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Biological Nitrogen Fixation--Washington, D.C.,
The Ohio State University, University of
Illinois

W. Chris Stearn

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International Soybean Program, INTSOY

College of Agriculture
University of Illinois at Urbana-Champaign
113 Mumford Hall
1301 West Gregory Drive, Urbana, Illinois 61801 U.S.A.

College of Agricultural Sciences
University of Puerto Rico, Mayaguez Campus
Mayaguez, Puerto Rico 00708

1

INTERNATIONAL SOYBEAN PROGRAM (INTSOY)
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
UNIVERSITY OF PUERTO RICO, MAYAGUEZ CAMPUS

TRIP REPORT

NAME OF TRAVE..... Chris Stearn
Asst. Professor, Agronomy

DATES OF TRAVEL: May 19 - May 31, 1981

ITINERARY:

- May 20 - Washington, D.C. Biological Nitrogen Fixation project leaders meeting.
- May 21 - At Beltsville, Md. (visiting the facilities of Dr. Dean Weber) (Rhizobium collection).
- May 22 - At New State Department Building visiting African and Latin Bureaus.
- May 23-26 - At Ohio State University with Dr. Robert H. Miller.
- May 27-28 - Visiting University of Illinois Dr. Robert H. Goodman's Laboratory.
- May 29 - Annual leave North Carolina
- May 31 - San Juan/Mayaguez, Puerto Rico

PURPOSE:

- To attend and participate in the Biological Nitrogen Fixation (BNF) project leaders meeting held at USAID Building, Washington, D. C.
- To consult with Dr. Robert H. Miller at the Ohio State University on several papers we are co-authoring.
- To work in Dr. Robert M. Goodman's laboratory, University of Illinois, learning the ELISA technique and to work on final draft of INTSOY Soil Microbiology Research Highlights.

SUMMARY OF ACCOMPLISHMENTS:

The BNF project leaders meeting, held in Washington, D. C. May 20th was attended by Dr. Martin Alexander (Chairman) (Cornell University), Dr. Ben Bohlool (University of Hawaii), Dr. Doug Gross (North Carolina State University), Dr. Eduardo Schroder (University of Puerto Rico), Drs. Dean Weber and Harold Keyser (USDA Beltsville, Md.), Dr. Jake Halliday (NifTAL, Hawaii), Dr. Robert H. Miller (USDA Small Grants/The Ohio State University), Dr. Lloyd Frederick (BNF Project Monitor USAID) Dr. Chris Stearn (INTSOY, Puerto Rico).

The main topic of discussion was the possibility of further funding to keep the BNF Consortium together. Lloyd Frederick indicated that all 211-d contracts would be terminated at the end of their present funding. Extensions, with no additional funding, were possible if requests were submitted in a timely fashion. He also suggested the possibility of other funding sources, e.g., Rockefeller Foundation, World Bank and the National Science Foundation (NSF). There is a possibility for a CRSP in FY 1983. He also suggested that there would be a possibility of funds in 1982 for a Tropical Inoculation Service Project dealing with technology assessment and transfer of technology to the farmer level. The purpose and responsibilities for this project have not been worked out (by USAID) but if the BNF Consortium was interested further discussion and definition could be possible. Lloyd also indicated that:

1. NifTAL's renewal contract has been prepared and submitted but not approved. They are presently on an extension (with funding) of the old contract.
2. USAID has gotten approval of a 5-year contract for Dr. Dean Weber, USDA, to support the Rhizobium collection. This is the maximum allowed (5 years) by Congress. Lloyd indicated they would like to have more of their contracts on a 5-year basis to reduce paper work.
3. The "limiting factors" program funding is up this year. There will be a team review in June or July.
4. The Associative Nitrogen Fixation project in Florida expires in May 1982 and will be reviewed.

Lloyd also reported on country projects:

1. Egypt is using 60-90 kg of nitrogen per hectare to grow soybeans all of which is imported. They would like to cut this amount drastically. It has been recommended to stop using locally

produced inoculants and import more reliable inoculants.

2. Zambia is developing an Agricultural Production Project which includes an inoculant production plant. They have a source of peat the quality of which is unknown.
3. Thailand has a building dedicated to inoculant production but is still producing inoculant by hand. They do not have the funds to buy equipment to mechanize the process.

Several people were invited to speak to the consortium:

Don Fiester, Senior USAID Agricultural Officer, made several points:

1. There is a major concern, by all, for the "bottom line." "Research-publication-utilization" was stressed. Projects need better documentation of results showing technical assistance and follow-up making sure that results get into the hands of the people who need it. He stressed that the annual reports should show the impact of the work - what results occurred and the "ultimate pay off."
2. "How can intermediate results be utilized today?" Don't wait until the end of the project to implement utilization. Projects need to find linkages to disseminate information.
3. "What is important research vs. what is interesting research?" He stressed focusing on important research that would make a "difference" in rural agriculture in LDC's.
4. USAID would like fewer projects that are streamlined and have a broader scope with crosslinkages between projects. They may be moving toward this in 1984-1985.
5. He would like his sections to report on the effect (impact) of work presently going on, how the results are being utilized, or if not, why. What are the constraints - money, policy, etc. AID needs feedback to "go to bat" for further funding or continuation of funding.
6. He encouraged diversified funding for research

and outreach programs. He indicated that the World Bank is looking for good projects to fund in the agroindustrial and information transfer areas.

