

**SERA-IEG-6****Nutrient Analysis of Soils, Plants, Water, and Waste Materials  
Southern Extension and Research Activity Information  
Exchange Group 6**

**Annual Meeting, June 10-12, 2001**, University of Arkansas,  
Fayetteville, AR  
Fayetteville Hilton Conference Center

**In Attendance:**

1. Administrative: Kathy Moore, Chairman  
Bill Thom, Past Chairman  
Hugh Savoy, Secretary  
Bob Westerman, Administrative Advisor, Research  
David Kissel, Administrative Advisor, Extension
2. Local host: Nancy Wolf
3. State Representatives: See Participants Listing
4. Sponsorship:
  - a. Perkin Elmer Instruments
  - b. Spectro Analytical Instruments
  - c. Thermo Elemental
  - d. Leco Corporation

**Concurrent Poster Session:** posters on display throughout the annual meeting

1. NRCS Nutrient Management Program in Florida. Graetz, D. A., W. D. Tooke, R. S. Mylavarapu and V. D. Nair
  2. Soil Testing for Cotton in Coastal Plain Soils. Mitchell, C. C. and G. H. Harris
  3. Soil Testing in the Southern U. S. Mitchell, C. C., S. J. Donohue, K. P. Moore, W. O. Thom and M. R. Tucker
  4. University of Arkansas Soil Testing and Research Lab, Marianna. Slaton, N. A., R. E. DeLong and S. D. Carroll
  5. University of Arkansas Agriculture Diagnostic Lab, Fayetteville. Slaton, N. A., R. E. DeLong and N. A. Wolf
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6. Mehlich Methods. Ray Tucker

7. History of Soil Testing in North Carolina. Ray Tucker

### **June 10, 2001**

-Registration and Social

-Instrumentation Demonstration, Thermo Elemental-Ted Ashby

-Committee meetings held at discretion of Committee Chairs

### **June 11, 2001**

-Breakfast

**-8:00 a.m., opening remarks by Dr. Gregory J. Weidemann and Dr. Nathan Slaton**

**-Introduction of guests-Dr. Bob Westerman gave the administrative report for research followed by Dr. David Kissel for Extension**

-Annual Accomplishment report due in 60 days

-Questions raised regarding whether the environmental aspect of soil/plant/water testing should be included in our mission statement. Nathan Slater is to lead a mission statement committee including Bill Thom and Rao Mylavarapu.

-Discussion was raised by Tony Provin and Frank Sikora about getting the older SERA publication online. This seemed appropriate. No plan of action submitted at this time.

-The opportunities for a greater number of fact sheets was discussed and generally accepted as a goal to achieve in the near future.

- Discussion raised on the need to more completely document the differences obtained from Colorimetric versus ICAP phosphorus determinations. Dr. Frank Sikora will take the lead in a sample exchange (ICAP vs. Colorimetric) and report back to us next year.

**-USDA CSREES Report: 2002 Presidents budget**

Initiative for future agriculture and food systems (section 401)

Integrated Activities-water quality (section 406)

Second International Nitrogen Conference to be held

Emerging program areas

Carbon sequestration

Animal waste nutrient management

Water-borne pathogens

Air quality/odors/ammonium deposition

**9:00 a.m., Publication status reports**

- Bulletin 190, Kathy Moore reporting
- Near completion
- Savoy will assume responsibility for future updates
- Regional Cotton Fertility Publications: Charlie Mitchell reporting
- Completed manuscripts in electronic form due to the editor - 1 Mar 2002
- Final draft to be ready prior to or at 2002 SERA meeting
- Manure Testing Manual: Nancy Wolf reporting
- Section drafts of the manual as of May 2001 listed
- Another conference call in June 2001

**9:30 a.m., North American Proficiency Testing (NAPT) ♦ Bob Miller reporting**

**10:15 a.m., Report from NCR-13 Representative- Larry Cihacek reporting**

**10:30 a.m., Report of P in Coastal Plain Soils after Swine Manure- Ray Tucker reporting**

**11:00 a.m., Report comparing Mehlich 1 vs. 3 in KY Soils- Frank Sikora reporting**

**11:45 a.m., Instrumentation demonstration by Perkin Elmer ♦ Jim Durrett reporting**

**12:00 LUNCH BUFFET at Hilton sponsored by Perkin Elmer**

**1:00 p.m., Online Reporting System and Interactive Fertilizer Rec. Program. Hailin Zhang reporting**

**1:30 p.m., Software Development Program. Frank Sikora reporting**

**2:15 p.m., Virtual Tour U of A Soil Testing and Research Center. Doug Carroll reporting**

**2:30 p.m., Break taken**

**2:45 p.m., P Index ♦ Dr. Philip Moore reporting**

**Agriculture Diagnostic Lab tour**

**6:00 p.m., Dinner at Agri Park Pavilion (sponsored by Spectro)**

**June 12, 2001**

**-Breakfast**

**8:00 a.m., CEC Discussion led by Hugh Savoy and Tony Provin - Savoy and Provin to take the lead in development of SERA publication/fact sheet on standard methods and use of estimated/calculated/Other CEC**

**8:30 a.m., Group discussion of our Mission and Goals, Educational role of labs as Land Grant Institutions ♦ Kathy Moore reporting**

◆ **Motion made by Jerry Kidder and seconded by Ray Tucker:**

The amount of a particular element extracted from a soil is known to depend on the extracting method. Therefore, identifying the method used is important soil test information. Be it resolved that SERA-IEG-6 encourage soil testing laboratories to identify the extracting method as part of each report of soil test results.

