they realized the eradication was going to take place, even though they doubted the need for it. Three of these were in La Guama, and had also said they doubted the news. Two were in Jimani, where everybody interviewed said they believed the news. One was in El Cupey, but was not the same one who doubted the news.

With regard to size distribution, three who said they were not worried about the news were small farmers, two were in the middle size group, and one was in the large group.

Table 10
REACTION TO INITIAL NEWS OF ASF

LF	MF	SF	
			1. Sadness
4	3	4	Sad (chilled my soul)
			2. Doubt, confusion
		2	Did not know what it was/What to expect
		1	None got sick, nobody came here to do anything
			3. Economic impact, setback to business
2	2	1	Setback to business, (Just starting) Had nice pig.
			Disruption of livelihood depend on pigs
1	1		End of world for pigs, switch enterprises
			4. Doubt, Distrust
3	1	1	Did not believe it (somebody made it up (21), Government took them and had to accept it.
	1		Did not believe it until mine died
	1		Afraid they would kill the people too
1	1		Dubious about payment coming. Thought it was dandi.
			5. Resignation, coping, acceptance.
2	1	1	Go ahead and eat them and sell some
		2	Saw others' pigs die (Jimani) Had to accept it
		1	It was an evil (un mal)/sickness that had to be dealt with
	1		Out of my hands. If God does it who am I to complain.
			6. Worried concern impact on other (worried about impact on others)
			OK myself. End of the good life and ruin for country. (coincided with Govt. change)
			7. Inconvenience, hard to tell others (alcaldes)
	1	1	Hard to have to tell the people (Alcalde) or resented having to go around with the brigade (people got mad at him).
1			8. Confidence in Government to deal with it. Not worried (but sad)

All but four of those interviewed realized the news did apply specifically to them as well as to others. Three who thought it was not their problem lived in La Guama, and were the same three who both doubted the news and were not worried about it. The fourth lived in Jimani, and had believed the news, as well as being worried about it. She was a widow with eight sows, and had seen other pigs die, but felt she would be okay until the brigade (she referred to it as the army) came to kill the pigs.

Time and Source of Information that Pigs would be Killed

Table 11 shows the times at which individual farmers in each area came to the realization that their own pigs would be killed, as well as the source of that information. For both Barahona and Jimani, these times coincide fairly closely with the time of initial awareness of the disease. In the other areas awareness that their pigs would be eradicated came at a somewhat later date than initial awareness for most respondents.

Arrival of the brigade in the area was the most frequent source of information, with technician contact (often having called a vet for sick pigs) the second most cited source. Radio announcements were next, with newspaper items having been mentioned by only one farmer. Radio messages were most common as a source in La Guama (3) but were only mentioned once in San Francisco Vincentillo and not at all in La Enea. No one mentioned poster It thus appears that neither the intensive series of broadcasts nor the widely distributed posters translated into awareness, at least to the point where farmers cited them as a source more important than the brigade. It may well have been that the background information provided by the radio, both in providing initial awareness, and

Table 11

Time of Awareness that their own pigs would be Killed, and Source of Information.

Barahona	Jimani	Partido	El Cupey	La Guama	La Enea	San Francisco Vincentillo
6/77 T						
5/78 G,B						
		1978 B	6/78 T			
7/78 B						
8/78 T	8/78 B					
	8/78 B	9/78 R				
S F	K B					
	K B		12/78 S	T B		Ba R
D B	K F		2/79 T	T B	2/79 S	
		10/79 K	2/79 T	1979 P,R	6/79 B	1979 F
		10/79 B		12/79 R	K B	DK T
				DK R,G	K B	DK B
					DK B	DK V

16 Brigade
6 Technicians (or when technicians came - did not know date)
5 Radio
3 Friends
2 Government
2 S - After pigs got sick
1 Killing (in area, brigade did not come or was not direct source)
1 P - Newspaper
D After pigs died
DK Does not know
Ba During Balagner's government
1 V - Sold pigs all, so did not need to worry about "sacrifice."

the general nature of the campaign, still had a lot to do with the general acceptance of the eradication campaign.

Knowledge of Compensation for Pigs that were eradicated

As mentioned earlier in the section on communication history, the effort to restore consumer confidence in eating pork did much to foster disposition of animals by the owners, either through selling them or eating them before the brigades arrived. Table 12 gives the responses to whether and when people heard about compensation. It was very hard to get dates from people, so much of the information refers to the stage of eradication within their own area.

Seven farmers reported not hearing of compensation until their pigs were killed or until the brigades were taking pigs for sale to butchers. Six were never told about compensation, and another four heard about it but did not believe it. Four others had their pigs taken alive by the brigade, while two had sold them to a butcher, and another had sold them to others in the area before the brigade came. Two heard about compensation only after the brigade came, and had spent some time trying to decide whether to eat their pigs or sell them. (There was some nervous laughter about debating whether others would report them or take their pigs if they hid them.) Six reported dates when they were informed, in most cases at the time the brigade came, except for the alcalde in Cabral, who quite likely had his (1977) date confused.

There was much less discussion about not getting paid than was initially expected, due in large part to people having sold their own pigs. One farmer sold his pigs early at $.80 per kilo, and was

Table 12

When did you learn that you would be commensated?

Barahona	Jimani	Partido	El Curey	LaGuama	LaEnea	S.F. Vinc
1977						
S	K					
K	K					3/78
			2/79		V	Y
L*	K	10/79	SO	TA	V	Y
		10/79	TA	TA	K	TA
L	N	BB		N	K	N
Y	N	K	Y	2/80	N	
				DK		

7 K When Killed
6 N Not told they would be paid
4 Y Did not believe they would pay but (yes) did hear it
4 TA Taken alive by brigade
2 L Later--after brigade came
2 V Sold to butcher or buyer (Vendido)
1 BB Before brigade came
1 SU Sold to others in the area
1 DK Does not know when, but did hear of it
1 S When they got sick

6 : actual dates.

disgruntled to hear about the peso-per-kilo rate later. Two farmers mentioned specifically knowing of the rate, but did not think they would be paid, so sold their pigs on their own. (It turned out they got more than this for them. It was hard to get information on how much they received, since many thought they would either have to pay the government the difference over one peso or pay taxes on what they sold.)

Communication Strategy Recommendations

During the early period of the campaign to eradicate, much of the communication effort was directed simply to trying to tell people what to expect. This was done mainly by press releases and large scale ads in the newspapers, by wall posters, and by radio announcements. The high level of technical quality of these items is immediately obvious. The extent to which they showed up as sources at the farm level was more limited than expected. This may be due to the length of time that has elapsed since the intensive part of the campaign passed.

Continued activity is important. An FAO information specialist had considerable input into the program, and recommended at an early stage that a social scientist be included in the communication campaign. The decision to place a veterinarian in charge of the campaign appears not to have been a problem, but may have lessened somewhat the awareness to problems as shown in the analysis. There has been compiled a very detailed newspaper file on many aspects of the campaign. He has also done the coordination of the public announcements and radio and newspaper notices. These activities have shown flexibility and a great deal of creativity in enlisting the assistance of farmers in helping locate and eradicate pigs, rather than setting them off as the people who are concealing pigs. This shows up in one of the posters, wherein the pig looks like the culprit, and the farmer is cast as the cooperative one who found the wily pig.

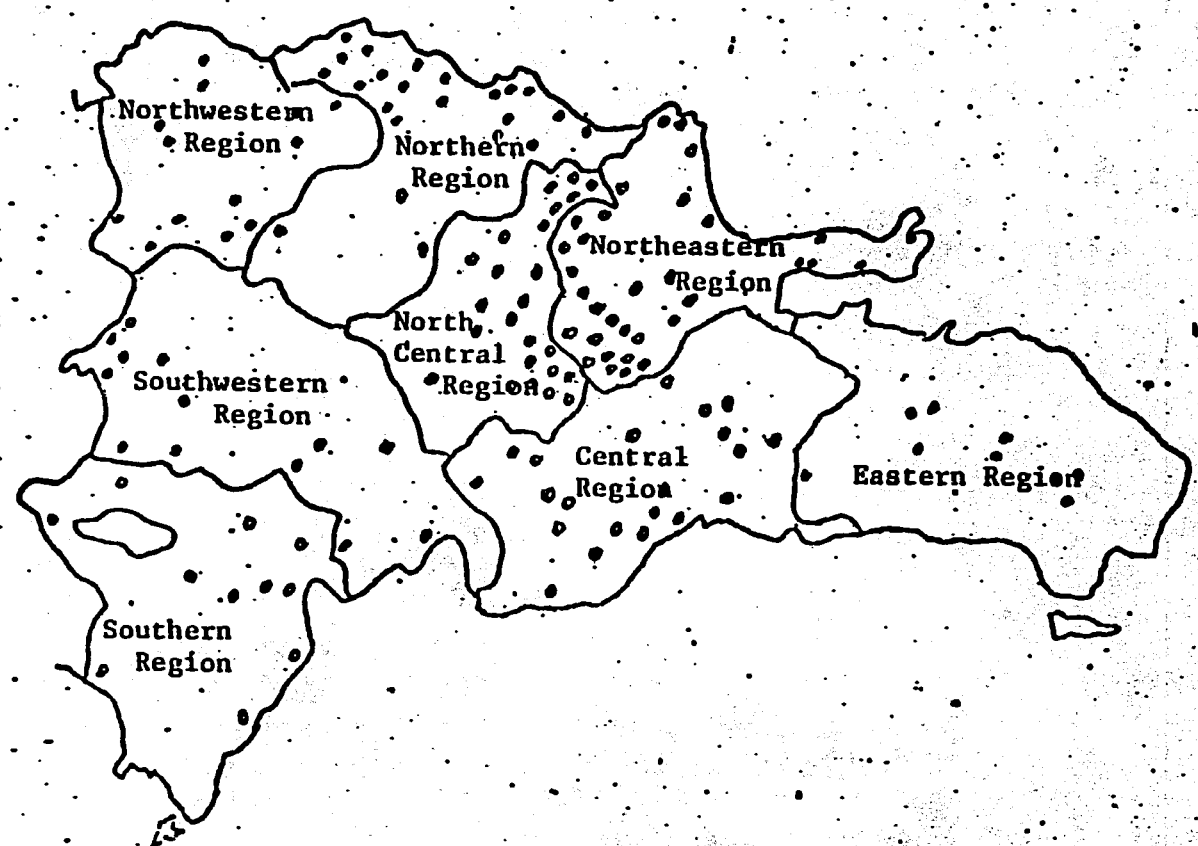
The communication campaign can be judged a success in terms of re-establishing consumer confidence in pork, and in terms of convincing producers to sell or consume their pigs. It can also be considered a success in terms of giving enough information to farmers to prevent opposition to the campaign to eradicate.

