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Intsormil

TRIP REPORT

BY

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DOMINICAN REPUBLIC

MARCH 22 - 29, 1984

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☆ International
Sorghum/Millet

☆ Collaborative Research
Support Program
(CRSP)

A Research Development Program of the Agency for International Development, Participating Land-Grant Universities, Host County Research Agencies and Private Donors.

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln

To: INTSORMIL
From: Billie R. DeWalt
Re: Trip Report for Dominican Republic, March 22 - 29, 1984

Purposes of the Trip

1. To participate in and attend the first Annual Seminar on the Production and Utilization of Sorghum in the Domincan Republic.

2. To explore the possibilities of placing a University of Kentucky Ph.D. candidate in the Dominican Republic to conduct farming systems research.

3. To visit Project Marena, a natural resource conservation project, on which a University of Kentucky agronomist (Dr. Grant Thomas) is working.

Results

1. The First Annual National Seminar on Production and Utilization of Sorghum went very well. The seminar demonstrated the level of cooperation that currently exists between INTSORMIL and scientists in the Dominican Republic and all indications are that these ties will be strengthened. The seminar served as a focal point around which the various individuals concerned with sorghum in the Domincan Republic could meet, interact, and develop mutual programs of interest. The level of participation in the meetings and on the field trips was quite impressive, fluctuating between about 40 and 60 people.

2. It was determined that there exist some crucial socioeconomic questions about sorghum cultivation and utilization in the country. The major questions are these: 1) Sorghum cultivation is increasing in the country primarily for livestock feed; what are the possibilities or prospects of this grain becoming an important food for direct human consumption? 2) Sorghum is largely grown on irrigated lands at present; what are the prospects for this crop becoming an important part of the cropping systems of hillside cultivators who cultivate more marginal lands? and 3) What are the major constraints to increasing the yields on both irrigated and non-irrigated lands of the sorghum that is grown? I felt that it was quite important for INTSORMIL to address such questions. A socioeconomic study to help answer the above questions and to collect some baseline data about the current situation of sorghum in the country is advisable.

3. My visit to Project Marena suggested that some backup support for Dr. Grant Thomas would be advisable. His work on minimum tillage systems should be placed within a larger context of the cropping and livestock systems of the region. The University of Florida Farming Systems Support Program was contacted and asked to provide backup support in farming systems with a particular emphasis on livestock and forage resources.

4. The USAID mission expressed some interest in having Spanish-speaking students from U.S. universities pursue internships on agriculturally related topics. In the future, it may be possible for Kentucky or other INTSORMIL universities to send students to the Dominican Republic with some mission support to do research that might lead to a master's thesis.

Daily Activities

March 22 -- I arrived in the Dominican Republic late in the evening. I had met Dr. Ralph Neild, his wife Mabel, and JoAnne Logan at the airport in Miami. We were greeted at the airport by Agronomo Aquiles Caraballo, Director of the Sorghum and Maize Department of the Secretary of State in Agriculture (SEA), and Ing. Rafael Perez D. of CESDA, the agricu[illegible] experiment station in the southern portion of the country. They d[illegible]ed us to the Hotel Cervantes.

March 23 -- Ralph Neild, JoAnne Logan, and I went to the USAID mission to talk with Marion "Tex" Ford, the agriculture development officer. Our purpose was to talk with him about possible mission collaboration in supporting the work of Logan. Her plan is to return to the D.R. after finishing her dissertation; she would work on an INTSORMIL project related to improving sorghum production in the country. Ford reported that the mission is currently strapped for funds, but indicated his interest in and moral support for the project. He made a commitment to find some money in the budget for next fiscal year to provide some support for the project.

At the mission I also met Gary Kempf, Joe Kwiatkowski, and Emilio Alvarez.

I met Grant Thomas in the afternoon and we headed out to San Jose Ocoa to his place of residence. Three Peace Corps volunteers working in and around Ocoa also rode out with us. That evening Grant briefed me on his project and some of the areas we were to visit in the morning.