Discussion called for... Motion/resolution approved by acclamation.

To be published in a special section on our web page

**10:00 a.m., Break**

**10:15 a.m., STATE REPORTS**

1. VA: Steve Donohue as reported by Kathy Moore

-Processed 42,000 samples in FY2001.

-Free testing for farmers and \$7.00 for homeowners with \$1.00 returned to Extension to encourage soil sampling.

-Full-time programmer overhauling lab computer systems.

- New system for making fertilizer recommendations, Virginia Land Use Evaluation System, (VALUES) introduced this spring.

-Newly purchased AS-3000 Automated pH and EC Analyzer from LABFIT, Western Australia. Will begin running lime requirement test this fall.

-Two ICPs currently in operation: ICAP 9000 from TJA recently upgraded to 61E and tabletop ICP from SPECTRO.

-Crop and Soil Environmental Sciences Dept. currently undergoing CSREES review.

2. TN: Gary Lessman and Hugh Savoy Reporting

-Plant and Soil Sciences Department combined with Ornamental Horticulture and Agricultural Engineering to form two new departments as yet to be named. Soil Scientists to go with the Agricultural Engineering group.

-Soil test lab currently considering Meh 3 extractant.

-Expected fee increase this Oct.

-Laboratory program is being highly encouraged to operate at break even or better financial status.

3. TX: Tony Provin reporting

-Client soil samples increased to 28,500 per year. 25 % increase in urban samples with a 10 % decline in agricultural soil samples.

- Non-research forage samples steady at 14-15K. Water samples increased from 1200 to 1650.

- Heavy metal analysis suite dropped during 2000 due to insufficient sample numbers and concerns over competition with environmental

laboratories.

- Currently reviewing the purchase of ICP and C/N analyzer.
- Field research activities expanded, including K rates for bermuda grass; P rates in Bermuda, corn and sorghum; limestone/soil pH rate studies and turf/sod production runoff studies.
- Recent correlation studies indicate superiority of present TAMU extract to most other extractants tested. Currently expanding evaluation of Meh 3.

#### 4. SC: Kathy Moore reporting

- Reporting system web based beginning 2001.
- Automated data entry for pH stations.
- Purchased and installed a new LECO FP528 for nitrogen analysis on feed, plant, and animal waste samples.
- Adapted the regional plant sufficiency levels from Bulletin 394 into SC plant tissue reporting system.
- Talking about increased fees.
- In 2000 conducted 33,700 soil, 2063 plant, 1900 feed, 355 water, 480 animal waste, and 353 other sample analyses.

#### 5. OK: reported by Hailin Zhang

- About 31,000 combined soil, water and forage analyses conducted in 2000.

-Website for viewing of results:

<http://clay.agr.okstate.edu/extensio/swfal/intro.htm>

(<http://clay.agr.okstate.edu/extensio/swfal/intro.htm>) - Current data management system developed in early 90's and has little flexibility. Web reporting program is separate from the lab database requiring daily uploading of data to the web. New data management system being developed and will integrate sample login, analytical results and interpretation, accounting, statistics and web reporting into one system.

-Pleased with new Ciro's ICP. Technical support from Spectro is satisfactory.

-Have added soil organic carbon, total nitrogen, soil ammonium nitrogen and grain protein tests

-Over 50 soil sampling probes distributed to county extension offices. Survey indicated that producers did not use probes when collecting soil samples, which resulted in inconsistent results from year to year.

#### 6. NC: Ray Tucker reporting

-Purchased a robotic pH unit (Labfit, Lty. Australia). Plans to purchase additional units.

-P-index development committee formed and is chaired by Steve

Hodges.

- Study conducted across the state with soil samples taken in 4-inch increments to a depth of 32 inches in order to determine depth of leaching.
- Lab running record number of soil samples (318,000+).
- Setting a "trigger" for critical toxic limit (CTL) for zinc and copper for waste application samples. A notification will be made on the report to alert users of the potential for reaching toxic limits.
- Certified by DENHR for waste and soil samples for N, P, Mn and Zn.

7. MS: Keith Krouse and Larry Oldham reporting

- 32,000 combined soil and tissue samples run.
- New Perkin Elmer ICP purchased.
- Lab to be self-supporting.
- Director retiring, interim director as of Jul 1.
- Will be reorganizing.

