Southern Extension and Research Activity Information Exchange Group 6
(SERA-IEG-6)

Nutrient Analysis of Soils, Plants, Water, and Waste Materials
Annual Meeting Minutes, June 9-12, 2003
Hotel Villa Parguera, Lahas, Puerto Rico

Organized by Agronomy and Soils Department, University of Puerto Rico at Mayaguez

In Attendance:
1. Administrative:
Ray Campbell, Chairman
Hugh Savoy, Chair-elect
Kathy Moore, Past Chairman
Hailin Zhang, Secretary
Ray Knighton, National program Leader-Air and Soil, USDA-CSREES
David Kissel, Administrative Advisor, Extension

2. State Representatives: Puerto Rico and all states of the southern region except for Texas and Mississippi.
See Participants Listing on SERA-IEG-6 web site

June 9, 2003

-5:30-7:30 p.m. Registration and Social
-7:30 p.m. Opening remarks, introduction of guests, and local arrangements by Drs. David Sotomayor and
Ray Campbell, followed by welcome and presentation by Dr. John Fernandez Van-Cleve, Dean of the College of
Agricultural Sciences, Univ. of PR.

June 10, 2003

Field trip to Adjuntas and Santa Isabel. Visited coffee, citrus, mangoes and banana production.
Phosphorus and magnesium deficiency and low soil pH seemed to be the major issues for the area.

June 11, 2003

- **Opening remarks of business session by** Dr. Ray Campbell**, Introduction of guests, local arrangements by** Dr. David Sotomayor

-Dr. David Kissel gave the administrative report for research and extension
Dr. Kissel expressed thanks to the local organizing committee and sponsors. He reported that Southern Directors requested more detailed information from regional groups. SARE-IEG-6 annual report was submitted and posted on the web.

-**Dr. Ray Knighton gave a report on behalf** of **USDA CSREES**
He expressed appreciation to this group's activities since there is increased concern on fertilizer use (or over use) and nutrient management. There will be more money for NRI and new funding for air quality program. The biggest issues are particulate matter from agricultural activities and controlled burns.
There is a need for developing better techniques for emission measurement.

(Discussions from the group: current land grant university fertilizer recommendations are based on many years' field research. It is technically sound. However, recommendations may not be followed. Some other labs may indeed recommend more than needed fertilizer for various reasons. The support for soil fertility research is continuously declining at all institutions. This trend does not help to solve environment related problems).

Ray encouraged opening communication lines in each state, justifying our recommendations and offering technical assistance to state and federal agencies.

SARE-IEG-6 is considering possible new initiatives to address environmental issues, especially on differences in fertilizer recommendations between state labs and other labs. Everyone was encouraged to forward suggestions to Ray Campbell.

-Dr. Manjula Nathan gave a report for NCR-13 Group
NCR-13 made a great effort to work on several soil testing related issues including Mehlich 3 P extraction versus Olson and other methods, tetraphenol B extractable K, Illinois N test

method, and the effect of sample size on organic carbon. As a result of those studies, some states will switch to M3. The group concluded that there is no need for an environmental soil test P method since DRP is well correlated with M3 P. A new QA/QC document is nearly complete.

-Several presentations were given to address Nutrient Management Issues in the Caribbean

Overview of nutrient management in Puerto Rico by David Sotomayor
Soil testing for magnesium in highly weathered soils by Dr. G. Martinez
Soil acidity work in Puerto Rico by Dr. M. Munoz
P Index and field nutrient balance tool for the Caribbean by Agro Jose Castro

-Two other technical reports were given:

Comparison of crop production using fertilizer recommendations from three different laboratories (two private plus U of TN lab) by Dr. Hugh Savoy. The most agronomically and economically sound recommendation was from the U. of Tennessee lab.

Farm waste treatment systems for the 21st Century by Dr. Ray Campbell. Ray showed a promising technique to replace lagoon for swine waste treatment.