Several misconceptions about the campaign exist that need to be addressed soon. Many farmers see the sentinal pigs merely as breeding stock, and take this to mean that repopulation is already under way at a fairly rapid pace. Many want and expect pigs in the not-to-distant future. Some effort needs to be initiated soon in the

areas of the country not undergoing sentinalization to explain in more detail the nature of this part of the program. Had this been undertaken earlier, it would have simplified things by presenting accurate information for the first time people heard about it. The decision to concentrate this campaign in the east has meant that people in other regions have concocted their own version of what is happening. This now means that the information about sentinelization will have to be presented as part of an effort to correct earlier misconceptions, a more difficult message to convey than would have been the case earlier on. Part of the problem results from not having created a position of communication specialist in the regional offices of SEA. Almost all the effort has come from the Santo Domingo office.

EXHIBIT 1

Distribution of African Swine Fever foci, diagnosed by laboratory examination, by agricultural region, Dominican Republic, July 1978 - January 1979.



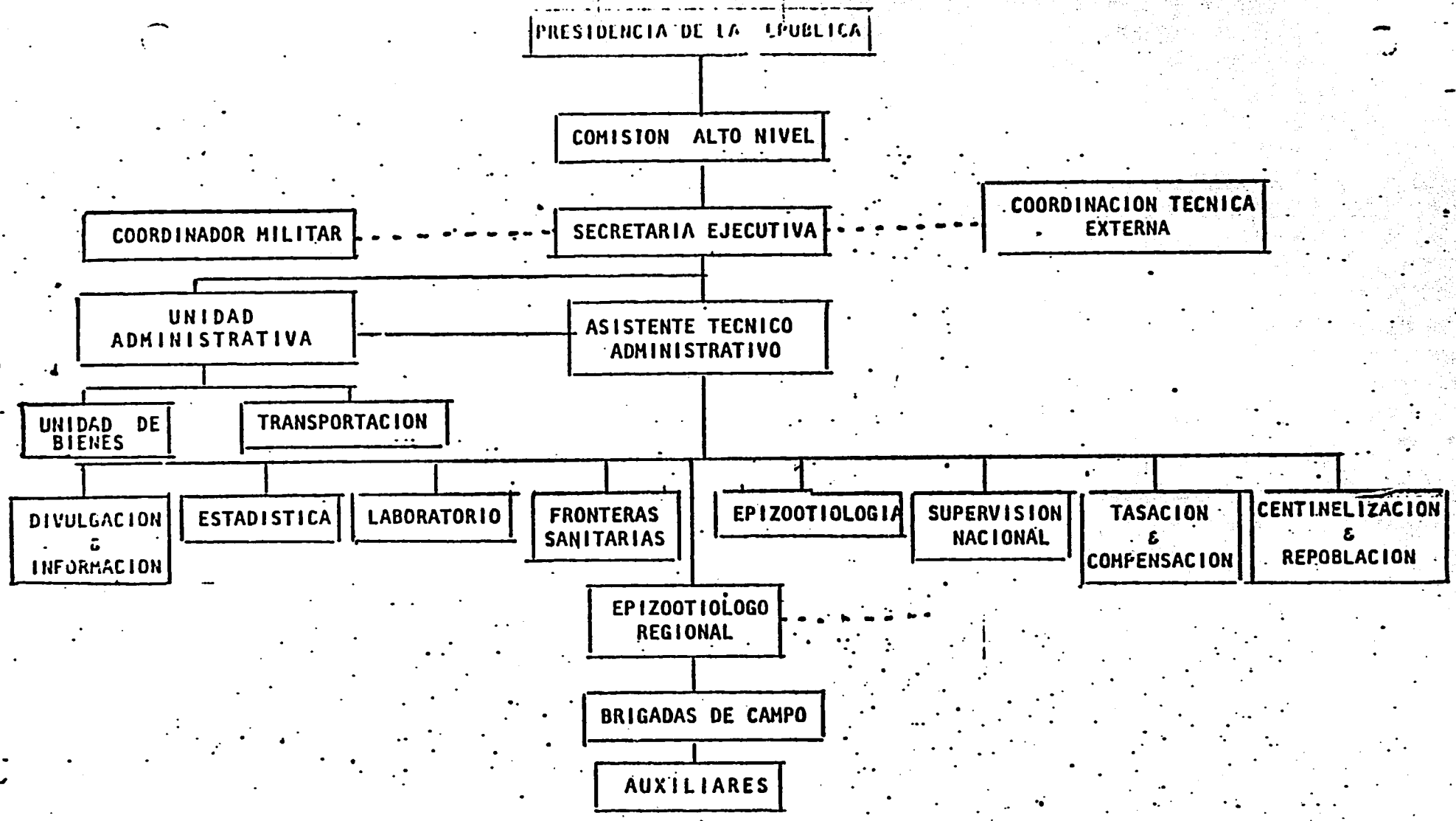


EXHIBIT 2

JEFES DE DIVISIONES:

DIVULGACION E INFORMACION: DR. CARLOS GRAVELEY ESTADISTICA: NOEL SALCEDO CANAAN LABORATORIO: DRA. EVA H. DE RODR
FRONTERAS SANITARIAS: DR. TIRSO MONTAN EPIZOOTIOLOGIA SUPERVISION NACIONAL: DRES. RAMON TEJADA Y GUEZ
BIENVENIDO CHICO VENTURA

CENTINELIZACION Y REPOBLACION: DR. PEDRO PABLO LORA

CH
Enero 9, 1981

EXHIBIT 3

List of Titles and Names of Members of the High Level Commission for the Eradication of African Swine Fever.

1. Secretary of State for Agriculture: Ing. Agrón. Hipolito Mejia D.
2. Secretary of State for Armed Forces: Tte. General Mario Imbert McGregor
3. Secretary of State for Public Health: Dr. José Rodriguez Soldevilla
4. Executive Director of INESPRE: Ing. Gustavo Sánchez Díaz
5. Governor of the Central Bank: Lic. Carlos Despradel
6. General Administrator of the Agricultural Bank: Mario Emilio Cáceres Rodriguez
7. Director General of IAD: Agrón. Eligio Jaquez
8. Director General of Livestock: Dr. Marcelino Vargas y Vargas
9. Executive Secretary of the Commission: Dr. Orlando Sánchez Díaz

This High Level Commission was established on July 12, 1978 by President Joaquin Balaguer - Decree Number 3479; the revised membership as above was established on August 17, 1978 by President Antonio Guzmán Fernandez in Decree Number 44. The powers of the High Level Commission were strengthened on September 1, 1978 by President Antonio Guzmán Fernandez in Decree Number 146.

EXHIBIT 4

AFRICAN SWINE FEVER PROGRAM DOMINICAN REPUBLIC

DISTRIBUTION OF PERSONNEL BY CLASSIFICATION DEC. 1980

CLASSIFICATION	NUMBER	PERCENT
Veterinarians	57	8
Other Professionals	76	10
Auxilliary Technicians	126	17
Adm & Clerical	38	5
Others	139	19
Military	291	40
Advisors	2	1
TOTAL	729	100

AFRICAN SWINE FEVER PROGRAM DOMINICAN REPUBLIC

DISTRIBUTION OF PERSONNEL BY WORK LOCATION DEC. 1980

LOCATION	NUMBER	PERCENT
Headquarters	107	15
Laboratory	21	3
Information	8	1
Field	593	81
TOTAL	729	100

EXHIBIT 5

CUADRO Nº2
DOTACION DE VEHICULOS
OCT. -,DIC. 80

CAMIONETAS EN SERVICIO	CARROS	MOTOCICLETAS	TOTAL
93*	3	56	152

* DE LOS CUALES:

- 53 SON INTERNACIONAL
- 24 SON TOYOTA
- 9 SON DATSUN
- 7 SON TIPO COMANDO

EXHIBIT 6

TECHNICAL ASSISTANCE FOR ASF PROGRAM FROM JULY 1978

Name of Technician	Agency/Country	Dates of Assignment	Purpose of Assignment
1. Dr. Dean Philson	USDA-APHIS-VS	Aug. 78-3 weeks	Delegation chief-review of ASF Program
2. Dr. Jim Downard	"	"	Review ASF field operation Procedures
3. Dr. Allan George	"	"	Review import-export Procedures at ports and airports
4. Dr. H.A. McDaniels	"	"	Review laboratory capabilities
5. Dr. Bob Mack	"	"	Review epidemiologist procedures
6. Dr. Carlos Miranda	"	Aug. '78-4 days	Evaluate regulatory and industry response and cultural impact of ASF outbreak
7. Dr. Bernie Negrón	"	"	" " " " "
8. Dr. Carlos Miranda	"	Sept.& Oct. '78	Assist in organizing eradication efforts
9. Dr. Prieto	Spain	Aug '78	Advise on ASF outbreak
10. Dr. Marcos	"	"	" " " "
11. Dr. Hunt McCauley	Univ. of Minessota	Aug '78-Jan. '79	Economic Impact of ASF
12. Dr. Gary Colgrove	FAO/USDA/PIADC	Oct. '78 thru Sept'80	Laboratory advisor
13. Dr. Gary Colgrove	AID/USDA/PIADC	Oct. '80 " present	" "
14. Dr. David Williams	UNDP/Cuba	Aug. '78 subsequent trips	ASF Program Advisor
15. Dr. Hugo Fernández	UNDP/Cuba	July "79 subsequent trips	ASF " "
16. Dra. María Luya Padrón	UNDP/Cuba	Aug '79	Laboratory Advisor
17. Dr. Saul Wilson	USDA/APHIS/VS	March-June, 1978	ASF Program Advisor
18. Dr. Robert Reichard	"	"	" " "
19. Dr. H.A. McDaniels	"	March '79 & subsequent trips	Laboratory Advisor
20. Mr. Robert Farwell	"	April '79 & subsequent trips	Cleaning & Disinfection
21. Dr. Daul Wilson	"	July '79 to present	Chief Advisor-ASF Program
22. Dr. Frank Hayes	Univ. of Georgia	June '79	Wild Pig Survey Activities
23. Mr. Richard Payne	" "	"	"
24. Mr. Wendell Wilson	" "	"	"
25. Dr. Ralph Brahm	USDA/APHIS/VS	"	Vector Survey Activities
26. Dr. Roy Hand	"	"	Epidemiology Advisor
27. Dr. Gary Combs	"	"	" "
28. Dr. B. Negrón	"	Feb '80 & subsequent trips	ASF Program Advisor
29. Dr. Irwin Hugg	"	July-October '79	" " "
30. Miss Patricia Chain	FAO	Mar '79 & subsequent trips	Advisor Information

