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The Peru Soybean Development Project

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International Soybean Program, INTSOY

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11

Peru Trip Report

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March 21 - April 5, 1981

March 21 - Arrive Lima, Peru, from United States, 7:00 p.m.

March 22 - Travel to Tingo Maria, Peru

March 23 - At Tingo Maria and Vicinity.

Visit Tulumayo Experiment Station, about 21 km from Tingo Maria. Director Antonio Polo and members of his staff reviewed the history and programs of the station since establishment in 1937. The station program includes cattle (cebu and santa gertrudis), hogs, and cuy, a rodent that is a dietary source of protein. Crops include several fruits and vegetables, plus maize, soybeans, rice, cassava, cacao, and coffee. Two soybean varieties have been released, 'Tulumayo' and 'Tulumayo 2'. Visited experiment site and saw these and other varieties. Ing. Jose Morales, plant breeder, explained his breeding and selection work.

Ing. Ontoniel Mendoza R. (M.S., University of Puerto Rico-Mayaguez) described and showed work on weed control. "Roundup" is the principal chemical in use; also paraquat ("Gramoxone"). Chemicals that require incorporation are not suitable.

Another variety observed in the field was 'Pelicano'. It was well-nodulated, but mixed as to flower color.

Director Polo devoted some time to discussing the problem of coca, the source of cocaine. Illicit production of coca dominates agriculture and the economy in the Tingo Maria area. Coca was the subject of a major article in the regional edition of Newsweek in early February 1981. Some coca production is legal, thus complicating enforcement of

control measures. Because of the value of coca in the narcotics trade, farmers are shifting land to coca production from other crops. Furthermore, coca producers are able to pay higher wages than producers of other crops.

We visited with Director Americo Diaz and Ing. Raul Laos, extensionist, at Extension Region VII office in Tingo Maria. There are three principal areas of extension concern: production, land reform, and commercialization. In Region VII, maize and platano are the principal crops in terms of area. Soybeans are still a "new crop." Production peaked in 1974 at about 470ha, declined to near zero by 1977, and has increased somewhat since then. Production costs are a major concern of Ing. Laos. Interest costs are very high (banks in Lima pay 50 percent or more on savings), as is the inflation rate. A typical farmer with crops would farm about 15ha, not all cultivated at the same time. A cattle farmer might have 50ha. Typically, the crop farmer might have 5ha in cultivation, including platanos, cassava, beans, maize, rice, and possibly soybeans.

March 24 - Universidad Nacional Agraria de la Selva, including Ing. Edgardo Sezano V., Profesor de Oleaginosa, and the Rector of the University, Ing. Fred Coral Izurieta.

The University has about 650 students, offering B.S. in tropical agriculture with curricula in agronomy, animal science, food science, and natural resources.

In the Tingo Maria area there are three separate agricultural programs: UNAS, Region VII of the Extension Service, and the Tulumayo Experiment Station. There appear to be cordial relationships between

staffs of the different organizations, but cooperation is difficult because of funding problems. Budgets are so limited that questions of who will pay for what are crucial and may prevent effective cooperation.

Rector Coral discussed agriculture of the region, covering much of the same information concerning the pervasive influence of coca production that Director Polo had presented at Tulumayo the day before.

Scheduled flight to Tarapoto was cancelled due to weather. Heavy rain continued through most of the day. Bought tickets to Lima for March 26.

March 25 - No flights due to weather. Worked on notes and visited farmers' market.

March 26 - Travel to Lima, arriving at INTSOY office at 1515. Reviewed notes and the total INTSOY program.

March 27 - Visited USAID/Lima; saw John O'Donnell. Discussed potential for agricultural production in the Tingo Maria zone.

Mr. O'Donnell is aware that coca production is a big problem. It is very labor intensive and growers can pay high wages. Government of Peru may try to eliminate illicit coca production, but will need a good total crop production and marketing program to replace coca. Opposition to coca elimination would be expected from throughout the marketing sector.

We also discussed the Huallaga Central Project, which is underway in the Huallaga River Valley east of the Andes, including both Tingo

Maria and Tarapoto areas. This project is administered in the Prime Minister's office. It thus avoids the bureaucracy of the Ministry of Agriculture. The practical effect of this is an ability to make decisions more quickly and to transfer funds to the project quickly and with lower administrative assessments than Ministry projects.

We visited the Ministry of Agriculture and talked with Dr. Carlos Valverde, Assistant Director of Research, INIA, and Ing. Rodolfo Vargas Saco, head of the soybean project for INIA. The Director of Research, Dr. Javier Gazzo, had been called to the Ministry so we missed him.