-Committee Reports:

```
- Regional Cotton Fertility Publications: Charlie Mitchell reportin
```

```
  - Bulletin 190, Hugh Savoy reporting. It's been revised and sent
committee (Morteza Mozaffari, Rodney Henderson, David Hardy and Kat
August 2003.
- M1 Vs M3 Fact sheet: Frank Sikora reporting. Draft was distribute
to review the factsheet. Drs. David Kissel, Paul Bell, and Charles
and make suggestions to Frank for finalizing the publication.
  Discussion took place about whether such
conversion should be used or discouraged since the conversion facto
```

```
  - Cooperative project to quantify differences between colorimetri
reporting, laboratory phase has been completed and final report wil
participating labs except for Kentucky. Data from Texas had not bee
```

```
- CEC Survey data and methods factsheet, Hugh Savoy reporting: outl
progress.
- New Opportunities "Nutrient Deficiencies Bulletin", suggested by
photo achieve of crop deficiency symptoms. The group thought it was
crops instead of by nutrients. Ray will lead this project. U. of AR
Sotomayor will provide some pictures
for tropical crops. Rao M. and Charles M. volunteered to assist.
```

STATE REPORTS (5 min each, some states took much longer)

1. AL: reported by Charlie Mitchell
- In spite of budget cuts, there will be Board of Trustees mandated salary increase at Auburn University funded primarily by a 16% increase in tuition. Ala. Agric. Experiment Station and Coop. Extension System salary increases will be funded by an early retirement buyout.
-Soil sample numbers are being maintained around 30,000 extension-type samples each year. About 27% are home grown samples. Considering that Alabama's AFO-CAFO Rules (1999) require soil testing every 3 years while animal manure are applied, we are surprised that sample numbers have not increased. Either these farms are out of compliance or sending sample to out of state, private labs.
-Presented survey data relating cotton yields and soil quality to soil organic matter.
-Presented data on lime requirement of Alabama crops suggesting cotton and peanut producers are doing a very good job of liming these crops. However, other crops, mainly forage, need over 3.5 million tons of lime each year. Only about 600,000 tons were used in the entire state in 2001-02 year.
-New ALFA Agricultural Service Lab will be ready for occupancy in July 2003.

2. AR: reported by Morteza Mozaffari

- **Personnel:** Marianna Lab has experienced a high rate of personnel turnover in the sample "Receiving Area". In an effort to reduce this high turnover, in 2002, the positions of the two full-time employees in this area were upgraded with an increase in salary. In 2002, laboratory personnel were provided access to computer

courses via the internet. In 2003, the laboratory will provide access to internet courses in basic chemistry and laboratory techniques.

- **Analytical Procedures:**

The anticipated change from the Mehlich 3 1:7 extraction ratio to the standard extraction ratio of 1:10 is still pending, with no specific date set for implementation.The Soil Test Laboratory at Marianna has purchased an autoanalyzer and procedures are being developed for analysis of soil NO

3·

In 2002, The Marianna laboratory added the capability for analyzing soil texture for a fee.Fayetteville lab has added Total Carbon to its routine manure analysis package of Moisture, pH, EC, Total N, P, K, Ca.

The Fayetteville laboratory is now analyzing total heavy metals (As, Cd, Cr, Ni...) in diagnostic soil samples by the Standard addition method by ICP.-

Computerization: In January 2003, Doug Carroll revised the computer recommendation program at the Marianna laboratory for rice crops using information supplied by Dr. Leo Espinoza of the County Extension Service. The Marianna laboratory is moving forward with plans to provide web-based delivery of Fertilizer Recommendation Reports to County Extension offices. The program should be ready for testing in the second half of 2003.

- **Laboratory Activities:** Marianna Lab had 76332 routine soil samples an 18% decrease over the previous year, while Fayetteville Lab had over 20,000 other types of samples.

3. FL: reported by Elizabeth Kennelley and Rao Mylavarapu:

- One new Spectro ICP and a new Bran-Luebbe AA3 were purchased to enhance metal and low level P analyses;
- Personnel has been increased to 10 state-funded full time and 4 part time positions;
- New services will be offered in the coming year with possible price increase to offset budget problems;
- Nearly 80,000 various samples were analyzed;
- Several research projects are currently carried out by lab personnel.

4.GA: David Kissel and Paul Vendrell reporting

- A total of 118,215 various samples were analyzed by the lab. This was 10% lower than that of previous year;
- There will be a charge for farmers' samples ($2/each) and an increase for homeowners'samples (from $4 to $6 per sample);

- Evaluation of titration procedures for buffer pH using AS 3000, water soluble P from manure, NIR digestibility calibrations are underway;
- A series of household water quality publications were made available on their website.

5. KY: Frank Sikora reporting
-Old friend James Bartos began working for the Division of regulatory Services in Sept. 2002;
-Princeton Lab got its new Varian MXP ICP in 2002. Lexington is also getting an additional Varian Vista Pro ICP;
-The SoilData program was upgrated to version 3.0;
-New additions placed on their web (www.rs.uky.edu/soils);
-A total of 57,246 samples were analyzed in 2002.

