

5250180/53

PD-AAM-837

ISN - 29777

PROGRESS REPORT No. 2
CONTRACT NO. 525-0180-C-00-2015
Panama Agricultural Technology Development
PROJECT No. 525-0180

For The Period November 1, 1982--May 1, 1983

DESCRIPTION OF PAST, CURRENT, AND FUTURE ACTIVITIES OF PERSONNEL

Dr. Pedro Argel, Pasture Agronomist

Dr. Argel arrived in Panama to join the Rutgers/Cornell team as Pasture Agronomist on February 7, 1983. The first two weeks involved administrative activities in Panama and David. An office and secretarial support has been furnished for him at the experiment station at Gualaca.

Dr. Argel began by contacting researchers associated with the pastures program in the Western Region. He spent considerable time conversing with them over current research activities, published reports, and work planned for the future. Dr. Argel has also used the past few weeks to familiarize himself with current Panamanian pasture management techniques. He has visited research plots, pasture production areas and collaborating farmers fields. He has also carried out similar initial visits in the Central and Eastern regions.

Dr. Argel gave a seminar on March 21 entitled "General Concepts of Tropical Forage Seed Production" at the 2nd Seed Technology Course conducted by the National Seed Committee in Davisa. The audience consisted of IDIAP and MIDA technicians and representatives of private industry. During this same week he also attended to the consulting visit by Dr. Jim Spain from the Tropical Pastures Program at CIAT. As part of this visit, Dr. Argel and his colleagues organized two informal seminars in Santiago and Gualaca, concerning pasture development in acid soils. Several IDIAP technicians participated in these meetings.

In early April, Dr. Argel participated in the 29th Meeting of the Central American Food Crops Society in Panama City, Panama. He presented a paper entitled "Forage Seed Production". The following week, he assisted with a "Livestock Afternoon" organized by IDIAP in the Eastern Region and gave a seminar on "Forage Alternatives for Acid Soils in Tropical Latinamerica". The audience consisted primarily of cattlemen in the region.

Dr. Argel has planned seven field experiments on forage evaluation in collaboration with IDIAP researchers. These experiments are detailed in his Plan of Work; they are designed to form the basis for a continual evaluation of forages that addresses the prevalent problems of forages in Panama.

Some additional specific observations over the pasture program include the following:

1) There does not appear to exist at the national level a clear definition of objectives in the short and long term in the area of forages categorized by region and detailing the predominant production systems. Alternatives to the predominant production system are also lacking.

2) There is no systematic plan for continual introduction, collection and evaluation of the more productive or better adapted species prevalent in the three regions of Panama. Production of seed of promising species has not been contemplated either.

3) The on-going forage evaluation system does not currently consider low inputs as an important factor. The majority of technology available cannot be adopted by the small or medium farmer because of the high input costs required.

4) There are sufficient trained personnel in forages but support and orientation is lacking in their research plans. Financial difficulties in IDIAP and the orientation weaknesses are the current major problems in pasture research.

Dr. Mark Gaskell, General Agronomist

Much of the activity of Dr. Gaskell during the reporting period involved administrative duties associated with the changes in key personnel which took place, the visits of project administrators and technical consultants to Panama, and the continuing process of becoming acquainted with the administrative functioning of IDIAP. This period also was used by Dr. Gaskell to continue to familiarize himself with the agricultural production problems of Panama and the current research emphasis of the different crop sub-directorates in IDIAP.

Dr. Gaskell met with Dr. Scott and Rutgers/Cornell Administrators and CIAT staff visiting Panama in early December, 1982. Dean Grant Walton and Dr. Reed Hertford of Rutgers and Mr. Larry Zuidema of Cornell came to Panama to meet with USAID and IDIAP project collaborators and to discuss developing work plans with Drs. Scott and Gaskell. This visit also provided an opportunity to discuss with Dr. Gustavo Nores and Dr. Pedro Argel of CIAT the possibility of Dr. Argel's joining the Rutgers/Cornell team in Panama as Pasture Agronomist to replace Dr. Tom Dowe who left in November.

The only experiment in which Dr. Gaskell was previously collaborating was destroyed by cattle in early December. This experiment was a preliminary study of the possibility of harvesting a sorghum crop after rice at the end of the rainy season using only residual moisture and fertility. Discussions have taken place to possibly repeat the experiment in 1983 if a more secure experimental area can be located and if IDIAP budget constraints allow.