March 24 -- We visited some families and communities to the east of Ocoa. The valley floor is quite dry, very little grows there except with irrigation. The communities we visited were higher up the slopes and thus were in areas that received a little more rainfall, though their agricultural situation was far from ideal. Dominant crops in this part of the watershed were pigeon peas (guandules) and beans (abichuela). A few maize plants were to be seen in some of the fields of guandule but maize is not a major crop. Where grown, it is primarily used to feed to the animals.

In the afternoon, we visited the household of Roberto and Marina Cabrera. They are a very nice family with a house in a steep arroyo (canyon) -- picturesque but difficult to get to. The household includes 11 people and I was astounded to learn that they use a 125 pound sack of rice every 10 days or so. Marina cooks 6 or 7 pounds of rice for the meal at midday and about 5 pounds in the late afternoon.

Roberto is a community leader and has been chosen to care for 4 sows that have been placed in the community. The previous criollo pigs were all killed off because of teAfrican swine fever epidemic on Hispaniola. These pigs are given to the communities that promise to plant 1000 trees. The pigs are already supposed to be pregnant and thus are intended to eventually repopulate the community with swine.

The community must agree to keep the pigs penned. In the several communities that I visited, there was much concern expressed about how these pigs were going to be fed. The problem is that they are pigs that were bred to be fed with processed animal feed, not to forage for food like the native pigs that once roamed the island. (Grant reports that one peasant said he didn't know what he was going to do with these pigs that "had blue eyes".) Roberto said they had to purchase one sack of animal feed every 4 days for these four pigs. With the cash shortage among these people, it is hard to see how they can keep up with this expense for very long.

March 25 -- We visited some communities that were up near the headwaters of the watershed. These are areas that are higher, steeper, but that get more rainfall. Potatoes and cabbage are important cash crops grown in this area.

As with the other areas, Grant has been conducting experiments to determine whether using herbicides to control weeds and applying fertilizer can significantly increase yields. Most of the farmers are quite poor and earn relatively little cash from their small farms. They are cash-dependent however, because they eat very little of the food they produce. They sell the pigeon peas, beans, potatoes, cabbage, and whatever else they grow in order to purchase rice, the staple of their diet.

Project Marena is quite an interesting project, having a number of different operations that are all designed to try to reduce erosion. The minimum tillage aspect is one, and a lot of efforts are going into reforestation efforts. All around the watershed, communities have nurseries with seedlings for eventual transplanting. Among the most important of the trees being used for reforestation are:

cafe (coffee)	-- Inga Lauria Jina
pomo	-- Eugenia Jambros
avocado	
cedro	-- Cedrela odorata meliacea
corazon de paloma	-- Hamalium Recemosum
pines	-- Pinus Caibaea and Occidentalis
casuarina	-- Casuarina Equisetifolia

March 26 -- We got up early in the morning and headed into Santo Domingo to attend the seminar. We were a little late in arriving because we had to stop at the Secretary of State for Agriculture offices in order to find out where the seminar was being held. We eventually learned that the meetings were being held at the Instituto Dominicano de Tecnologia. The meetings had not yet started, however, because the Agriculture Secretary was late in arriving to do the opening address.

The first day's activities were devoted to papers discussing various aspects of sorghum cultivation around the world and in the Dominican Republic. Some interesting data about sorghum in the Dominican Republic include the following:

Use of Sorghum and Maize in the Dominican Republic (in metric tons)

Year	Sorghum	Maize	Imported Maize	Total Apparent Consumption
1973	9,208	51,864	53,318	114,087
1983	40,477	53,627	226,474	320,578

Sorghum Production in the Dominican Republic

Year	Hectares Cultivated (000)	Production (TM)	Average Yields
1971	1,698	6,864	4.0
1983	15,584.23	40,477.3	2.67

These figures show that sorghum production has been increasing rapidly in the Dominican Republic. Maize production has stagnated, which when coupled with the increasing need for feed grains, has meant that the country is importing ever-larger quantities of maize. Sorghum yields have declined, on the average, because the crop is now being cultivated on more marginal agricultural lands, as well as on the rich, irrigated lands on which it was originally cultivated.