6. LA: Jim Wang and Paul Bell reporting
- Samples run in 2002: 17,656 soil, 471 water analysis, 5,131 plant samples;
-The new computer program is fully operational;
-The sample turnaround time of routine analysis has reduced from 7-10 days to 4-6 days;
-the lab is adapting procedures for soilless growth medium testing and developing procedures for silicon;
-They are acquiring a new LECO TruSpec CN analyzer.
-Several projects related to soil and plant analyses are currently conducted.

7. NC: Reported by Dr. David H. Hardy, Section Chief- Soil Testing
- **The Soil Testing Section** analyzed 307,474 samples, which was about 4.5% less than the previous year. Agricultural crops predominate the sample volume with cotton accounting for about one-third of all samples. Wetness during the winter and spring of 2003 has caused a decline in sample volume for 2002-2003 fiscal year of about 17%.
- A new Thermo 61E ICP was placed on-line in the summer of 2002. Modification to our drying system also occurred over the summer. The section continued evaluation of the AS3000 Labfit pH Analyzer and placed it on-line to read water pH. The lab is continuing to look at automation and is working with an engineering firm to design an automated humic matter station. A new soil box (shorter and perforated top for easy removal) was tried on a temporary basis but it was not viewed to be an improvement so the change was not made. The lab did participate in the NAPT program for the first time and viewed it to be a helpful addition to the QA/QC efforts.

- State budget concerns in NC continue with possible fee proposals. A soil fee of $3.00 per sample was proposed in 2002 but the bill was "killed" in the final budget.
- The lab will be receiving a $220,000 grant from NRCS to help increase sample capacity and efficiency in the lab as additional samples are anticipated with phosphorus issues as related to nutrient management.

- The Plant / Waste / Solution Section analyzed 37,509 samples during the 2001-2002 fiscal year.
- Animal agriculture in North Carolina accounted for the majority of waste samples analyzed (18,460). More than 11,500 (62%) samples were processed from swine industry alone. Greater than 2,500 (13.5%) samples came from the poultry industry. The fee for plant/waste/solution samples remains at $4.00 per sample.

8. OK: reported by Hailin Zhang
- They analyzed over 40,000 soil, water and forage samples during 2002.
- Their web-based reporting system has been improved to allow county agricultural educators to add additional information electronically before they print the reports. A 25 cents incentive is provided for lab users who download their reports from the internet instead of receiving hardcopies. Now, less than 30% of our clients request hardcopy results.
- They added a second Spectro Ciros ICP in 2002. Both instruments are working well.
- They are in the process to acquire a new LECO Truspec CN analyzer. So far they have duplicates of all major instruments in the lab to minimize down time.
- A new cleaning system was installed in the grinding room.
- Mrs. Beth Cranton was a technician at The University of Tennessee Soil Test Laboratory. She started to work for OK since November last year. She is an excellent employee.

9. Puerto Rico: Mary Jeane Sanchez reporting
- Over 15,000 samples were analyzed.

10. SC: Kathy Moore reporting
- Their Regulatory Department has purchased a Spectro ICP;
-Switched soil sample container from boxes to bags;
-New pH analyzer purchased from Labfit;
-in 2002 conducted 35,039 soil, 2,577 plant, 1,868 feed, 539 water, 1,257 animal waste, and 3,573 other sample analyses;
- Major administration changes took place.

```
11. TN: Hugh Savoy Reporting
```

```
- Dr. Lessman retired last year;
```

```
- Lab ran about 25,000 samples
```

```
- The lab is considering adding a B soil test for 2004.
```

```
12. VA: Greg Mullins reporting
```

```
  - Steve Donohue retired recently, Greg is responsible for the lab
```

```
- processed 40,000 samples in FY2003 reflect a 15% drop over the pr
```

```
- Changed buffer method for lime recommendation;
```

```
- Will probably purchase a new ICP in 2004;
```

```
- Working on improving N recommendation strategy.
```

Additional Discussions:

Ray Campbell thanked everyone who attended the meeting and the University of Puerto Rico for organizing such a wonderful meeting.

Next year's meeting will be joint with NCR-13 and the Northeastern Group. The NEC expressed interest in hosting 2004 joint meeting in Maine as reported by Manjula Nathan. Leaders from all 3 groups will discuss and finalize the location soon. The meeting will be hold in Oklahoma if Southern Region is chosen.

5:00 PM. Meeting adjourned.

June 12, 2003

Several members participated in a round table discussion on "statistical applications for nutrient management in tropical soils" with International Biometrics Society-Caribbean Chapter members. This took place at the University of Puerto Rico Mayaquez campus.

Submitted by Dr. Hailin Zhang, Secretary