Several meetings with Dr. Scott and IDIAP researchers were held to attempt to develop specific research on the Calabacito experimental farm near Santiago in central Panama. Specific experiments were designed, but a majority of these have since been suspended due to constraints on budget and travel imposed upon IDIAP by austerity measures of the Panamanian government.

Dr. Gaskell met frequently with the training committee established by the Director General of IDIAP in November to deal with the managing of students for graduate training programs for IDIAP staff. A number of staff sought advice and assistance from Dr. Gaskell in planning and applying for graduate school. Dr. Gaskell also visited with the USAID/Panama training officer on several occasions to assist with the transmittal of IDIAP student documents and otherwise aid in the planning and processing of students for graduate study.

Dr. Pedro Argel arrived in early February, and Dr. Gaskell assisted him in settling in and getting to know IDIAP and USAID staff. Dr. Argel is living in David and working out of the Gualaca research station.

Visits were made to Panamanian farmers at a number of locations during February and March to discuss production problems and explore opportunities for on-farm research. In response to a request from Coagro, a state-managed company which assists a number of agricultural cooperatives, Dr. Gaskell and other senior specialists from IDIAP visited a cooperative in El Valle de Anton to discuss problems with the members. Meetings have since been held with administrators from Coagro and the cooperative to form an agreement for IDIAP to provide research and technical assistance to the cooperative. Dr. Gaskell and technicians from IDIAP's Directorates of Crops and Technology Transfer have met with the farmers as a group, and five farmers will be collaborating with on-farm research in the months ahead.

Dr. Gaskell and Dr. Jorge Jonas of IDIAP have worked together to develop a data gathering system to facilitate the collection of important agroecological information on experimental sites. These data forms would also hopefully improve the transmittal of data from researchers hands to IDIAP's computer system where they could be stored and later accessed by other researchers. Data collection, summarizing, and storage for later use is a primary problem for IDIAP at present and although this system will be quite basic at first, it hopefully could be expanded on later as IDIAP researchers are more accustomed to it. This would aid in the gathering of basic research and agroecological information from various sites in Panama and these data would be useful at a later date in providing the basis for a more accurate characterization of ecological zones in Panama.

A task force on training consisting of education and extension personnel from Rutgers and Cornell Universities arrived in Panama in early April to assist USAID/Panama in planning future training for the Panamanian agricultural sector. Dr. Gaskell has assisted the group in interviews with staff from IDIAP, MIDA, and the Faculty of Agronomy-University of Panama and has contributed suggestions based on his experience in working with the IDIAP training committee over the past few months.

Dr. Tom Scott, Soil Productivity Specialist

The reporting period covers the end of the rainy season and the dry season in Panama. Little field research was taking place during this period. As a result, much of the time was spent in making farm visits, getting acquainted with research and extension personnel and developing research plans.

In early November, sampling of 15 benchmark soil sites was completed. This activity was started in October under the leadership of Dr. John Kimble, USDA-SCS and assisted by Dr. Ray Bryant, Cornell University. Analysis of samples from the various horizons of these profiles will be performed by SCS in Lincoln, Nebraska and used as a basis for classifying the soils of Panama according to Soil Taxonomy. Duplicate samples will be analyzed by the IDIAP soils laboratory at Divisa. Results of the chemical and physical analysis from both laboratories will be compared.

Profile descriptions from the benchmark sites were since received and information as to location, precipitation, etc., are being added to them to make the descriptions complete. Profile descriptions are being distributed among interested soils workers in Panama.

Contact was made with the International Benchmark Site Network for Agrotechnology Transfer (IBSNAT) at the University of Hawaii. This project will integrate scientific and technological knowledge of agricultural production into systems that optimize resource management and facilitate the transfer of technology in the tropics and subtropics. Hopefully, Panama will participate by generating data through field site characterization, field experiments and greenhouse studies. Since IBSNAT is concerned primarily with "horizontal transfer", i.e. transfer among countries and between regions within countries, participation will permit exchange of soil and crop data. Thus, immediate access will be gained to information in other countries with similar soils, climate, and crops.

Arrangements were made for Dr. Jorge Jonas, soil scientist at IDIAP, to attend a meeting of IBSNAT in Hyderabad, India during March, 1983. Data generated through the Benchmark soils project will be a component used in IBSNAT work.