N	e of Technician	Agency/Country	Dates of Assignment	Purpose of Assignment
31.	Dr. Walter Eskew	USDA/APHIS/VS	July '79 & subsequent trips	Sentinel pigs & other activities
32.	Dr. Johny Copelin	Univ. of Florida	Oct. '79 & subsequent trips	Swine Management Advisor
33.	Dr. George Winegar	FAO/USDA/APHIS/VS	Aug '78 thru Oct. 78	ASF Program Advisor
34.	Miss Mary Sebrecht	"	April '80 & subsequent trips	Program AID Preparatic
35.	Dr. James Smith	"	July '79	ASF program review
36.	Dr. William Stewart	"	Dec '79	Laboratory Advisor
37.	Mr. Michael Snyder	"	Nov '79 & subsequent trips	" "
38.	Dr. Farouk Hambdy	USDA/PIADC	Nov. '79	" "
39.	Dr. Y. Ozawa	FAO	June '80	Program evaluation
40.	Dr. Thelma D. Njaka	W. Va.-Dept. of Agr.	Dec '80	Laboratory Advisor
41.	Dr. C.G. Masoh	USDA/APHIS/VS	June '80	Program evaluation
42.	Dr. Hunt McCauley	Univ. of Minessota	Jun & Feb. '81	Evaluation Team
43.	Dr. John Mason	USDA/APHIS/VS	Jan & Feb. '81	" "
44.	Dr. James Converse	Kansas State Univ.	Jan. & Feb. '81	" "
45.	Dr. E. Torres	IDB	Dec. '78 & subsequent trips	Program Funding Advisc
46.	Ed Thomae	USDA/APHIS/VS	Aug-Sept. '80 & subsequent trips	Ani. Health Tech. Acti
47	Dr. Richard Hughes	AID	June '80	Program Evaluation
48.	Dr. John W. Walker	USDA/APHIS/VS	June '80	ASF Program Advisor
49.	Kathleen Ellis	"	April '80	Program aids preparation
50.	Dr. M. A. Mixon	"	Dec '78	ASF training course
51.	Dr. E. E. Wedman	Univ. of Oregon	Jan '80	ASF Program Advisor
52.	Dr. I. C. Pan	USDA/PIADC	Aug '79	Laboratory Advisor

EXHIBIT 7

34

DESPOBLACION INDIRECTA
CERDOS ENVIADOS A
MATADEROS
JULIO - SEPTIEMBRE
1980

Nota: La despoblación se completó en septiembre de 1980

REGION	Nº DE CERDOS
CENTRAL	9,877
NORTE	385
NORCENTRAL	72
NORDESTE	--
NOROESTE	--
SUROESTE	5
SUR	--
ESTE	--
TOTAL	10,339

EXHIBIT 7

DESPOBLACION INDIRECTA
CERDOS ENVIADOS A MATADEROS
OCTUBRE 1979 - SEPTIMEBRE 1980
(ACUMULADO)

Nota: La despoblación se completó en septiembre, 1980

REGION	Nº DE CERDOS
CENTRAL	21,937
NORTE	5,184
NORCENTRAL	72
NORDESTE	8,298
NOROESTE	162
SUROESTE	20
SUR	--
ESTE	--
TOTAL	35,673

EXHIBIT 7

CERDOS COMERCIALIZADOS POR INFSPRE
TRIMESTRE JULIO - DICIEMBRE
1980

MES	Nº DE CERDOS
JULIO	509
AGOSTO	156
SEPTIEMBRE	12
OCTUBRE	0
NOVIEMBRE	0
DICIEMBRE	0
TOTAL	677

EXHIBIT 7

COMPENSACION A SUPERMERCADO, PLANTAS EMBUTIDORAS Y CASAS IMPORTADORAS DE VACUNAS ANTI-COLERA

OCT. - DIC. 1980

CONCEPTO	MONTO COMPENSADO (RD$)
Carne Fresca y Subproductos	8,271.40
Vacunas Anti-cólera	242.66
TOTAL	8,514.06

EXHIBIT 7

38

ENFERMEDADES DIAGNOSTICADAS EN LOS

CERDOS CENTINELAS, REGION ESTE

JULIO - DICIEMBRE

1980

DIAGNOSTICO	TOTAL	
	GRUPO AFECTADO	CERDO AFECTADO
Miasis	14	15
Intoxicación	4	10
Asma alérgica	2	2
Cojera traumática	21	27
Conjuntivitis crónica	11	17
Absceso	7	8
Herida traumática	2	2
Bronquitis	3	5
Neumonía	17	49
Diarrea alimenticia	3	3
Otitis	1	1
Fractura de pierna	1	1
TOTAL	86	140

EXHIBIT 7

ENFERMEDADES DIAGNOSTICADAS EN LOS
CERDOS CENTINELAS, REGION NORDESTE (PENINSULA DE SAMANA)
SEPT. - DICIEMBRE
1980

DIAGNOSTICO	TOTAL	
	GRUPO AFECTADO	CERDO AFECTADO
Quemadura por transporte	3	15
Cojera traumática	9	9
Hernia umbilical	1	1
Conjuntivitis	6	7
Nuemonía	2	2
Absceso	3	3
Miasis	3	3
Intoxicación	1	1
TOTAL	28	41

EXHIBIT 7

AVANCE INVESTIGACION VECTORES
JULIO - DIC. 1980 Y ACUMULADO

REGIONES	Nº FINCAS MUESTREADAS		RESULTADOS
	JULIO - DIC.	ACUMULADO A LA FECHA	
Central	8	13	Neg.
Nordeste	--	2	Neg.
Noroeste	--	20	Neg.
Suroeste	4	14	Neg.
Sur	31	41	Neg.
Este	8	32	Neg.
TOTALES	51	122	Neg.

EXHIBIT 7

41

AVANCE ALCANZADO
INVESTIGACION CERDOS SALVAJES
JULIO - DIC. 1980 Y ACUMULADO

PERIODO	CERDOS CAPTURADOS				MUESTRAS ENVIADAS		RESULTADOS
	C	SC	A	TOTAL	TEJIDOS	SUEROS	
ulio - Dic.	12	--	--	12	12	6	Neg.
Acumulado a la fecha	61	2	6	69	92	58	Neg.

Lectura:

C : Cimarrones

SC : Semi-Cimarrones

A : Alzados

EXHIBIT 7

AVANCE DE LAS
ACTIVIDADES DE DESPOBLACION
JULIO - DICIEMBRE 1980

REGION	PROPIETARIOS-AFECTADOS	CERDOS DESPOBLADOS*
CENTRAL	1,073	2,276
NORTE	626	2,310
NORCENTRAL	82	120
NORDESTE	8	35
NOROESTE	7	103
SUORESTE	236	491
SUR	3	6
ESTE	32	460
TOTAL	2,088	5,801

* INCLUYEN CERDOS TASADOS, INCAUTADOS Y CONSUMIDOS POR SUS PROPIETARIOS.

EXHIBIT 7

ACTIVIDAD DE
TASACION Y COMPENSACION
JULIO - DICIEMBRE
1980

REGION	PROPIETARIOS AFECTADOS	CERDOS TASADOS	VOLUMEN CARNE (KGS)	VALOR COMPENSACION (RD$)
CENTRAL	166	440	6,852.12	6.652.12
NORTE	216	545	36,320	$36,320.00
NORCENTRAL	57	95	5,964	$5,964.00
NORDESTE	2	3	165	$165.00
NOROESTE	89	173	9,927	$9,927.00
SUROESTE	14	30	1,077	$1,077.00
SUR	4	21	550	$550.00
ESTE	56	560	23,450.25	23,450.25
TOTAL	604	1,867	84,305.37	84.305.37

EXHIBIT 7

AVANCE ACTIVIDADES
DESPOBLACION
ACUMULADO
JULIO 79 - DIC. 80

REGION	PROPIETARIOS AFECTADOS	CERDOS DESPOBLADOS
Central	2,712	7,735
Norte	2,498	14,250
Norcentral	419	568
Nordeste	4,515	20,554
Noroeste	1,519	3,138
Suroeste	948	1,605
Sur	171	607
Este	1,757	5,673
TOTAL	14,539	54,130

EXHIBIT 7

AVANCE ACUMULADO EN ACTIVIDADES
DE TASACION Y COMPENSACION
A DICIEMBRE 1980

REGION	PROPIETARIOS AFECTADOS	CERDOS TASADOS	PESO (KG)	MONTO PAGADO (RD$)
Central	1,547	50,897	4,117,336.12	4,117,336.12
Norte	1,972	22,926	1,586,048.75	1,586,048.75
Norcentral	102	226	16,071	16,071.00
Nordeste	1,438	9,087	322,323	322,323.00
Noroeste	2,363	7,113	265,193	265,193.00
Suroeste	3,936	9,539	259,384	259,384.00
Sur	11,199	44,233	1,238,763	1,238,763.00
Este	1,672	13,556	696,408.25	696,408.25
Otros*	---	---	---	8,514.06
TOTAL	24,229	157,577	8,501,527.12	8,510,041.18