Dr. Gary Heichel, (USDA-AR Minn.) Program Manager for USDA BNF Competitive Grants Office, indicated he was in Washington to review research proposals the following day. They were very interested in funding "good science" but the ultimate criteria was "relevance to agriculture." He indicated that distribution of funding would be in the areas of research concerning:

- Nitrogen cycling (10%)
- Crystallography and pure biochemistry (6%)
- Genetic engineering (Nitrogen cycle) (5%)
- Genetics of legume hosts (plant breeding) (10%)
- Rhizobium ecology and recognition phenomena (13%)
- Symbiosis - physiological & biochemical (12%)
- Nitrogen Metabolism (14%)
- Associative symbiosis (4%)
- Blue green algae (Cyanobacteria and Azolla) (10%)
- Actinomycetes/Alder association (7%)
- Free-living nitrogen fixers (9%)

Drs. Mike Dow and Jeff Gritzner from the National Academy of Science (NAS) indicated they were interested in science and technology utilization and transfer. NAS was interested in biogas production, fuel alcohol, charcoal production and improved cooking stoves. They also felt that projects dealing with revegetation were vital.

The meeting closed with a resolution to meet in Hawaii in late fall or early January to finalize all outstanding commitments of the BNF consortium. There appears to be little hope of maintaining the integrity of the BNF Consortium. As of January 1, 1982 the Consortium will cease to exist.

USDA Beltsville, MD.

The visit to Dr. Dean Weber's laboratory and Rhizobium collection at USDA Beltsville, Md. was very interesting. Dr. Weber showed us his laboratory and greenhouse facilities. They are presently working with several isolates from China including fast-growing strains of R. japonicum.

Department of State

A visit was made to the New State Building. Dr. Bill Judy (African Bureau) was committed to meetings so a visit was made to Roberto Castro Latin American Bureau, Dept. of State. He discussed several of the projects he is involved with, e.g., cotton/soybeans rotation in Paraguay, soybean project in Peru, etc.. He also indicated a great need for

technology in harvesting and threshing of soybeans on a very small scale (by hand). He was very interested in the entomological studies done by Dr. Mike Irwin. They are in a quandry as to whether to recommend a total pesticides program or minimal pesticide program.

We also visited with William Goodwin, new USAID representative to the mission in Honduras, Felipe Manteiga Latin Bureau ROCAP and John Rifenbark Latin Bureau ENCAP. Mr. Manteiga indicated that CARDI (Caribbean Agricultural Research and Development Institute) was very receptive at this time to cooperative research projects in multicropping systems.

Contacts at Department of State

Robert J. Castro
AID/LAC/DR/RD
Room 2239
Dept. of State
Washington, D. C. 20523

Felipe P. Manteiga
(202) 632-8126
AID/LAC/DR/RD
Room 2242
Dept. of State
Washington, D. C. 20523

Potential Contacts: Dominican Republic

Dr. Ruben Nuñy
Secretaria de Agricultura
Santo Domingo, Rep. Dom.

Also: Dr. Cesar López Ph.D Soils
Ing. José Valdy, Deputy Director
Agribusiness Dept./SEA
Guillermo Villanueva, Director
Research Dept./SEA.

(Contacted through Dr. Nuñy)

Dr. Kenneth Ellis
(809) 682-2171
RDO, Chief
USAID/DR
APO, Miami 34041

Potential Contacts: CARDI

Dr. Samsundar Parasram
(809) 662-5511 - Ext. 340
Caribbean Agricultural Research
and Development Inst. (CARDI)
Director Multiple Cropping Project
(AID/CARDI)
U.W.I. Campus, St. Augustine,
TRINIDAD

It was apparent from the great interest generated in the ensuing dialogue that the Latin Bureau was not well informed about INTSOY and the potential cooperation that could evolve. It was also apparent that there is a tremendous wealth of information and contacts that could be gained by utilizing the resources of the various Bureau's within USAID.

Ohio State University

Dr. Robert H. Miller and I worked on several aspects of research that will be published as soon as possible.

University of Illinois

Jane Polston (Dr. Robert Goodman's coworker) spent the better part of two days showing me the ELISA technique. Work was completed on the final draft of INTSOY Soil Microbiology Research Highlights with Bonnie Irwin. I also had an opportunity to visit with Dr. William N. Thompson, Dr. Mike Irwin and Dr. Robert H. Howell.