A simple experiment has been designed for the system of traditional agriculture, "roza", or slash and burn agriculture in the south of Veraguas. This is a poor, rural area in which little agricultural work has been done to assist the small farmer. The first planting is rice interplanted with maize. The experiment consists of four treatments: 1) traditional system, 2) traditional system with double the planting density 3) traditional system at double the planting density with fertilizer and herbicides, and 4) improved varieties of rice and maize with fertilizer and herbicides. During the second half of the rainy season, maize will be interplanted with beans.

In this system, a five to seven year regrowth is cut during the months of January and February and burning is done in March. Rice is planted late in March and April. Corn is planted in May. A second crop of corn and beans will be planted on the same fields in September.

Visits were made to the area in February and early March with MIDA and extension representatives. Six farmers were selected and contacted through the regional coordinator and an agreement made to conduct the experiments on these subsistence farms. Experimental plots were located and rice planted during the last two weeks of March. After one year of cropping, the land will be abandoned and regrowth of native vegetation permitted.

Soil fertility studies have been designed and approved for initiation at the Calabacito Field Station. These include the following:

(a). The influence of different rates of phosphorus and band vs broadcast applications of phosphorus on maize yields. This will be started in May.

(b). Adaptability of four sorghum hybrids to soil acidity and different levels of exchangeable aluminum. This will be started in September.

During the reporting period Dr. Scott has assisted Ing. B. Name with soil fertility experiments on tomatoes in Azuero. These experiments are being conducted in cooperation with the Nestle Company and are conducted under irrigated conditions.

Time has been spent visiting various locations of the aquaculture project. Advice on soils has been given. Plans have been made to sample and analyze soils at several locations and advise on fertilizer and crops adjacent to the fish ponds. One site, Chumical near Anton, has been sampled and results discussed with the persons in Aquaculture.

Plans are being developed to host an International Forum on Soil Taxonomy in February 1984. A major objective will be training of Panamanian personnel in soil classification.

Time was spent with IDIAP technology transfer personnel in extending soil fertility information to other small farmers. These specialists accompanied Dr. Scott on farm visits where the experimental plots are located. In addition, extension personnel from MIDA with the South of Veraguas Project have also been present on every visit made to these experimental plots on small farms with traditional agriculture.

Cooperative work has been discussed with other team members. A sorghum experiment to determine crop growth and yield as influenced by levels of aluminum neutralization will be conducted at Calabacito. Four sorghum hybrids that differ in aluminum sensitivity will be used as the measure of crop response. The different aluminum levels will be achieved through liming. This is in collaboration with the general agronomist.

A study to determine the effect of phosphorus and potassium on grass-legume pasture has been planned and will be conducted at Calabacito. This research is cooperative work with the pasture specialist.

AREA-FOCUSED RESEARCH PROGRAM.

Given IDIAP's limitations of financial support and trained personnel, the area focused work is proceeding as well as can be expected. Equipment, vehicles, gasoline, and supplies are greatly needed in many instances, but some research activity is proceeding in the majority of the priority areas. Some research efforts are too new to evaluate and others are limited in extent and depth, primarily due to the shortages of material and personnel.

There is a strong institutional emphasis on on-farm research, given the agroecological and socioeconomic diversity of farmers in Panama. This type of research is quite costly, however, and requires a well-developed support system in terms of mobility, technical support, and associated experiment station research backup. IDIAP may encounter difficulties in implementing an institution wide on-farm research effort in the near future because of fundamental limitations in these important areas.

RECOMMENDATIONS FOR IMPROVING THE PROJECT IMPLEMENTATION

The budgetary restrictions which IDIAP has recently experienced have limited travel for IDIAP counterpart researchers. This puts considerable restrictions on the ability of the Rutgers/Cornell team to develop collaborative projects in outlying areas.

Equipment and supplies is critically needed by researchers and staff in most areas, but purchases have also been reduced. Further, a mechanism for timely ordering of supplies is not yet available.

Against this background of restrictions and considering IDIAP'S priorities, discussions have taken place between IDIAP administrators and project personnel concerning the desirability and feasibility of transferring Dr. Gaskell into an area closer to project priority worksites. These discussions should culminate in a proposal in May or June to USAID.