*VER CUADRO Nº

EXHIBIT 7

ESTUDIO SEROLOGICO
POR REGIONES
ACUMULADO
JULIO 1979 - DIC. 1980

REGION	TOTAL MUESTRAS	MUESTRAS NEGATIVAS	MUESTRAS POSITIVAS	MUESTRAS NO APTAS	CANT./TIPO MUESTRAS	CANT. MUESTRAS POR PROCEDENCIA
Central	2,947	2,929	11	7	111 Tejidos 2,809 Sueros 27 Descon. 2,947	200 Finca 723 Patio 1,579 Matadero 420 Invest. 25 Sin proced. 2,947
Norcentral	191	185	3	--	191 Sueros 191	18 Finca 157 Patio 16 Matadero 191
Norte	1,863	1,844	16	3	24 Tejidos 1,839 Sueros 1,863	337 Finca 660 Patio 789 Matadero 77 Sin proced. 1,863
Nordeste	3,576	3,520	12	44	13 Tejidos 3,517 Sueros 3,576	1,863 Finca 1,348 Patio 142 Matadero 85 Invest. 138 Sin proced. 3,576
Noroeste	1,655	1,651	4	--	5 Tejidos 1,650 Sueros 1,655	704 Finca 853 Patio 98 Matadero 1,655
Suroeste	759	575	4	--	1 Tejido 578 Sueros 579	51 Finca 457 Patio 71 Matadero 579
Sur	156	154	--	2	5 Tejidos 151 Sueros 156	5 Finca 92 Patio 26 Matadero 23 Monte 10 Invest. 156
Este	1,381	1,360	20	1	49 Tejidos 1,309 Sueros 23 Descon. 1,381	568 Finca 410 Patio 167 Matadero 66 Parque Nac. 164 Sin proced. 6 Invest. 1,381
TOTALES	12,348	12,221	70	57	208 Tejidos 12,044 Sueros 96 Descon. 12,348	3,746 Finca 4,700 Patio 2,888 Matadero 23 Monte 66 Parque Nac. 404 Sin proced. 521 Invest. 12,348

EXHIBIT 7

NUMBER OF PROPRIETORS WITH ASF (PREMISES AFFECTED) BASED EITHER ON POSITIVE TISSUE OR SERUM SPECIMENS: (By date of examination)

47

1978	JULY	113		OCT	-	1
	AUG	- 91		NOV	-	9
	SEP	- 24		DEC	-	8
	OCT	- 64	1980	JAN	-	5
	NOV	- 11		FEB	-	2
	DEC	- 3		MAR	-	0
1979	JAN	- 25		APR	-	2
	FEB	- 8		MAY	-	4
	MAR	- 4		JUN	-	1
	APR	- 14		JUL	-	1
	MAY	- 4		AUG	-	4
	JUN	- 0		SEP	-	2
	JUL	- 5		OCT	-	1
	AUG	- 6		NOV	-	1
	SEP	- 8		DEC	-	0

48

LABORATORY EXAMINATION OF TISSUE SPECIMENS
(By date of examination)

	MONTH AND YEAR	POSITIVE FOR ASF	NEGATIVE	TOTAL SPECIMENS
1978	JULY*	16	0	16
	AUG	48	41	89
	SEP	128	211	339
	OCT	26	80	106
	NOV	8	38	46
	DEC	6	22	28
1979	JAN	16	14	30
	FEB	7	9	16
	MAR	7	8	15
	APR	14	2	16
	MAY	3	4	7
	JUN	3	3	6
	JUL	2	21	23
	AUG	0	7	7
	SEP	0	0	0 **
	OCT	0	12	12
	NOV	0	13	13
	DEC	0	12	12
1980	JAN	0	11	11
	FEB	0	4	4
	MAR	0	2	2
	APR	0	4	4
	MAY	0	8	8
	JUN	0	4	4
	JUL	0	10	10
	AUG	0	34	34
	SEP	0	9	9
	OCT	0	8	8
	NOV	0	27	27
	DEC	0	0	0

* From July 23, 1978

** The ASF laboratory was out of service during Sept. 1979 because of a power interruption as a result of Hurricane David Aug 31. 1979.

EXHIBIT 7

LABORATORY EXAMINATION OF SERUM ESPECIMENS
(By date of examination)

Month & Year	Positive for ASF	Negative	Total Specimens
1978 August	38	63	101
Sept	3	12	15
Oct.	0	15	15
Nov.	3	19	22
Dec.	13	3	16
1979 Jan.	10	39	49
Feb.	4	10	14
Mar.	5	10	15
Apr.	10	116	126
May	9	135	144
June	2	647	649
July	6	329	335
Aug.	11	4,637	4,648
Sept.	6	231	237
Oct.	0	5	5
Nov.	13	501	514
Dec.	11	497	508
1980 Jan.	5	757	762
Feb.	2	401	403
Mar.	1	367	368
Apr.	4	1,751	1,755
May	4	630	634
June	3	467	470
July	4	762	766
Aug.	2	789	791
Sept.	2	314	316
Oct.	1	107	108

EXHIBIT 7

Month & Year	Positive for ASF	Negative	Total Specimens
1980 Nov.	0	170	170
Dec.	0	49	49

EXHIBIT 7

SERUM SPECIMENS PROCESSED AT THE ASF LABORATORY JULY 1979 - DEC. 1980
(By date of examination)

Month & Year	Positive for ASF	Negative	Total	% Positive
July-Sept. 1979	23	4682	4713	0.49
Oct-Dec. 1979	23	955	978	2.39
Jan-March. 1980	8	1541	1549	0.52
April-June 1980	11	2848	2859	0.39
July-Sept. 1980	8	1865	1873	0.43
Oct-Dec. 1980	1	326	327	0.36

EXHIBIT 8

CURSO SOBRE DIAGNOSTICO Y CONTROL DE LA PESTE PORCINA AFRICANA

FAO / DIRECCION GENERAL DE GANADERIA

Santo Domingo, República Dominicana
4 al 14 de diciembre de 1978

PROGRAMA

Lunes 4/12

08.30	Inauguración	Dr. Roald Peterson, Representante de la FAO Ing. Hipólito Mejía Secretario de Estado de Agricultura Dr. F.J. Peritz Oficina Regional de la FA Dr. Marcelino Vargas Director General de Ganadería
09.30	Película sobre la PPA	
10.00	La situación en Brasil	Dr. F.J. Peritz, Oficial Regional de Producción y Sanidad Animal de la FAO

Martes 5/12

08.30	Aspectos Epidemiológicos - Presentación de la enfermedad. - Distribución epidemiológica. - Diagnósticos efectuados.	Dr. Noel Salcedo Canaán Encargado Unidas Bio-estadística del Subprogra de Sanidad Animal
	Bioestadística e Indemnización - Programa de Bioestadística - Recopilación de información técnica y económica - Procesamiento de la información.	

09.30	- Situación actual y perspectivas futuras. - Estrategia general de control y erradicación.	Dr. José A. González de Lemos Secretario Ejecutivo FPA, Director División Profilaxis Dirección General de Ganadería
10.30	Café.	
10.45	<u>Aspectos Administrativos</u> - Capacidad ejecutiva y grado de autoridad de la unidad ejecutiva. - Agilidad administrativa en suministros (equipos y materiales). - Sistema de comunicaciones internas y externas. - Movilidad y mantenimiento de equipos y vehículos.	Dr. José A. González de Lemos
11.45	<u>Aspectos de Apoyo Técnico</u> - Distribución del personal. - Programa de adiestramiento y capacitación. - Programa de educación y divulgación. - Apoyo interinstitucional y del sector.	Dr. Pedro N. Jorge Sánchez Encargado Unidad Educación Sanitaria del Subprograma de Sanida Animal
12.45	Almuerzo.	
14.00	<u>Aspectos Financieros</u> - Recibimiento oportuno de recursos financieros. - Ampliación de las partidas presupuestarias para reclutamiento de nuevo personal, pago de viáticos y adquisición de insumos. - Imprevistos.	Dr. José A. González de Lemos
15.00	- Sistemas de tasación e indemnización.	Dr. Orlando Sánchez Encargado Programa Ganadero del Banco Agrícola
15.30	Café.	

15.45	Aspectos de Apoyo Legal - Actualización del reglamento de policía veterinaria con resoluciones para control y erradicación de la Peste Porcina Africana. - Decretos, leyes y resoluciones. - Sistema de comunicación y puesta en práctica.	Dr. Bolívar Toribio Asistente Técnico Operativo del Fondo Especial para el Desarrollo Agropecuar (FEDA)
16.45	Aspectos de Control y Erradicación en otros países - Estados Unidos	Dr. Robert Reichard Veterinario Programas Internacionales del Departamento de Agricultura de EE.UU. (US
17.45	Aspectos de Procedimientos - Reglamento Operativo. - Instructivos.	Dr. Samuel Guerra Subdirector Laborator Veterinario Central d. San Cristóbal

Miércoles 6/12

08.30	Aspectos de Control y Erradicación en otros países (Cont.) - España	Dr. Robert Reichard
09.00	- Pérdida del mercado de exportación e implicación del problema de la Peste Porcina Africana con el mercado de exportación de otros productos agropecuarios.	Sr. Guillermo Vizcaín CEDOPEX
09.30	Aspectos Industriales - Consecuencias negativas en el funcionamiento de Cooperativas y Organización de porcicultores (cabañas, criaderos, centros de engorde).	Dr. Alfonso Gómez Veterinario, porcicul
10.30	Café.	

10.45	Aspectos de Matanza, Limpieza y Desinfección	
	- Procedimiento de las brigadas en campo. - Sistemas de sacrificio de los porcinos. - Disposición de los animales muertos o sacrificados (incineración ó entierro).	Sr. Robert Farwell Técnico Oficial Programas de Emerger Servicios Veterinari USDA
11.45	- Procedimientos de limpieza y desinfección de explotaciones, mataderos e industrias.	Dr. Gregorio Castill Subdirector Regiona Pecuario Zona Centra
12.15	Almuerzo.	
13.00	Visita a granja tecnopecuaria, Haina.	