In the evening, PROSEDOCA (Procesadora de Semillas Dominicana, S.A.) and Pioneer Overseas Corporation sponsored a cocktail party. This was a very nice affair that was attended by the present and former Secretary of Agriculture, AID officials, and many other government and research functionaries.

March 27 -- The seminar group went to visit the southern experiment station (CESDA) at San Cristobal. Grant and I were planning to join them there later in the day because we wanted to talk with the people in the AID mission. As it turns out, we never made it to CESDA, but rejoined the seminar again in the afternoon.

Grant and I talked with Gary Kempf, the project officer for Project Marena. Our main purpose was to discuss with him the possibility of getting some backup help on farming systems. As it turned out, Gary had already sent a cable to Washington requesting such assistance from the Farming Systems Support Program. Apparently, the people at FSSP did not interpret the cable in the sense in which it was intended because they had cabled back with the names of some individuals but with no offer to coordinate the efforts.

Gary called Dr. Peter Hildebrand at Florida. The three of us discussed the needs and agreed that the services required were those that Florida could provide. Briefly, our conversation led to the following proposition. The FSSP would send a team of three or four individuals to the Dominican Republic. The team would be composed of people with capabilities in livestock management (with some ability to look at alternative feed sources for the new pig breed being introduced), farming systems socioeconomic research design, and the use of sondeos. The major purpose of the team would be to conduct a short training course focussed on livestock in farming systems and on the methodology of doing farming systems research. The course would also result in doing a sondeo with members of the Project Marena staff participating. Thus, the dual objectives of training and providing a quick overview of the farming systems in the Ocoa watershed would be met.

March 28 -- The seminar went to Santiago, a city in the middle of the valley that comprises the richest agricultural area of the country. There we visited the installations of the Instituto Superior de Agricultura (ISA). This school began in 1964 as a secondary school and now offers programs that lead to university degrees. There are 42 professors at the school. We met in a large classroom that had been built with funds provided by the Kellogg Foundation.

At ISA we heard quite a bit about a research program that has the goal of producing sorghum flour that can be substituted for some of the imported wheat used in making flour. Dr. Wilfredo Moscoso has been utilizing milling equipment and techniques similar to those developed in Khartoum at the Food Research Institute. Cooperating in the effort is Molinos Dominicanos. This is a partially government owned mill that provides almost all of the wheat flour for the country. Luis Peralta, the Director de Unidad Agroindustrial of Molinos Dominicanos, also spoke about the program. The goal of their efforts is to substitute up to 20% sorghum flour for wheat, with the aim of reducing the substantial imports of wheat. They pointed out that wheat imports have risen from 111,304 tons in 1974 (costing 19.9 million dollars) to 224,608 tons in 1983 (costing 38.7 million dollars).

I had the opportunity to talk with Dr. Nolberto Quesada, the director of ISA. I aksed him whether there were any agricultural economists at ISA with whom our student could eventually work. He said there was only one such person on the faculty and this person would not be available to participate meaningfully as a collaborator. He did express his interest in our plans and said that ISA would be pleased to cooperate in whatever way they could.

We had the closing session of the seminar at ISA. Diplomas were awarded and then we all boarded buses to return to Santo Domingo.

March 29 -- I went over to the USAID mission to brief Tex Ford on the events of the past several days. Henry Pitre accompanied me. Ford reaffirmed his support of INTSORMIL activities in the country. He and the people from Nebraska had drawn up a budget which he had, in principle, agreed to do whatever he could to support.

Ford said that he had been in contact with both Kurt Anschel and Vince Davis from Kentucky. He said that he had proposed to them that Kentucky might send some students on an internship basis to work with the AID mission in the Dominican Republic. Ford had not followed up on some of the correspondence because he had not funds to support these internships in this fiscal year. He hoped to be able to do so in the next fiscal year and asked that I communicate this to Vince Davis.

In early afternoon, I went to the airport to catch a flight home.

