Trip Report to Philippines
November 22-27, 1998
USAID Grant No. LAG-G-00-97-00002-00
SM-CRSP Project *Decision Aids for Integrated Nutrient Management*

Traveler: Fred Cox, North Carolina State University
Objectives:
1. To become familiar with laboratory and field data for IRRI's long-term phosphorus experiments (LTPE) which are ongoing at various sites throughout Asia.
2. Assist in initiating a publication comparing phosphorus buffer coefficients from LTPE sites with those from PDSS.
3. Visit and become familiar with ongoing developmental research in the Barangay Centro San Antonio region of Ilagan, which is one of the project's three intensive testing sites.

Itinerary:

Sunday, November 22	Arrive in Manila, go to IRRI
Monday, November 23	At IRRI
Tuesday, November 24	To San Antonio region near Ilagan
Wednesday, November 25	Return to IRRI
Thursday, November 26	At IRRI
Friday, November 27	Depart for U. S.

IRRI:
LTPE Experiments

I met with Thomas George and became familiar with his Long-Term Phosphorus Experiments (LTPE). There are six experiments, but only three now have data for at least one year. Those are identified as Matalom in the Philippines and Siniloan in Sitiung, West Sumatra. They are P residual studies and are sampled several times per year. Mehlich 1 at 1:10 has been used to extract P. The samples, especially those from the check plots, have been evaluated for their laboratory P buffer coefficient by the Hunter Method, or making a 1:1 suspension with varying P concentration solutions and allowing to dry. In the laboratory, Erlenmeyer flasks were used and the soils dried in a 30 °C incubator for 10 d. With a small-topped flask, the drying time is longer than usual and this may affect the magnitude of the buffer coefficient.

Another procedural observation is that these sites are being sampled numerous times and laboratory buffer coefficients determined on all samples, even those receiving P. It is likely that more information could be derived by sampling no more than twice per year and determining laboratory buffer coefficients only on the check samples, but doing this with several extractants. Including Mehlich 3 and Modified Olsen, major extractants in the Phosphorus Decision Support System (PDSS), would seem warranted.

Manuscript Development

Dr. George and I started a draft of an abstract for a poster and manuscript. Dr. George will be the lead author. Other authors to be included are Roger Magbanua, Brenda Tubana, Angela Almendras and Winardi Khatib, who are in directly responsible for the LTPE experiments, then myself and Dr. R. Yost, who is responsible for PDSS. The suggested title is "Estimating buffer coefficients for the Phosphorus Decision Support System". The objective is to determine P buffer coefficients in the field and laboratory using the Mehlich 1 extractant at 1:10 in soils of the Eastern Hemisphere and compare them with those currently predicted by PDSS, which were developed in the Western Hemisphere. The poster will be presented at the 6th International Symposium on Soil and Plant Analysis to be held in Brisbane in March, 1999. The paper will be published in Communications in Soil Science and Plant Analysis, either in late 1999 or early 2000.

Barangay Centro San Antonio:

Dr. George and I flew to Cagayan and were met by Quirino Ascuncion, who does upland rice research at the Experiment Station at Ilagan. He took us to the core experiments and we toured the two sites (1=Market and 2=Hospital) with Josephina (Jojo) Lasquite, who looks after them on a day-to-day basis. The rice showed little ill effect from the two typhoons in October. Growth was greater at Site 1 than 2. Both were in an early boot stage with plants about 40 cm tall. There were responses to all three variables at Site 1, with a visual ranking of N > P > L (L=lime). At Site 2 there is a marked response to N, but little noticeable effect from P or L at this time. The response difference between sites would not be expected from the preliminary grid sampling data reported earlier by Yost (1998).

It should be noted that the soils differ between the two sites; the soil at site 2 has Mn concretions which may cause Mn toxicity at the lowest pH, especially with soybean. Manganese toxicity would be shown by leaf cupping and by high concentrations in the leaf. Also, in the statistical analysis the site effect should be evaluated and there would be reps within a site. The cropping history also differed between the sites.

Lime had been applied and roughly incorporated in the areas of the experimental sites to be planted to peanut. The lime will be rototilled in after the fertilizer treatments are applied, just before planting.

Some notes on plot management:

1. As these plots are to be cropped many times over several years, it is suggested that a schedule be set up on the direction of rototilling each plot. The direction should be reversed every other time to insure minimum long-term movement of the soil by tillage. Pairs of plots may be rototilled clockwise one time and counterclockwise the next.
2. A standard 1-inch or 2½-cm soil probe clearly marked at 15 cm is needed for soil sampling. They have been using a larger auger and removing excessive amounts of soil.
3. At site 2, two plots in the peanut experiment had numerous rocks, apparently from an old pile placed there and these plots should be recorded to note any unusual effects in the future.
4. And finally, the peanut cultivar to be planted is BPIPN9. It was called a large seeded, bunch type. If it really is a large seeded type it may require additional calcium, usually from gypsum, for optimum pod formation. If gypsum is not applied, any lime effect may be due in part to its additional Ca.

Literature Cited:

Yost, R.S. 1998. Report on trip to the Philippines. July 27-August 5, 1998. USAID Grant No. LAG-G-00-97-00002-00. SM-CRSP IntDSS Project. 13p. (*Available for download from the projects web site at the following address:* http://intdss.soil.ncsu.edu/sm-crsp/Download/Download.htm).

List of Contacts:

San Antonio
Ms. Josephina Lasquite
Ilagan Research Station
Mr. Quirino Ascuncion, Upland Rice Research
Mr. Danilo Tumamao, Director of the Research
IRRI
Dr. V. Manoharan
Dr. Colin Piggin
Dr. G. D. G. Kirk