Jueves 7/12

08.30	Visita a los animales infectados.	
10.30	Visita al Laboratorio Veterinario Central de San Cristóbal.	
11.00	Aspectos del Laboratorio	
	- Enfermedades del cerdo. Diagnóstico diferencial.	Dr. H.A. McDaniel Veterinario Oficial Programas de Enferm dades de Emergencia USDA
13.00	Almuerzo.	
14.00	- Diagnóstico, referencia y asesoramiento. - Toma y envío de muestras. Problemas. - Procesamiento y envía de resultados.	Dra. Eva María Rive de Rodríguez Encargada de Labora torio del Programa Erradicación de la
15.00 - 17.00	- Visita a la Unidad de Diagnóstico de la PPA.	

Viernes 8/12

08.30 a 18.30	Visita de campo a La Romana G+W.	

Sábado 9/12

05.15 a 20.15	Visita a Jimaní, R.D. y Malpasse, Haití	

Domingo 10/12

	Libre	

Lunes 11/12

08.30	Visita al lugar de cerdos infectados Experimentalmente hacer necropsias.	
13.00 a 17.00	División de los participantes en tres grupos. Presentación del ejercicio que los grupos usarán para estudiar.	Dr. Enrique Torres BID

Martes 12/12

08.30	Visita a la estación de Cuarentena para animales importados al país. Cerca al aeropuerto Las Américas.	Dr. Andrés Farías Ca Dr. Luis Cuevas. Ministerio de Agricc tura, Depto. de Sani Animal
10.30	Demostración de limpieza y desinfección en piara. Despoblado cerca Santo Domingo.	Dr. Samuel Guerra
13.00	Almuerzo	
14.00 a 18.00	Trabajo por grupos en el ejercicio.	

Miércoles 13/12

05.45 a 20.15	Visita a brotes en campo, Puerto Plata, Sosua.	

Jueves 14/12

07.30	Visita matadero CAMI - Sto.Domingo	Dr. Wilfredo Kasse A Jefe de Inspección d Carnes, Salud Públic.
10.00	Inspección y vigilancia a nivel de puertos y fronteras.	Dr. Tirso Montán Nav. Encargado Servicio d Fronteras, Puertos y Aeropuertos.
10.30	Repoblación. Financiamiento.	Dr. Enrique Torres, B.
12.00	Programas de Emergencia y control de enfermedades exóticas.	Dr. Andrew Mixson Jefe Programas de Emergencia, USDA
13.00	Presentación de juegos de transparencias y cintas grabadas sobre PPA.	
13.30	Almuerzo.	
14.30	Aspectos de Control y Erradicación de otros países.	
	- Cuba	Dr. David Williams C. Epizootiólogo, Instituto de Medicina Vete rinaria de Cuba
15.30	Diagnóstico diferencial de PPA y otras enfermedades de cerdos.	Dr. H.A. McDaniel
16.00	La comunicación en los programas de salud animal.	Srta. Patricia Chain Asesora en Comunicaci FAO
17.30	Clausura y presentación de certificados.	

EXHIBIT 8

CURSO SOBRE DIAGNOSTICO Y CONTROL DE LA PESTE PORCINA AFRICANA

FAO / DIRECCION GENERAL DE GANADERIA

Santo Domingo, República Dominicana
4 al 14 de diciembre de 1978

PROGRAMA

Lunes 4/12

08.30	Inauguración	Dr. Roald Peterson, Representante de la FAO Ing. Hipólito Mejía Secretario de Estado de Agricultura Dr. F.J. Peritz Oficina Regional de la FAO Dr. Marcelino Vargas Director General de Ganadería
09.30	Película sobre la PPA	
10.00	La situación en Brasil	Dr. F.J. Peritz, Oficial Regional de Producción y Sanidad Animal de la FAO

Martes 5/12

08.30	Aspectos Epidemiológicos - Presentación de la enfermedad. - Distribución epidemiológica. - Diagnósticos efectuados.	Dr. Noel Salcedo Canaán Encargado Unidas Bioestadística del Subprogra de Sanidad Animal
	Bioestadística e Indemnización - Programa de Bioestadística - Recopilación de información técnica y económica - Procesamiento de la información.	

09.30	- Situación actual y perspectivas futuras. - Estrategia general de control y erradicación.	Dr. José A. González de Lemos Secretario Ejecutivo FPA, Director División Profilaxis Dirección General de Ganadería
10.30	Café.	
10.45	Aspectos Administrativos - Capacidad ejecutiva y grado de autoridad de la unidad ejecutiva. - Agilidad administrativa en suministros (equipos y materiales). - Sistema de comunicaciones internas y externas. - Movilidad y mantenimiento de equipos y vehículos.	Dr. José A. González de Lemos
11.45	Aspectos de Apoyo Técnico - Distribución del personal. - Programa de adiestramiento y capacitación. - Programa de educación y divulgación. - Apoyo interinstitucional y del sector.	Dr. Pedro N. Jorge Sánchez Encargado Unidad Educación Sanitaria del Subprograma de Sanidad Animal
12.45	Almuerzo.	
14.00	Aspectos Financieros - Recibimiento oportuno de recursos financieros. - Ampliación de las partidas presupuestarias para reclutamiento de nuevo personal, pago de viáticos y adquisición de insumos. - Imprevistos.	Dr. José A. González de Lemos
15.00	- Sistemas de tasación e indemnización.	Dr. Orlando Sánchez Encargado Programa Ganadero del Banco Agrícola
15.30	Café.	

15.45	Aspectos de Apoyo Legal - Actualización del reglamento de policía veterinaria con resoluciones para control y erradicación de la Peste Porcina Africana. - Decretos, leyes y resoluciones. - Sistema de comunicación y puesta en práctica.	Dr. Bolívar Toribio Asistente Técnico Operativo del Fondo Especial para el Desarrollo Agropecuar (FEDA)
16.45	Aspectos de Control y Erradicación en otros países - Estados Unidos	Dr. Robert Reichard Veterinario Programas Internacionales del Departamento de Agricultura de EE.UU. (US
17.45	Aspectos de Procedimientos - Reglamento Operativo. - Instructivos.	Dr. Samuel Guerra Subdirector Laborator Veterinario Central d San Cristóbal

Miércoles 6/12

08.30	Aspectos de Control y Erradicación en otros países (Cont.) - España	Dr. Robert Reichard
09.00	- Pérdida del mercado de exportación e implicación del problema de la Peste Porcina Africana con el mercado de exportación de otros productos agropecuarios.	Sr. Guillermo Vizcaín CEDOPEX
09.30	Aspectos Industriales - Consecuencias negativas en el funcionamiento de Cooperativas y Organización de porcicultores (cabañas, criaderos, centros de engorde).	Dr. Alfonso Gómez Veterinario, porcicul
10.30	Café.	

10.45	Aspectos de Matanza, Limpieza y Desinfección	
	- Procedimiento de las brigadas en campo. - Sistemas de sacrificio de los porcinos. - Disposición de los animales muertos o sacrificados (incineración ó entierro).	Sr. Robert Farwell Técnico Oficial Programas de Emerger Servicios Veterinari USDA
11.45	- Procedimientos de limpieza y desinfección de explotaciones, mataderos e industrias.	Dr. Gregorio Castill Subdirector Regional Pecuario Zona Centra
12.15	Almuerzo.	
13.00	Visita a granja tecnopecuaria, Haina.	

Jueves 7/12

08.30	Visita a los animales infectados.	
10.30	Visita al Laboratorio Veterinario Central de San Cristóbal.	
11.00	Aspectos del Laboratorio	
	- Enfermedades del cerdo. Diagnóstico diferencial.	Dr. H.A. McDaniel Veterinario Oficial Programas de Enfermedades de Emergencia USDA
13.00	Almuerzo.	
14.00	- Diagnóstico, referencia y asesoramiento. - Toma y envío de muestras. Problemas. - Procesamiento y envía de resultados.	Dra. Eva María Rive de Rodríguez Encargada de Laboratorio del Programa Erradicación de la
15.00 - 17.00	- Visita a la Unidad de Diagnóstico de la PPA.	

Viernes 8/12

08.30 a 18.30	Visita de campo a La Romana G+W.	

Sábado 9/12

05.15 a 20.15	Visita a Jimaní, R.D. y Malpasse, Haití	

Domingo 10/12

	Libre	

Lunes 11/12

08.30	Visita al lugar de cerdos infectados Experimentalmente hacer necropsias.	
13.00 a 17.00	División de los participantes en tres grupos. Presentación del ejercicio que los grupos usarán para estudiar.	Dr. Enrique Torres BID

Martes 12/12

08.30	Visita a la estación de Cuarentena para animales importados al país. Cerca al aeropuerto Las Américas.	Dr. Andrés Farías C Dr. Luis Cuevas Ministerio de Agric tura, Depto. de San Animal
10.30	Demostración de limpieza y desinfección en piara. Despoblado cerca Santo Domingo.	Dr. Samuel Guerra
13.00	Almuerzo	
14.00 a 18.00	Trabajo por grupos en el ejercicio.	

Miércoles 13/12

05.45 a 20.15	Visita a brotes en campo, Puerto Plata, Sosua.	

Jueves 14/12

07.30	Visita matadero CAMI - Sto.Domingo	Dr. Wilfredo Kasse A Jefe de Inspección d Carnes, Salud Públic
10.00	Inspección y vigilancia a nivel de puertos y fronteras.	Dr. Tirso Montán Nav Encargado Servicio d Fronteras, Puertos y Aeropuertos.
10.30	Repoblación. Financiamiento.	Dr. Enrique Torres,E
12.00	Programas de Emergencia y control de enfermedades exóticas.	Dr. Andrew Mixson Jefe Programas de Emergencia, USDA
13.00	Presentación de juegos de transparencias y cintas grabadas sobre PPA.	
13.30	Almuerzo.	
14.30	Aspectos de Control y Erradicación de otros países.	
	-.Cuba	Dr. David Williams C Epizootiólogo, Insti tuto de Medicina Vet rinaria de Cuba
15.30	Diagnóstico diferencial de PPA y otras enfermedades de cerdos.	Dr. H.A. McDaniel
16.00	La comunicación en los programas de salud animal.	Srta. Patricia Chain Asesora en Comunicac FAO
17.30	Clausura y presentación de certificados.	