Contacts:

Marion H. Ford
Gary Kempf
USAID
Santo Domingo, Rep. Dominicana
APO Miami, Florida 34041

Lic. Elfrida Pimentel
Ing. Agronomo Rafael Perez D.
Ing. Francisco Martinez
Centro Sur de Desarrollo Agropecuario
San Cristobal, Rep. Dominicana

Agron. Aquiles Caraballo
Depto. Maiz y Sorgo
Secreataria del Estado de Agricultura
Santo Domingo, Rep. Dominicana

Dominican Republic Technical Assistance Report
Travel March 25, 1984 through March 29, 1984

Travelers: Dr. L.W. Rooney, Professor, Texas A&M University
Sr. Edgard Riba, Graduate Student (Panama), Texas A&M University
Sr. F. Gomez, Graduate Student (Honduras), Texas A&M University
Mr. L. Reyes, Agronomist, Texas Agricultural Experiment Station, Corpus Christi, Texas

Purpose of Travel:

To participate in the first Dominican Republic National Sorghum Production and Utilization Seminar which was jointly sponsored by the Secretary of Agriculture, Dominican Republic, and INTSORMIL.

Brief Itinerary

Sunday, March 25, 1984

At 3:30a.m., departed College Station accompanied by F. Gomez and E. Riba. Drove personal auto to Houston. Departed Houston at 8:20a.m. on Eastern flight #510 and arrived in Miami, Florida, at 11:30a.m.. Departed Miami at 5:30p.m. o Eastern flight #949, arriving in Santo Doming at 6:30p.m.. Met by Ing. R. Pere Duvega, CESDA, and Dr. R. Neild, University of Nebraska-INTSORMIL. We were briefed on program format. Overnight - Hotel Cervantes, Santo Domingo.

Monday, March 26, 1984

Rooney, Gomez and Riba presented information on Sorghum Utilization and Sc ghum Breeding and Improvement. Sr. Riba and Gomez also served as translators. For example, Sr. Riba translated L.W. Rooney's presentation into Spanish and provided Dr. L.W. Rooney and Dr. H. Pitre (MSU) with English translation of the Spanish presentations. The presentations were:

E. Riba & L.W. Rooney - Sorghum Food Around the World.

F. Gomez - Sorghum Genetics and Improvement Through Breeding.

L. Reyes - Sorghum Agronomy, Production and Culture

About 65-75 scientists and administrators participated in the workshop.

Pioneer Hybrid Seed Co. and PROSEDOCA hosted a reception in the evening where discussions continued. Overnight - Hotel Cervantes, Santo Domingo.

Tuesday, March 27, 1984

AM: Viewed the off-season sorghum nursery at CESDA, San Cristóbal, and the experiment station research laboratories.

PM: Returned to Santo Domingo. Additional presentations on sorghum research in the Dominican Republic were completed. Recommendations for current and future research priorities and needs were finalized. Overnight - Hotel Cervantes, Santo Domingo.

Wednesday, March 28, 1984

AM: Traveled via bus to Santiago to review the Molinos Dominicanos Program at the Instituto Superior de Agricultura (ISA). After presentations on the potential use of sorghum in bread, pasta and rice products, Dr. W. Moscoso demonstrated equipment and products under development in the cereal processing laboratory. A lunch of decorticated sorghum cooked like rice, sorghum bread, sorghum pudding, stewed meat and coco milk was enjoyed by 70-80 participants.

PM: We visited a commercial sorghum crossing block. Returned to Santo Domingo. Arrived 8:00p.m.

Mr. L. Reyes departed Santo Domingo Wednesday morning to Puerto Rico.

Overnight - Hotel Cervantes, Santo Domingo.

Thursday, March 29, 1984

At 5:30, departed hotel for airport. Departed Santo Domingo on Air Florida to Miami. Arrived Houston, Texas, at 4:30p.m. Traveled by personal auto to College Station. Arrived College Station at 6:30p.m.

Persons Contacted:

The participants at the workshop, field and laboratory tours are listed for the workshop proceedings (Dr. R. Neild and Ing. R. Perez D.).

Impressions and Observations:

ISA - Programa Molinas Dominicanos

Dr. Wilfredo Moscoso has developed an effective program to determine the usefulness of sorghum in various foods in the Dominican Republic. The work is practical and is directed to solving important problems that limit the usefulness of sorghum in the Dominican Republic and other South and Central American countries.