Dr. Valverde expressed concern about continuity of the soybean program after termination of the INTSOY project in August 1981. He stressed the need for continued effort to improve technology, plus better transfer of technology through training and education. He would like a continuing relationship with the University of Illinois to increase the number of Peruvians with advanced degrees. A plan whereby students could do graduate research in Peru after completion of course work at Illinois, or during summers between school years, would be very attractive. Such an arrangement now exists with North Carolina State University, according to Dr. Valverde. A separate but important need exists for training of the short course type.

There are about 3 million hectares suitable for crop production in Peru with possibly an additional 1.5 to 3 million that could be developed. These estimates include rainfed and irrigated land.

We visited briefly with Ing. Manuel Guardia Mayorga, Director of Crop Production and Animal Science, Ministry of Agriculture. He briefed us on pending plans for establishment of INIPA, which will integrate research and extension functions. (INIPA was activated effective April 1, 1981).

At the INTSOY office, I met Al Siegel of the utilization project and discussed its objectives and progress with him. Dr. Siegel's efforts have stressed the commercial and institutional sectors such as hospital dieticians. There is some progress in incorporation of soy flour into bread. A 10 percent supplementation has given a 2½ percent increase in yield and reduced the use of oil in bread dough. A noodle company has tested flour with 15 percent soy supplementation; a better taste was reported, but no increase in yield. "Pan con Soya" was for sale in a store which we visited in Lima.

Dr. Siegel has hoped to get soy milk into school lunch program. The predominant milk in Peru is reconstituted milk from New Zealand. Quality control is variable.

March 28, 29 - Saturday, Sunday. No official activity.

March 30. Travel to Tarapoto, arriving 1:00 p.m.

Visited San Martin office of the Extension Service. Briefed by Ing. Agro. Juan B. Arevalo Viena, director in charge of the Zona San Martin, a portion of Agrarian Region XI. The zonal program includes forestry, crops, and livestock. The principal crops are corn, rice, and cotton. Other important crops include, sorgo (sorghum), beans, coffee, cacao, platano, and tobacco. There is a small area of soybeans.

We visited the Centro de Investigacion Agropecuaria Oriente and talked with the director, Dr. F. Oswaldo Vargas G. The principal experiment stations of the Centro are Yurimaguas, El Porvenir (near Tarapoto), and Tulumayo (near Tingo Maria). Their animal research is

mainly on milk cows and swine. Work on beef cattle is only incidental to milk. The principal crops in the Centro program are corn, rice, cassava, tobacco, soybeans, cotton, coffee, cacao, and platano. There are about 45 specialists on the staff and they need more trained people.

Director Vargas discussed the problems of agricultural development in this area. There is little mechanization, no railroads, and a poor road network. Simple problems become major. For instance, auto repair is often impossible or delayed by lack of spare parts or limited training of mechanics. Farmers are reluctant to accept change, not knowing what new problems might occur.

March 31 - Visited El Porvenir Experiment Station about 12km from Tarapoto.

Director Manuel Lescano Alva explained the program of the station, which was supplemented with discussions by various specialists. Ing. Homer Tuesta is an agronomist working full time on soybean variety development, including studies on inoculum preparations from various sources. Ing. Faustino Hidalgo, soil scientist, discussed nutritional problems. Soybean studies were observed in the field at El Porvenir, including: (1) Corn and soybeans grown in association in various patterns; (2) Rhizobium trials; (3) ISVEX trial. Weeds were being removed by workers with machetes. Problems of emergence were evident throughout this field. The surface was tightly crusted; probably was too wet at planting; possibly a problem of poor seed quality.

April 1 - Visited the Huallaga Central and Bajo Mayo project, Ing. Ruperto Raygada Zambrano, technical director.

As previously noted, the Huallaga projects are administered through the Office of the Prime Minister. These are very comprehensive projects, encompassing economic and agricultural development, as well as highway construction. Ing. Raygada emphasized, as had Director Vargas of the Centro de Investigacion Agropecuaria Oriente, the problem of equipment maintenance. This project has much emphasis on agricultural extension; in fact, its extension agronomist, Ing. Jorge E. Calle Seminano, was formerly with the INTSOY project. The project began in 1979 on a 5 year contract.

Later travelled to Lima, arriving hotel at 5:00 p.m.

April 2 - Visited Experiment Station at La Molina and Ate Branch Station.