EXHIBIT 8

TERCER SEMINARIO SOBRE DIAGNOSTICO Y CONTROL DE LA FIEBRE PORCINA AFRICANA

FAO/BID/DIRECCION GENERAL DE GANADERIA

Santo Domingo, República Dominicana

18 al 28 de abril de 1979

PROGRAMA

Miércoles 18.4.79

9.00 a.m.	Inauguración	Dr. Samuel Guerra Hart, en reemplazo del Dr. Orlando Sánchez Díaz, Secretario Ejecutivo Programa Erradicación F.P.A. (Moderador) Agrón. Hipólito Mejía Secretario de Estado de Agricultura Dr. Flavio Machicado Representante Interino de la FAO en República Dominicana David H. Coore Representante del BID en República Dominicana
10.30 - 10.35	Película sobre la FPA	Dr. Carlos Graveley
10.35 - 11.00	Fiebre Porcina Africana en República Dominicana - Presentación de la enfermedad - Distribución epidemiológica - Diagnósticos efectuados	Dr. Pedro Hansen O., Director del Departament de Medicina Veterinaria de la Universidad Autónoma de Santo Domin
11.00 - 11.45	- Situación actual y perspectivas futuras - Estrategia General de Control y Erradicación	Dr. Samuel Guerra Hart, en reemplazo del Dr. Orlando Sánchez Díaz, Secretario Ejecutivo F.P.A.

11.45 - 12.00	Preguntas	
12.20 - 13.20	<u>Aspectos de Apoyo Legal</u> - Actualización del reglamento de policía veterinaria con resoluciones para control y erradicación de la Fiebre Porcina Africana - Decretos, leyes y resoluciones. - Sistema de comunicación y puestos en práctica	Dr. Bolívar Toribio, Asistente Técnico Operativo del Fondo Especial para el Desarrollo Agropecuari (FEDA).
13.20 - 13.30	Preguntas	
13.30 - 14.30	Pérdidas de mercado de exportación e implicaciones del problema de la FPA con el mercado de exportación de otros productos agropecuarios	Sr. Guillermo Vizcaíno CEDOPEX
14.30 - 15.00	Antecedentes sobre OIRSA	Dr. José Ferrer OIRSA

<u>Jueves 19.4.79</u>

8.00 - 8.50	Sistema de tasación e indemnización	Dr. Facundo Ottenwalde Asistente del Programa Ganadero, Banco Agríco Tasación e Indemnizaci
8.50 - 9.30	Aspectos de procedimiento - reglamento operativo	Dr. José A.Almeyda, Supervisor General, Secretaría Ejecutiva I
9.30 - 10.15	La Comunicación en los Programas de Salud Animal	Srta. Patricia Chain, Asesora en Comunicaci de la FAO
10.15 - 10.30	Café	
10.30 - 11.10	Aspectos de matanza, limpieza y desinfección	Sr. Robert Farwell Técnico Oficial, Prog de Emergencia, USDA
11.10 - 12.10	Procedimientos de limpieza y desinfección de explotaciones	Dr. Arístides Moran, Enc. División Epizoo-tiología FPA

12.10 - 13.00	Receso	
13.00 - 13.30	Situación FPA en Haití	Dr. Robert Joseph
13.30 - 14.30	Proyección de transparencias	Dr. H.A. MacDaniel

Viernes 20.4.79

8.00 - 8.45	Discusión sobre medidas tomadas en la República Dominicana, en puertos y aeropuertos y problemas conexos	Dr. Tirso Montan, Enc. División Servicios de Fronteras.
8.45 - 10.45	Teorías sobre diagnóstico de FPA en el laboratorio	Dra. Ana María Ricart, Directora Lab. Veterinario Central y Dra. Eva María de Rodríguez, Enc. Laboratorio
10.45 - 11.00	Café	
11.00 - 11.40	Sistema de información en programas de salud animal	Dr. Pablo A. Rondón, Enc. Estadística, Secretaría Ejecutiva FPA
11.40 - 12.40	Aspectos de apoyo técnico - Distribución del personal - Programa de adiestramiento y capacitación - Programa de educación y divulgación - Apoyo inter-institucional y del sector	Dr. Pedro N. Jorge Sánchez, Enc. Unidad Educación y Divulgación Dirección General de Ganadería
12.40 - 13.40	Receso	
13.40 - 14.40	Discusión sobre diagnóstico diferencial de enfermedades de los cerdos	Dr. H.A. MacDaniel

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Lunes 23.4.79		
8.00 - 9.00	Historia de la epidemiología FPA	Dr. R. Reichard
9.00 - 10.00	Aspectos financieros - Recibimiento oportuno de recursos financieros - Aplicación de las partidas presupuestarias para reclutamiento de nuevo personal, pago de viáticos y adquisición de insumos - Imprevisibles	Dr. Orlando Sánchez Díaz, Secretario Ejecutivo FPA
10.00 - 10.15	Café	
10.15 - 11.15	Aspectos industriales (fábrica, comercialización)	Dr. Kasse Acta M.V. Salud Pública
11.15 - 14.00	Visita Feria Ganadera	
Martes 24.4.79		
8.00 - 9.00	Programa de Emergencia de los EE.UU.	Dr. Saul Wilson Jefe del Programa de Cooperación Técnica de Emergencia, USDA
9.00 - 13.00	Práctica pruebas diagnóstico FPA	Personal Técnico FPA
13.00 - 14.00	Receso	
14.00 - 15.00	Problemas conexos con financiamiento de zepoblación	Dr. Enrique Torres BID
15.00 - 16.00	Antecedentes sobre OIRSA	Dr. José Ferrer, OIRSA

Miércoles 25.4.79		
8.00 - 10.00	Presentación y explicación de los ejercicios y entrega a los participantes	Dr. Enrique Torres, BID
10.00 - 10.15	Café	
10.15 - 17.00	Trabajo de grupos en los ejercicios	
17.30	Presentación de los ejercicios de los grupos	Dr. Enrique Torres, BID
Jueves 26.4.79		
8.00 - 9.00	Medidas de prevención de F.P.A. en México	Dr. O. Valdés Ornelas
9.00 - 12.30	Visita Matadero CAMI (medidas de desinfección y cuarentena)	Dr. Kasse Acta, MV. Salud Pública
12.30 - 13.30	Receso	
13.30 - 15.30	Exposición de participantes sobre Medidas de Control por Países	G. Roca
Viernes 27.4.79		
8.00	Visita a la Feria Ganadera (necropsias)	
18.00 - 18.30	Clausura	Dr. Marcelino Vargas, Director General de Ganadería.

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EXHIBIT 8

SEMINARIO SOBRE DIAGNOSTICO Y CONTROL DE LA FIEBRE PORCINA AFRICANA

FAO/BID/DIRECCION GENERAL DE GANADERIA

Santo Domingo, República Dominicana,
5 al 15 de marzo de 1979.

PROGRAMA

5-3-79

A.M.	Inauguración	Dr. Orlando Sánchez Díaz, Secretario Ejecutivo Programa Erradicación F.P.A. (Moderador)
		Agrón. Hipólito Mejía, Secretario de Estado de Agricultura.
		Dr. Roald Peterson, Representante de la FAO en Rep. Dom.
		David H. Coore, Representante del BID en Rep. Dom.
10:30 - 10:45	Película sobre la F.P.A.	
10:45 - 11:00	Fiebre Porcina Africana en la República Dominicana.	Dr. Pedro Hansen O., Director del Departamento de Medicina Veterinaria de la Universidad Autónoma de Santo Domingo.
	- Presentación de la enfermedad - Distribución epidemiológica - Diagnósticos efectuados.	
11:00 - 11:15	- Situación actual y perspectivas futuras - Estrategia general de control y erradicación.	Dr. Orlando Sánchez D., Secretario Ejecutivo F.P.A.
11:15 - 11:50	Preguntas	
12:00 - 2:00	Almuerzo	

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2:00 - 2:15	**Sistema de Información** - Programa de Bioestadística - Recopilación de información técnica y económica. - Procesamiento de la información. - Formularios.	Dr. Noel Salcedo Canaán, Médico Veterinario, Especialista en Bioestadística, Dirección General de Ganadería.
2:15 - 2:30	Preguntas	
2:30 - 2:45	**Aspectos Administrativos** - Capacidad ejecutiva y grado de autoridad de la Unidad Ejecutora. - Agilidad Administrativa en suministros (equipos y materiales. - Sistema de comunicaciones internas y externas. - Movilidad y mantenimiento de equipos y vehículos.	Dr. José A. González de L., Director División de Profilaxis, Dirección General de Ganadería.
2:45 - 3:00	Preguntas	
3:00 - 3:15	Café	
3:15 - 3:30	**Aspectos Financieros** - Recibimiento oportuno de recursos financieros. - Aplicación de las partidas presupuestarias para reclutamiento de nuevo personal, pago de viáticos y adquisición de insumos. - Imprevistos.	Dr. José A. González de L., Director División de Profilaxis, Dirección General de Ganadería.
3:30 - 3:50	Preguntas	
3:50 - 4:30	**Aspectos de Apoyo Técnico.** - Distribución del personal. - Programas de adiestramiento y capacitación. - Programa de Educación y Divulgación. - Apoyo Interinstitucional y del sector.	Dr. Pedro N. Jorge S., Enc. Unidad Educación Sanitaria y Divulgación, Dirección General de Ganadería.