Milling:

The laboratory consisted of an abrasive (carborundum stone) decorticator built in the Dominican Republic (using the IDRC plans). The decorticated sorghum was ground into flour using a Straub Mill followed by a Wiley Mill. For large quantities, the decorticated sorghum was milled into flour in a commercial mill. The flour was white, relatively fine with about a 70%

extraction based on initial sorghum weight. The sorghum was a white sorghum with a thin pericarp, intermediate to hard texture and with very little weathering or mold damage. The decorticated sorghum had a good appearance and cooked into an acceptable "rice" substitute.

Baking:

The baking laboratory, located in the same room with the milling equipment, consisted of scaling equipment, a mixer and an oven. Fermentation and proofing was accomplished on the dough table. The lab temperature was warm so fermentation chambers were not required. Pan-Sandwich (a white pan bread with closed top) and Pan Sobao (rolls in the shape of a hot dog bun) are popular in the Dominican Republic according to the bakers at ISA. Several other bread and sweet breads are popular.

The bread baked at ISA had a yellow color (an additive) and had acceptable flavor, taste and texture when 10% sorghum flour was added.

The types of flour are:

"Harina Primavera" which appears to be a soft wheat flour or maybe from a mixture of hard and soft wheat. It is used generally.

"Harina Panadera", a hard wheat flour.

Milling yields were about 80%. The exact formulation was not obtained. No comparison of sorghum bread versus wheat bread was seen.

Sorghum Utilization:

Sorghum flour has been successfully substituted up to 35% in spaghetti, 50% in local cookies, i.e. hard, sugar cookies, and up to 90% in some "crust--like" products. We tasted cookies with 50% sorghum that were acceptable, although no direct comparisons with all wheat cookies were made. Spaghetti containing 20% sorghum flour substituted for wheat semolina was manufactured by a local company. The ISA purchased the product and found it to be acceptable by consumers.

Decorticated white sorghum was cooked with pigeon peas and served to the group for lunch. The product was certainly acceptable in terms of taste and color. I doubt that a rice consumer would accept the product. However, mixing decorticated sorghum pieces with broken rice kernels could be a very effective method to extend supplies of rice. Apparently, consumer tests have not been done yet. The work presented was certainly relevant. Our compliments to all involved.

Economics - Use of Sorghum:

Sorghum currently costs more than wheat because the government subsidizes wheat purchases so it is not economically feasible to use sorghum. However, the government is seriously considering changes in policies regarding wheat purchases. Use of sorghum to extend wheat flour could save considerable foreign exchange if the government decides to change its policies regarding wheat importation.

Sorghum Production

The production of white sorghum and its utilization for food is being pushed strongly by the government. Current hybrids grown in the Dominican Republic are red; but, Pioneer Hybrids, Inc. have white hybrids in tests. A tan plant, white sorghum hybrid is needed especially for production of the rice-like products and for use in pasta products. The use of 10% sorghum flour in bread could be done with properly milled red sorghums. The potential effects of molds, insects and weathering on quality of sorghum for food (color, taste) is unclear, but it should be given serious consideration. Planting and harvesting time are critical to quality of sorghum for food. The lack of harvesting equipment may be a critically important issue.

Sorghum production in the Dominican Republic has increased significantly in the past five years, although total production is only 50,000 metric tons. It is expected to increase.

Sorghum Breeding Project

Ing. R. Pérez D., leader of the Sorghum Breeding Project, has been able to consolidate and develop a national sorghum breeding project in a short time.

Sorghum nurseries from different sources, i.e. INTSORMIL, ICRISAT, etc., were planted at San Cristóbal. Variability for selecting and releasing good open polinated varieties and hybrids was observed. With the help of additional breeding materials from INTSORMIL and ICRISAT, the Dominican Republic Sorghum Breeding Project (DRSBP) may be capable of releasing better hybrids than the commercial hybrids being used. Crosses between A & R lines from different sources should continue and their progeny should be evaluated in multiple localities.