8. LA: Jim Wang and Rodney Henderson reporting.

- About 12,000 combined plant and soil samples run.
- Testing new comprehensive program for reporting, billing, etc.
- Comparison of soil test extractants in progress.
- Working on ways of improving efficiency and turn around time.
- Teaching assistant hired.
- Jay Stevens replaces position of Eddie Funderburg as extension specialist.
- Plant analysis lab has become a part of the soil-testing lab.

9. KY: Frank Sikora and Bill Thom reporting

- Labile N evaluation under way.
- Surge in number of retirees.
- About 45,000 total sample analyses (mining, comm. hort., ghouse, research, home and garden, agric.) conducted.
- Reminded of past proposals of a soil sufficiency index (J. D. Lancaster, 1982).

10.GA: David Kissel, Paul Vendrell and William Johnson, Jr. reporting

- Jul 1, 2000 through May 31, 2001: 96,654 soil, 2309 animal manure, 3637 water, 2589 plant, 2316 feed and forage and 1102 waste water samples analyzed.
- Numbers similar to last fiscal year. Over 95% of animal manure samples from poultry. Free poultry litter testing program in place for development of nutrient management plans.
- New program being developed in forage testing. Two new extension specialists (Dept. of Crop and Soil Sciences) to work closely with

Dr. Vendrell (Feed and Environmental Waters Laboratory) to develop enhanced programs in forage testing. Foss NIR Spectrometer purchased and Research Coordinator hired to support this program. New field test for nitrates in forages being tested as part of this program.

- Expanded water test being developed. Test results will be used to calculate a saturation index to predict corrosion and to address other common GA water quality issues.

- Dr. Bush (Pesticides and Hazardous Wastes Laboratory) had a number of projects dealing with poultry litter, other waste application to forages and pine trees and a project on environmentally safe application of waste water to golf courses.

- Anticipate increased emphasis of all aspects of soil pH and liming in near future. Possible robotics for pH and lime requirement measurement. Emphasis on subsoil pH and its spatial evaluation in the field.

#### 11. FL: Rao Mylavarapu reporting

- About 11,000 samples analyzed last year for producers and about 111,000 research solution samples.

- Expects less emphasis on producer samples.

- New SPECTRO ICP purchased.

#### 12. AR: Nathan Slaton and Nancy Wolf reporting

- Dr. Slaton started Feb. 1, 2001 as Director of Soil Testing with responsibilities over Marianna and Fayetteville laboratories.

- Dr. Bill Baker resigned Apr. 30 to accept a teaching position at AR State Univ. in Jonesboro, AR.

- Dr. John Gilmour retired and Dr. Craig Beyrouty stepped in as Dept. Head. He is from Purdue.

- Dr. Stan Chapman will retire this summer. Interviews for his position will take place in July. Only one soils specialist position will be filled.

#### Analytical Procedures:

- UA lab will convert from modified Meh 3 (1:7) to the standard method (1:10) beginning Oct. 1.

- Price increases effective Jan. 1, 2002 for in-state research soil samples and out-of-state samples. Current price is \$3.00 but going to \$5.00 for in-state and \$10.00 for out-of-state.

- Soil organic matter method (on request) will change to LOI.

#### Lab Activities:

- Marianna Lab. 2000 calendar year: 94, 956 routine soil samples, 2441 cotton petiole samples, 2166 other plant.

- Fayetteville Lab: 875 manure samples (307 liquid, 538 dry); Broiler litter program, 112; Orchard monitoring, 24; Researchsoil, 3438;

Research plant, 7553; and other, 5502.

-The Annual Arkansas Soil Fertility Studies Publication will be renamed (W. E. Sabbe Arkansas Soil Fertility Studies) this fall.

13. AL: Charlie Mitchell reporting

-Number of soil samples parallels row crop acreage.

-Crop acreage has steadily declined over last 15 years.

-Modest sample number increases over past 3 years associated with mandatory testing for AFO/CAFO.

-Estimated about half soil samples tested go to private laboratories.

-Currently test about 30,000 routine soil samples, little change since early 70's. 25% homeowner samples, about 50% farmer samples.

-35% of farmer samples submitted rated low in P, 36% medium, 29% high, very high or extremely high.

-P index in effect as of Apr. 2, 2001.

-21% of farmer samples tested low or very low in K, 40% medium, remainder high or very high.

-Ground Ag. Limestone recommended for about 40% of crops for which recommendations are made.

-Demands for other types of samples increasing. 13,000 combined feed and forage samples, animal wastes, plant tissue, water, artificial soil media, organic analyses, and other environmental tested.

-Generous grant from the Alabama Farmers Federation (ALFA) in 1995 designated for a new agricultural services facility on campus. Ground breaking should occur in early 2002.

**WRAP UP:** Topics for next year and meeting dates.

Nominating committee for election of secretary next year to be Kathy Moore, Bill Thom, Ray Tucker.

GA to host SERA-IEG-6 meeting June 9-11, 2002.

Minutes of SERA-IEG-6 June 10-12, 2001 respectfully submitted by Dr. Hugh Savoy, Secretary.