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4:30 - 4:50	Preguntas	
5:00 - 5:30	Sistema de Tasación e Indemnización.	Dr. Facundo Ottenwalder, Asistente del Programa Ganadero, Banco Agrícola, Tasación e Indemnización.
5:30 - 6:00	Preguntas	

Martes 5-3-79

8:30 - 8:45	Aspectos de Apoyo Legal - Actualización del reglamento de policía veterinaria con resoluciones para control y erradicación de la Fiebre Porcina Africana. - Decretos, leyes y resoluciones. - Sistema de comunicación y puesta en práctica.	Dr. Bolívar Toribio, Asistente Técnico Operativo del Fondo Especial para el Desarrollo Agropecuario (FEDA)
8:45 - 9:00	Preguntas	
9:00 - 9:45	Aspectos de Control y Erradicación en otros Países. - Estados Unidos - España.	Dr. Robert Reichard, Veterinario Programas Internacionales del Departamento de Agricultura de E.E.U.U. (USDA).
9:45 - 10:00	Preguntas	
10:00 10:15	Café	
10:15 - 10:30	Aspectos de Procedimiento - Reglamento Operativo	Dr. Samuel Guerra, Asistente del Secretario Ejecutivo del Programa de Erradicación F.P.A.
10:30 - 10:50	Preguntas	
10:50 - 11:10	Pérdida de mercado de exportación e implicaciones del problema de la F.P.A. con el mercado de exportación de otros productos agropecuarios.	Sr. Guillermo Vizcaino, CEDOPEX

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11:10 - 11:30	Preguntas	
11:30 - 12:00	Efectos y consecuencias de la F.P.A. sobre la crianza de cerdos y actividades conexas.	Dr. Alfonso Gómez, Médico Veterinario, Porcicultor.
2:30 - 6:00	Visita a Tecnopecuaria.	

Miércoles 7-3-79

8:30 - 9:20	Aspectos de Matanza, Limpieza y Desinfección - Procedimiento de las Brigadas de campo. - Sistema de sacrificios de los porcinos - Disposición de los animales muertos o sacrificados (incineración o entierro)	Sr. Robert Farwell, Técnico Oficial Programa de Emergencia Servicios Veterinarios USDA.
9:20 - 9:50	Procedimientos de limpieza y desinfección de explotaciones, mataderos e industrias	Dr. Gregorio Castillo, Director de la División de Fomento y Extensión, Dirección General de Ganadería.
9:50 - 10:15	Preguntas	
10:15 - 10:30	Café	
10:30 - 11:30	Aspectos de Laboratorio - Enfermedades del cerdo, diagnóstico diferencial.	Dr. H.A. Mc Daniel, Veterinario Oficial Programa de Emergencia USDA
11:30 - 12:00	Preguntas	
12:00 - 2:00	Almuerzo	
2:00 - 4:00	División de los participantes en grupos. Presentación de ejercicio que los grupos usarán para estudiar	Dr. Enrique Torres, BID.
4:00 - 4:15	Café	

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4:15 - 5:30	Medidas cuarentenarias en puertos y aeropuertos.	Dr. José Ferrer, Jefe de Sanidad Animal, OIRSA.
5:30 - 6:00	Preguntas	

Jueves 8-3-79.

8:30 - 9:15	Medidas cuarentenarias en puertos y aeropuertos.	Dr. José Ferrer, Jefe de Sanidad Animal, OIRSA.
9:15 - 9:30	Preguntas	
9:30 - 10:30	Medidas preventivas y organización para combatir enfermedades exóticas en México.	Dr. Oscar Valdez Ornela, Director General de Sanidad Animal, Mexico.
10:30 - 10:45	Café	
10:45 - 11:15	Preguntas	
11:15 - 11:45	Aspectos Industriales (Fábrica, Comercialización).	Dr. Kasse Acta, Médico Veterinario, Salud Pública.
1:45 - 12:00	Preguntas	
12:00 - 2:00	Almuerzo	
2:00 - 6:00	Visita Finca del Sr. Taboada	

Viernes 9-3-79.

8:30 - 12:00	Exposición y visita al Laboratorio Veterinario Central	Dra. Eva María R. de Rodríguez, Enc. Laboratorio Programa Erradicación F.P.A.
12:00 - 2:00	Almuerzo	
2:00 - 6:00	Recorrido de las distintas secciones del Laboratorio.	

Sábado 10-3-79

8:00 - 6:00	Visita a la Romana	

Dominno 11-3-79. Libre

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[illegible] 79.		
[illegible] 10	Visita a la finca del Sr. Taboada	
1:30	Almuerzo	
[illegible] 00	Ejercicios	
[illegible] 1-79.		
11:30	Visita al Matadero Cami	
[illegible]:00	Visita al Aeropuerto y Puerto	
[illegible] 14-3-79.		
[illegible] - 9:30	La comunicación en los Programas de Salud Animal.	Srta. Patricia Chain, Asesora en Comunicación, FAO.
[illegible] - 9:45	Café	
[illegible] - 10:15	Preguntas	
[illegible] - 1:30	Almuerzo	
[illegible] - 6:00	Visita a la Finca del Sr. Taboada	
[illegible] 15-3-79.		
[illegible] - 11:30	Presentación por parte de los grupos el ejercicio.	
[illegible]:30	Clausura	Dr. Marcelino Vargas y V., Director General de Ganadería.

EXHIBIT 8

FOURTH COURSE ON DIAGNOSIS AND CONTROL OF AFRICAN SWINE FEVER

FAO/BID/DIRECCION GENERAL DE GANADERIA

Santo Domingo, Dominican Republic

21 to 31 May 1979

LIST OF LECTURERS

Ing. Agr. Hipólito Mejía
Secretario de Estado de Agricultura
Santo Domingo
República Dominicana

Dr. Marcelino Vargas y Vargas
Director General de Ganadería
Santo Domingo
República Dominicana

Dr. Orlando Sánchez Díaz
Secretario Ejecutivo
Programa de Erradicación de la FPA
Secretaría de Estado de Agricultura
Santo Domingo
República Dominicana

Dr. Flavio Machicado
Asesor Agrícola Especial
Representante Interino de la FAO
Santo Domingo
República Dominicana

Dr. David Coore
Representante del BID
Santo Domingo
República Dominicana

Dr. Pedro N. Jorge Sánchez
Encargado Unidad Educación y Divulgación
Dirección General de Ganadería
Santo Domingo
República Dominicana

Dr. Pedro Hansen
Director del Departamento de Medicina Veterinaria
Universidad Autónoma de Santo Domingo
Santo Domingo
República Dominicana

Dr. Bolívar Toribio
Asistente Técnico Operativo del FEDA
Banco Agrícola
Santo Domingo
República Dominicana

Dr. Guillermo Vizcaíno
Especialista Encargado Unidad Agropecuaria
Centro Dominicano Promoción de Exportaciones
(CEDOPEX)
Santo Domingo
República Dominicana

Dr. Facundo Ottenwalder
Asistente del Programa Ganadero
Tasación e Indemnización
Banco Agrícola
Santo Domingo
República Dominicana

Dr. José A. Almeyda
Supervisor General
Secretaría Ejecutiva FPA
Santo Domingo
República Dominicana

Dr. Arístides Moran
Encargado de la División de Epizootiología
Fiebre Porcina Africana
Santo Domingo
República Dominicana

Dr. Tirso Montan
Médico Veterinario
Dirección General de Ganadería
Santo Domingo
República Dominicana

Dra. Ana María Ricart
Encargada Laboratorio Erradicación de la FPA
San Cristóbal
República Dominicana

Dra. Eva María de Rodríguez
Encargada Laboratorio Erradicación de la FPA
San Cristóbal
República Dominicana

Dr. Pablo A. Rondón
Encargado de Estadísticas
Secretaría Ejecutiva FPA
Santo Domingo
República Dominicana

U S D A

Dr. H.A. McDaniel
Emergency Programmes Staff
U.S. Department of Agriculture
APHIS, Veterinary Services
Federal Center Bldg.
Hyattsville, Maryland 20782
USA

Dr. Saul Wilson
Head of the Emergency Programmes Staff
U.S. Department of Agriculture
Federal Center Bldg.
Hyattsville, Maryland 20782
USA

Dr. Robert Farwell
Emergency Programmes Staff
U.S. Department of Agriculture
APHIS, Veterinary Services
Federal Center Bldg.
Hyattsville, Maryland 20782
USA

Dr. Robert Reichard
International Operations
U.S. Department of Agriculture
Veterinary Services
Federal Center Bldg.
Hyattsville, Maryland 20782
USA

FAO

Dr. Franz J. Peritz
Regional Animal Production and Health Officer
FAO Regional Office for Latin America
P. O. Box 10095
Santiago, CHILE

Ms. Patricia A. Chain
FAO Communications Adviser
Centro Panamericano de Fiebre Aftosa
(Pan American FMD Center)
Caixa Postal 589 - ZC-00
Rio de Janeiro, BRAZIL

Dr. Gary S. Colgrove
FAO Consultant in the Diagnosis of ASF
Santo Domingo
Dominican Republic

Dr. Alfonso Gómez
Médico Veterinario
Ex-productor de ganado porcino
E. Deschamps 1
Santo Domingo
Dominican Republic

Dr. Rafael Kasse Acta
Encargado de la División de Control de Alimentos
Secretaría de Estado de Salud Pública
Profesor de Salud Pública
Cátedra de Salud Pública
Universidad Autónoma de Santo Domingo
Santo Domingo
Dominican Republic

EXHIBIT 9

rev. 1/28 (cost)

Proyecto Evaluación Erradicación
FIEBRE PORCINA AFRICANA

CUESTIONARIO PARA LOS AGRICULTORES

Nombre del Entrevistador: _____

Nombre del Entrevistado: _____

Provincia o lugar: _____

Datos u observaciones en cómo localizarlo _____

A. ANTECEDENTES

1. Edad _____ 2. Estado civil _____ 3. No. de hijos _____

4. Número de tareas que tiene como propietario _____

5. Número de tareas que tiene como no propietario _____

6. Número de tareas propias que está trabajando _____

7. Número de tareas no propias que está trabajando _____

B. ACTIVIDADES AGROPECUARIAS Y DEL HOGAR

1. ¿Cuáles de los cultivos temporeros siembra más en orden de importancia?

   1° _____, 2° _____, 3° _____

2. ¿Qué uso dá Ud. a los cultivos después de la cosecha?

   Consumo _____ Venta _____

3. ¿Qué tipos de animales Ud. tenía antes de la matanza?

	¿Cuántos?		¿Cuántos en diciembre 1980?	
	Tenía	Vendía	Tenía	Vendía
Cerdo				
Gallina				
Vaca				
Chivo				
Conejo				
Caballo				
Burro				
Pavo				

C. MANEJO Y TECNICAS UTILIZADAS

1. ¿Qué cantidad de cerdos tenía Ud. antes de la matanza?

