

# **SERA-IEG-6 2019 ANNUAL MEETING**

**Best Western Plus Cimarron Hotel**

**315 N. Husband St.**

**Stillwater, OK 74075**

**JUNE 9-11**



## **BEST WESTERN PLUS CIMARRON HOTEL**

### **Administrative**

**Tony Provin, Chair**

**Gobi Huluka, Vice-chair**

**Jim Wang, Secretary**

**Tom Obreza, Advisor**

**Nathan Mckinney, Advisor**

**SERA-IEG-6 Annual Meeting  
June 9 - 11, 2019, Stillwater, Oklahoma**

**AGENDA**

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**June 9, 2019 (Sunday)**

5:00 – 6:00 pm	Registration
6:00 – 7:30 pm	Welcome Reception
7:30 – 8:30 pm	State Reports, Moderator Tony Provin, SERA-6 Chair
8:30 – 8:45 pm	Agricultural analysis on Agilent's 5110 ICP-OES: Fast, accurate and reliable answers at your fingertips, Sima Singha, Agilent Technologies
8:45 – 9:00 pm	We are here to serve you, Bruce Moulton, Texas Scientific Products
9:00 – 9:15 pm	Updates from Spectro Analytical Instruments, Dion Tsourdes
9:15 – 9:30 pm	Updates from Seal Analytical

**June 10, 2019 (Monday)**

8:00 – 8:05 am	Introduction and House Keeping Notes – Hailin Zhang, OSU
8:05 – 8:15 am	Welcome – Dr. Damona Doye, Associate Vice President for Extension, OSU
8:15 – 8:40 am	Moving beyond yield goals, Bill Raun, Oklahoma State University
8:40 – 9:05 am	Fertilization using nitrogen stabilizers: Agronomic effect and environmental implication, Jim Wang, Louisiana State University
9:05 – 9:30 am	The future of soil testing, Bob Miller, Colorado State University
9:30 – 10:00 am	<b>Break and Exhibit Viewing</b>
10:00 – 10:25 am	Five months into Online Sample Info Submission and Payment, Tony Provin, Texas A&M University
10:25 – 10:50 am	Analysis of leaf tissue nutrient contents of corn, cotton, pecan and blue berry by Near Infrared Spectroscopy, Uttam Saha and Jason Lessl, the University of Georgia
10:50 – 11:15 am	Successful plant tissue testing, Kristin Kicks, North Carolina
11:15 – 11:40 am	MODUS Agronomic Testing Lab Standard, David Hardy and Bob Miller
NOON – 12:45 pm	<b>Lunch</b>
1:00 – 1:15 pm	Updates from LECO, Brandon Kocher
1:15 – 1:30 pm	Automation in the soil lab with Skalar analyzers, Mark Payne
1:30 – 1:45 pm	Updates from EA Consumables
1:45 – 2:00 pm	Updates from FIALab
2:00 – 2:15 pm	Drive to OSU Campus
2:15 – 4:00 pm	<b>Break and Tour</b> of OSU Soil, Water and Forage Analytical Laboratory
4:00 – 6:00 pm	Field tour: Improving soil health with cover crops for vegetable productions, Perkins, OK. Josh Massey and Lyn Brandenberger
6:00 – 6:30 pm	<b>Travel to the Hotel or Botanic Garden</b>
6:30 pm	Dinner, OSU Botanic Garden

**June 11, 2019 (Tuesday)**

8:00 – 8:25 am	Soil health and nutrient cycling in Arkansas, Trenton Roberts, the University of Arkansas
8:25 – 8:50 am	Challenges of soil health/quality analysis service at AU Soil Testing Lab, Gobena Huluka, Auburn University
8:50 – 9:15 am	Measurement of CO <sub>2</sub> emission in soils, Jason Warren, OSU
9:15 – 9:40 am	Soil test based P and K recommendations in the Southern Region, Hailin Zhang, OSU
9:40 – 10:00 am	<b>Break and Exhibit Viewing</b>
10:00 – 10:15 am	Agricultural Laboratory Proficiency Program, Bob Miller (Sponsor)
10:15 – 10:30 am	Update on NCERA-13 and Plan for Joint Meetings in 2020, Manjula Nathan, University of Missouri
10:30 – 10:50 am	Updates from Administrative advisors: research (Dr. Tom Obreza, UFL) and extension (Dr. Nathan McKinney, U of AR)
10:50 – 12:00	Open discussions and conclusion, Tony Provin presiding
12:00 noon	<b>Adjourn (box lunch available)</b>