Ing. Jorge Melgarejo G., informational specialist at La Molina, and Ing. Rodolfo Vargas Saco, head of the Soybean Research Project, Ministry of Agriculture, arranged a special information program for us, to which members of the press were invited. The soybean production work at La Molina is seen as a back-up to other parts of the National Soybean Program. Ing. Jose Bruno Angeles, soybean breeder, sees seed production and quality as a big problem. He expects that seed production will be in the coastal area. At the Ate substation we observed seed increase fields of Jupiter, Improved Pelican, Mandarin S-4 ICA, and Nacional varieties. This was followed with a visit to Instituto de Investigaciones Agro-industriales (IIA) where Dr. Siegel's soy foods project is located. IIA has been re-designated Instituto Nacional de Desarrollo Agro-industriales (INDA) and continues as an autonomous institute of the Ministry of Agriculture. Various uses of soy in food products were

explained. Ing. Vargas Saco distributed a summary of the entire national soybean project and discussed it in detail. Very informative articles subsequently appeared in Lima newspapers.

The afternoon was spent in the INTSOY office reviewing reports and in discussions with Drs. Fullerton and Camacho.

April 3 - Visited USAID Mission and met the Mission Director, Leonard Yeager, and Loren Schulze, Agricultural Development Officer.

Director Yeager spoke favorably of the soybean project and expressed the hope that soybean work will continue with new PL480 funding in FY 1982. According to Dr. Schulze, soybean funding in FY 1982 will be included in the grain legume project. This is one of five crop projects that are planned (also maize, small grains, potatoes, rice). The program will have only one long-term official, an administrator-coordinator, but about 100 man-months of short-term specialists will be used. The plan is still in the evaluation stage, and is yet to reach the stage of requests for proposals and negotiation. Presumably if approved the program will be conducted through a contract with a University.

Other USAID agricultural programs in Peru will be concerned with ruminant animals (California-Davis), tropical soils (North Carolina State), and integrated pest management (consortium with California-Berkeley).

Remainder of the day was spent in project review with Dr. Camacho, and Ricardo Villamonte (extension counterpart), and in discussion of plans for the final project report with Drs. Fullerton, Camacho, and Siegel.

April 4 - No official activity.

April 5 - Depart Lima 1330 for Cali, Colombia via Bogota. Ar Bogota 1700; Ar Cali 1930.

Summary and Conclusions

The achievements of the soybean project in Peru during its less than 5-year existence are impressive. The rapport which Drs. Fullerton, Camacho, and Siegel have established with counterparts and with Ministry and station officials has facilitated progress on project objectives, and reflects great credit on themselves and on the University and INTSOY. Although Dr. Al Harms had left the project several months before my visit it was evident that he also is held in high regard in Peru.

I visited only two of the research locations away from Lima and regret that I could not visit the others. In both areas, Tingo Maria and Tarapoto, the enthusiasm and dedication of project members were excellent. They are excited about soybeans and their work with this new crop. Research at both Tulumayo (Tingo Maria) and El Porvenir (Tarapoto) stations is addressing important questions of crop production, with encouraging results. I believe that with continued research, there is little doubt of the agronomic feasibility of soybean production in the Selva.

The factors limiting commercial soybean production in the Selva, given reasonable continuation of production research, are not primarily agronomic. Varieties already developed and experimental lines that have come from INTSOY Puerto Rico and other breeding programs demonstrate

that high-yielding adapted varieties can be developed. Research on pest control and production practices will establish the best place for soybeans in the cropping systems of the area.

The limiting factors are, in my opinion, in the support systems that are needed, some agricultural and some more general. Specifically, there is need for a seed production and distribution system that will assure farmers of a supply of good quality seed at reasonable cost. Such a facility in the Tarapoto area would be a great stimulus not only to soybean production, but assuming it would be a multi-crop facility, to production of other crops also. A dependable source of good Rhizobium japonicum inoculum is needed, but it is less important that this source be in the Selva because of the small volume and weight involved and the possibility of the bacteria becoming established in the fields.

Markets are an obvious need, and if production in the Selva is to supply more than local uses, an improved road system is needed. The problems of transport and communication are startling to a newcomer, even though they are expected. The importance of the Huallaga projects to agriculture and economic development is therefore very great.

It is unfortunate that the INTSOY Peru project is coming to a close at this time. However, several Peruvian scientists have received training at the University of Puerto Rico and through short courses in Colombia under project sponsorship. It is to the credit of Ministry and project leaders that training has received sufficient priority to provide these educational opportunities. If necessary support is provided, the Peruvian staff has the capability for a productive soybean program.