   ¿Cuántos eran de crianza?_____ De engorde?_____

2. ¿Cuántos cerdos eran: de pura raza_____, mestizos_____,

   criollos_____?

3. Los cerdos estaban: _____ sueltos o _____en pocilgas?

4. ¿Vacunaba Ud. contra cualquier tipo de enfermedad? Si_____ No_____.

   ¿Cuáles?_____.

5. Los alimentos principales eran: (INDICAR POR NUMERO -1 más importante, 2 segundo, etc.)

   _____ Concentrado

   _____ Desperdicios de cocina

   _____ Otros (cuáles)_____

Subproductos de producción de campo:

_____ Fruta de palma

_____ Habana (hoja) de batata

_____ Cascara de plátano

_____ Maíz

D. COMERCIALIZACION

1. ¿Cuántos de los puercos Ud. normalmente consumía (antes de la campaña) por año?_____

2. ¿Cuántos vendía? _____

3. ¿Cómo los vendía? _____ Directamente al matadero.

_____ Por un intermediario.

E. COMUNICACION

1. ¿Escucha Ud. radio? _____Si _____No.

- En caso positivo, ¿Con qué frecuencia?_____
- En caso positivo, ¿Cuáles emisoras?_____
- En caso positivo, ¿Qué tipos de programas?_____

_____

2. ¿Cree Ud. lo que escucha en la radio? _____Si _____No. (¿Porqué?)

_____

_____

3. ¿Lo que escucha Ud. en la radio es útil para Ud. y su familia?

_____Si _____No.(Explique la respuesta)_____

_____

_____

4. ¿Lee Ud. periódicos? _____ Sí, _____ No.

   - En caso positivo, ¿Cuáles? _____

   - En caso positivo, ¿Con qué frecuencia? _____

   - En caso positivo, ¿Qué tipos de noticias? _____

   _____

5. ¿Debe creer la gente lo que lee en los periódicos? _____ Si, _____ No.

6. ¿Lo que lee Ud. en los periódicos es útil para Ud. y su familia?

   No lee _____, Sí _____, No _____.

7. ¿Ha recibido Ud. folletos técnicos? _____ Si, _____ No.

   ¿Sobre qué temas? _____.

8. ¿Ha recibido Ud. información técnica a través de sus amigos?

   _____ Nunca, _____ A veces, _____ Muchas veces.

   ¿Sobre qué temas? _____.

F. INFORMACION SOBRE LA FIEBRE PORCINA

1. ¿Cuál fue la primera vez que Ud. supo sobre la fiebre porcina?

   _____.

2. ¿Cómo lo supo Ud.?

   _____ Amigos

   _____ Por un aviso (cartelón). ¿Dónde? _____.

   _____ Por la radio. ¿Cuál emisora? _____.

   _____ Por periódico. ¿Cuál? _____.

   _____ Por técnicos (antes de llegar la brigada).

   _____ Por la brigada.

3. ¿Cuál fue su primera impresión cuando Ud. supo de la fiebre porcina africana? _____

4. ¿Qué pensaba Ud. de las noticias cuando las recibió?

_____ Las creía o, _____ No las creía

_____ Estaba preocupado o, _____ No estaba preocupado

_____ Pensaba que sólo se refería a otros o, _____ Sabía que se refería a Ud. mismo.

5. ¿Cómo se enteró de que sus cerdos iban a ser sacrificados?

_____.

6. ¿Cuándo fue informado de ésto?_____.

Cuantos cerdos habian muerto cuando llegaba la brigada?___

7. Cuando sus cerdos eran sacrificados, ¿Había Ud. oído sobre la compensación? _____ Si, _____ No. ¿Cuándo se enteró de que sería compensado?_____.

Cuantos cerdos eran sacrificados?_____

G. ADAPTACION A LA NUEVA SITUACION DESPUES DE LA MATANZA

1. Si no fue compensado por la matanza:

-¿Intentó Ud. hacer algo para recibir compensación? _____ Si, _____ No.

¿Qué hizo?_____.

¿Cuál fue el resultado?_____.

-¿Cómo se gastó el dinero de la compensación?_____

_____

2. Antes de la matanza, ¿Cómo había gastado las ganancias de la venta de cerdos?_____.

3. ¿Cómo ha cambiado su actividad agrícola ya que no hay cerdos?

_____.

4. ¿Cómo ha cambiado su alimentación después de la matanza?_____

_____

5. ¿Había que comprar mas cosas, o dejó de consumirlas?_____.

6. ¿Había otro uso para sus desperdicios?_____.

H. INFORMACION SOBRE EL FUTURO DEL PROYECTO

1. ¿Ha oído hablar Ud. de cerdos sentinelas?____Si,____No.

2. ¿Qué entiende Ud. sobre los cerdos sentinelas?_____

_____.

3. ¿Cree Ud. que puede tener cerdos en su propiedad en el futuro?

_____Si, _____No. ¿Cuándo?_____.

4. ¿Qué necesitaría Ud. para poder criar cerdos otra vez?_____

_____.

5. ¿Cuáles fueron los otros resultados de la matanza en este lugar?

_____.

6. ¿Cuál es su opinión sobre cómo fue ejecutado el programa de la Fiebre Porcina Africana?_____

_____.

7. ¿Ha oído hablar Ud. de la existencia de cerdos en esta región?

_____ Si, _____No.

8. Sin hablar de nombres, ¿Sabe Ud. si hay gente que todavía tienen cerdos?_____. ¿Qué opina Ud. sobre ésto?_____

_____

9. ¿Hay algo más que le gustaría a Ud. decirnos?_____

_____

Usted ha oído hablar de la repoblación de cerdos? ____SI ____No

-- Muchas gracias por su cooperación--

¿Que entiende Ud. sobre la repoblación? _____

_____

EXHIBIT 10

CONTRIBUTING ORGANIZATIONS TO THE ASF ERADICATION PROGRAM IN THE DOMINICAN REPUBLIC

1. United States Agency for International Development (USAID) - Loan and Grant Funds for ASF Project operation and equipment, including technical and laboratory advisors.
2. Food and Agriculture Organization (FAO) - Laboratory support including advisors and equipment.
3. United Nations Development Program (UNDP) - Epidemiological advisors.
4. The Inter-American Development Bank (IDB) - Training courses.
5. United States Department of Agriculture, Animal and Plant Health Inspection Services, Veterinary Service (USDA-APHIS-VS) - Laboratory supplies and equipment, and training courses.
6. United States Department of Agriculture, Plum Island Animal Disease Center (USDA - PIADC) - Laboratory Diganostic Reagents and training courses.

EXHIBIT 11

ACCORDING TO PRESENT PLANS SHADED AREA OF THE DOMINICAN REPUBLIC WILL NOT BE REPOPULATED UNTIL ASF HAS BEEN ERADICATED FROM THE CONTIGUOUS AREAS OF HAITI. FEBRUARY 6, 1981.

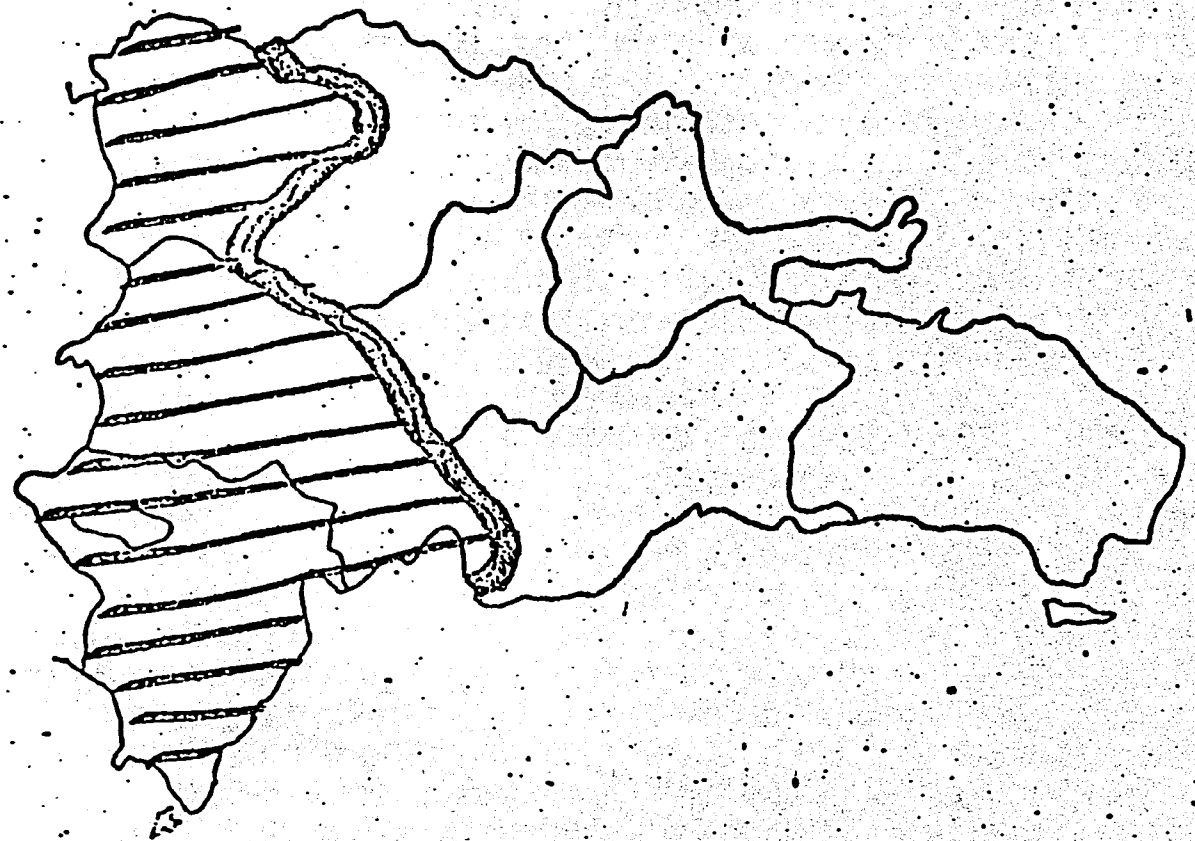

EXHIBIT 11