The variety Isiat-Dorado, seems to be the first option that DRSBP has in the short term for release as an OP-variety. The test planting looked outstanding. It should be tested in multiple localities and evaluated for agronomic and food quality characteristics. Agroclimatological data should help in stabilizing critical planting and harvesting dates, especially for food type sorghum to prevent mold and weathering damage. Cibao area may fulfill this requirement.

Sorghums for both forage and grain production may be needed in some areas. The tropically adapted material appears especially promising.

Mr. Gomez promised to request Dr. F. Miller to send additional, tropically adapted breeding material from Texas.

Student Participation

Three graduate students associated with INTSORMIL projects participated in the Dominican Republic Workshop by presenting information and by serving as interpreters. Each student gained valuable experience by participating. The travel expenses for the students probably did not exceed the costs for an experienced translator. The participation of carefully selected students in workshops is cost effective.

TRIP REPORT - INTSORMIL

Dominican Republic

March 25-29, 1984

Travelers: Henry N. Pitre and Mrs. Jeanette Dominquez
Mississippi State University

Purpose: To participate in the First National Seminar on Production and Utilization of Sorghum in the Dominican Republic (D.R.); to visit with D. R. scientists in the National Sorghum Production program to develop plans for cooperative research on insect pests on sorhgum, and to plan the Ph.D. graduate program for a Dominican student involved with sorghum research in INTSORMIL.

Places Visited: Santo Domingo, San Cristobal, Santiago.

Summary: My travel to Santo Domingo in the Dominican Republic was successful in acquisition of information on constraints to sorghum production in that country, in meeting with Dominican scientists to develop plans for cooperative research on insect pests on sorghum within the INTSORMIL program, and in the development of initial plans for training a Dominican graduate student at the Ph.D. level.

Activities:

March 25. Mrs. Dominquez and I traveled to Santo Domingo to meet with a team of INTSORMIL scientists from the U.S. who were participating in the National Seminar.

March 26. We attended the Sorghum Seminar at the Auditorium Instituto Dominicano de Tecnologia (INDOTEC). I presented a paper, "Identification and Control of Insects Pests on Sorghum". Mrs. Dominquez made the translations into Spanish. The meeting was informative in bringing attention to specific problems confronting sorghum production in the D.R.

March 27. We traveled with the meeting participants to San Cristobal to visit CESDA. The group toured sorghum field plots at the research station and discussed production problems.

I visited with Mr.(Ing.) Rafael Perez D., leader of the National Sorghum Program for the D.R., to discuss specific sorghum insect pest problems in the D.R. and to initiate the development of a cooperative training program for Mrs. Dominquez leading toward the Ph.D. degree. Mrs. Dominquez would conduct here research in the D.R. and would complete here academics at Mississippi State University. Mr. Perez expressed interest and desire to work together in this effort. Mrs. Dominquez will complete the Masters degree program in May,

1984, and is presently making application for graduate studies at Mississippi State University.

The afternoon of the 27th was occupied by summary reports of the seminar at INDOTEC.

March 28. We traveled to Santiago to visit ISA. Several technical papers on sorhgum production in that area of the country were presented.

Mrs. Dominquez introduced me to members of the CENDA staff, where she is employed as a Dominican weed scientist. The scope of the research programs involving scientists at CENDA was explained.

We returned to Santo Domingo in the evening.

March 29. Dr. Billy DeWalt and I visited the A.I.D. office in Santo Domingo and discussed the success of the National Seminar with Dr. Marion H. Ford, A.I.D. Agriculture Development Officer. This visit was very fruitful to me in my development of plans for expansion of my entomological program into Santo Domingo.

I returned to the U.S. on this day; Mrs. Dominquez returned on April 1, 1984.