It is the intention and expectation that INTSOY will continue to provide plant breeding materials and research guidance through Dr. Camacho and others at Puerto Rico and Illinois. The personal relationships exist to give this arrangement a good chance of success. Without association with INTSOY the chances of continuing a significant soybean program are much reduced. There will be a loss of emphasis with soybeans as part of the grain legume project. The new contractor, if not Illinois/INTSOY, will probably have less interest in soybeans and certainly less institutional expertise, and Peruvian staff may be transferred or become disenchanted and seek other positions.

The future for soybeans in Peru is clouded by the imminent drastic change in status and staffing. Thus it is unusually important that a good final project report be prepared promptly. This report will need to serve two purposes: (1) a reference for program planners who may need a concise, informative source of information about what was done on the project, unusual limitations or problems that were encountered or recognized, and especially conclusions as to the feasibility of soybean development in Peru; (2) a repository for the considerable amount of data that the project has generated.

Persons Visited or Contacted in Peru

March 21 - April 5, 1981

INTSOY/Lima

Dr. Thomas Fullerton
Dr. Luis Camacho
Dr. Alvin Siegel

USAID/Lima

Dr. Leonard Yeager, Mission Director
Dr. John O'Donnell, Multi-Sector Officer
Dr. Loren Schulze, Agricultural Development Officer

Lima

Dr. Carlos Valverde, Subdirector of Research, Instituto Nacional de Investigaciones Agricultura
Ing. Rodolfo Vargas Saco, Head Soybean Research Project, Ministry of Agriculture
Manuel Guardia Saco Mayorga, Director Crop Production & Animal Science, Ministry of Agriculture
Ing. Ricardo Villamonte, Head Soybean Extension, Ministry of Agriculture
Sr. Oscar Vargas, Head of SACI office

La Molina

Jose Bruno Angeles, Soy Breeder
Rufino Montalvo Sora, Agronomist, Soy Specialist
Feliciano Avalos Quispe, Entomologist
Hernan Rincon, Communications Specialist CI Papas
Oscar A. Bullon F., CIAG-C, Department Sanidad Vegetal
Maria Cristina Zulueta, Chf. Div. Food Tch., IIA
Miguel Fort, Director IIA
Nancy Lozano, Chf. Div. Gen. Tch. Sv., IIA
Ing. Victor Hugo Rivadeneyra, Dir. EEA La Molina
Ing. Jorge Melgarejo Garcia, Info. Specialist EEA, La Molina
and Sra. Gloria Barron de Malgarejo

Tingo Maria & Vicinity

Ing. Enrique Olivares, retired extensionist, now consultant to Huallaga Project
Dr. Americo Diaz, Director Agrarian Region VII
Ing. Raul Laos, Soybean Extensionist
Dir. Antonio Polo, Director Tulumayo Experiment Station
Ing. Ontoniel Mendoza Romas, Soybean Agronomist, Tulumayo
Ing. Jose Morales, Soybean Breeder, Tulumayo
Ing. Benito, Coffee Researcher, Tulumayo
Ing. Castro, Cacao Researcher, Tulumayo

Ing. Edgardo Sezano Vilcapoma, Professor Oleaginosa, UNAS
 Ing. Fred Coral Izurieta, Rector, UNAS
 Ing. Henry Centano Fabian, UNAS
 Mr. "Tex" Taylor, Consultant, Huallaga Project, Machinery expert

Tarapoto & Vicinity

Ing. Juan B. Arevalo Viena, Director in charge, zone San Martin
 Ing. Antonio Sandoval Saberbein, zonal specialist in soy, San Martin
 Ing. Homer D. Tuesta, Soya Specialist, El Porvenir
 Dr. F. Oswaldo Vargas G., Director Centro Inves. Agropecuaria Oriente
 Ing. Manuel Lescano Alva, Director Estacion Experimentale El Porvenir
 Ing. Cesar R. Valles Panduro, Fitopathologist, El Porvenir
 Ing. Edison Cardenas Ramos, Entomologist, El Porvenir
 Ing. Domingo Faustino Hidalgo Marinho, Soils Specialist, El Porvenir
 Ing. Jorge E. Calle Seminano, Extension Specialist, Huallaga Central
 Project
 Ing. Ruperto Raygada Zambrano, Technical Director, Huallaga Central
 and Bajo Mayo
 Professor Americo Vera Tudels del Aguila, Chief of Information Zona
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