INTSORMIL Trip Report
Dominican Republic

C. A. Francis
University of Nebraska
March 26-28, 1984

EXECUTIVE SUMARY

The First National Sorghum Production and Utilization Seminar was held in the Dominican Republic, March 26-28, with the support of INTSORMIL, University of Nebrska, Texas A & M University, and several groups within the Secretary of Agriculture in the D.R. The first day included formal presentations by Dominican national research and production technicians as well as those from outside. The second day was spent at the CESDA station in San Cristobal and back in formal session, while the third day included a trip to Santiago on the northcoast and visits to ISA to see cereal processing technology and PROSEDOCA to observe hybrid seed production of Pioneer 8244. The concensus from these formal sessions plus informal discussions was that sorghum has a small but rapidly growing importance for the D.R. Red hybrids are grown by large farmers for use in concentrates, and increased production in this sector is very promising to take advantage of good lands and commercial inputs, and replace as much of the importation of Maize as possible. This is a substantial commitment of international exchange each year which can be alleviated by increased production in the commercial sector. An education problem exists in convincing some of the concentrate companies that sorghum has the same value as maize. A second major effort centers on white sorghums for direct consumption. Extensive work has been done on substituting sorghum for wheat in bread baking, pastry items, and pasta. there appears to be no problem in substitution up to 10% in mixture with wheat flour, and some items can include a much higher percentage. Increased production in the country plus education of the industry people to follow this strategy again could save considerable foreign exchange to the country. A final outlet would be decorticating the grain and sale for direct consumption as a substitute for rice. Outside of meetings, substantive discussions were held with USAID/Santo Domingo personnel and administrators of the national research program. INTSORMIL will continue to provide germplasm and research results, opportunities for study and non-degree training, and collaborate in future workshops of the national program. The program involving an INTSORMIL scientist stationed in the D.R., plus support from USAID at the local level, was discussed with AID and the SEA administration.

National Program Collaboration with INTSORMIL

There have been a number of introductions from the ICRISAT program in Mexico, and limited materials from Central America, Texas, and Nebraska. the ICRISAT breeding materials and Dorado M (for mejvrado) from Central America appear to have the most promise, while those from Texas have good adaptation and yield potential and a few from Nebraska have early maturity with potential for the south and southwest where moisture is limited. The national program should continue to introduce a range of new germplasm for potential use, but exercise caution to not maintain too much material which will not be of use for variety or line development. Given the small resource base available to the program, and the need to cover both maize and sorghum, there needs to be great care used in deciding what new ventures to explore. A relatively routine but energetic breeding, testing, and seed production activity is needed to produce new materials and interface effectively with the private sector. Logical activities for INTSORMIL include supply of germplasm and research results, possible assistantship(s) for national program scientists, advising students in

consortium programs when these scientists have other sources of support, and helping future workshops such as this one. An INTSORMIL scientist stationed in D.R. would be helpful in either the testing and agronomic area or in breeding. Current plans are for the testing phase, especially with medium and small farmers. This would be an effective way to stimulate the national program applications of technology, and help the scientists in D.R. to direct requests for seed or information to the apropriate U.S. colleagues. This person can also help represent the national program to USAID, and explore ways in which these several agencies can explore projects of mutual interest.

Communication with Administration: Dominican Republic

At an evening meeting with Dr. Neild, Ms. Logan, Dr. Francis, the experiment station director and the current director of research urged INTSORMIL to keep them fully informed of all activities and communications with their staff. They insist that only by keeping up to date can they give an INTSORMIL collaborative program the maximum support possible from the national program. It is important that we accept this and be sure to send copies of all future correspondence to the D.R. to the following persons:

1. Lic. Elfrida Pimental, Directora, CESDA
   APT. 24, San Cristobal
   Republica Dominicana (Dominican Republic)

2. Ing. Agr. Rafael Martinez R., Director
   Dpto. de Investigauiones Agropecaurias
   Secretaria del Estado de Agricultura (S.E.A.)
   Santo Domingo, Republica Dominica (Dominican Republic)

3. Dr. Glen Vollmar, Acting Director, INTSORMIL, UNL, Lincoln

Accepting the fact that persons in these positions may change, it is useful to keep up to date on who is in each position, and keep them informed.

The contributions of small and large threshers, plus transportaiton costs, and pollinating bags from projects UN-13 and UN-15, as well as the workshop just concluded (ME support), are good ways to support specific needs in the national program. These types of activities should be encouraged as an alternative to "pass-through" funds which are subject to overhead both at the home institution and in the D.R.