## 2019

## SERA 6 Meeting Registrants and Sponsors

	NAME	AFFILIATION
1	Alford, Shannon	Clemson University
2	Antonangelo, Joao	Oklahoma State University
3	Bergeron, Jamin	University of Florida
4	Chi, Sunlin	Oklahoma State University
5	Florence, Robert	University of Tennessee
6	Hall, Leslie	Oklahoma State University
7	Hardy, David	NC State University
8	Henderson, Kendal	Oklahoma State University
9	Herron, Cindy	University of Arkansas-Marianna
10	Hicks, Kristin	NCD&CS
11	Hoegenauer, Kyle	University of Arkansas
12	House, Timothy	University of Arkansas
13	Huluka, Gobena	Auburn University
14	Gruener, Chandler	University of Arkansas
15	Lafex, Diane	University of Arkansas
16	Lessl, Jay	Univ. of Georgia
17	Ma, Xianfa	Oklahoma State University
18	McCray, Barbara	Oklahoma State University
19	Miller, Bob	Colorado State
20	Morris, Ashkey	University of Arkansas
21	Mulloy, Robyn	University of Arkansas
22	Nathan, Manjula	University of Missouri
23	Pasket, Amber	Oklahoma State University
24	Pena-Yewtukhiw, Eugenia	West Virginia Univ.
25	Provin, Tony	Texas A&M Univ.
26	Toberts, Trent	University of Arkansas
27	Saha, Uttam	Univ. of Georgia
28	Scott, Carrie	University of Arkansas
29	Slaton, Nathan	University of Arkansas
30	Smartt, Alden	University of Arkansas
31	Thomas, Sabrina	Stephen F. Austin University - Nacagdoches
32	Villines, Cheri	University of Arkansas
33	Wang, Jim	Louisiana State University
34	Williamson, Stephanie	University of Arkansas
35	Wylie, Allan	Oklahoma State University
36	Zhang, Hailin	Oklahoma State University
<b>Sponsors/Exhibitors</b>		
	NAME	AFFILIATION
1	Bernius, Jean	EA Consumbles
2	Bloomer, Tom	Spectro-Ametek
3	Cherney, Jason	Agilent Technologies
4	Flores, Andy	LECO
5	Forsberg, Don	Timberline
6	Foster, Jeffrey	Agilent Technologies
7	Janece, Phillip	FIAlab Instruments
8	Kocher, Brandon	LECO
9	Leibenguth, Sara	Seal Analytical
10	Mains, Jada-Star	Spectro-Ametek
11	Miller, Bob	ALP
12	Moulton, Bruce	Texas Scientific
13	Mutdock, Joe	Laboratory Filtration Group
14	Payne, Mark	Skalar
15	Patterson, David	Hubco Inc
16	Singha, Sima	Agilent Technologies
17	Stillian, John	Timberline
18	Tsourides, Dion	Spectro Analytical

## Highlights of the 2019 SERA-IEG 6 Meeting

- \* Many new attendees participated in the meeting with 16 Universities represented.
- \* Eighteen participants from 12 sponsors and exhibitors attended the meeting.
- \* Extensive discussion on hemp testing and deficiency range with future efforts planned.
- \* Significant discussion on soil health issues with potential work proposed.
- \* The 2020 SERA-IEG Annual Meeting will be joint with other regional groups across the country and will be hosted by the Clemson University and Shannon Alford will be coordinating along with David Hardy and Bob Miller.



# Summary of Events for 2019 during June 9-11, 2019

## June 9

- \* Dr. Hailin Zhang welcomed all the participants to Stillwater and made overview of the program for the next two days.
- \* After introduction of each person, dinner was served.
- \* State Reports were presented after dinner and monitored by Dr. Tony Provin. A call was to submit the written reports to the secretary.
- \* Sponsors presentations continued after State Reports according to the program: Agilent Technologies, Texas Scientific Products, Spectro Analytical Instruments and Leco.

## June 11

- \* Dr. Hailin Zhang opened morning session and introduced Dr. Damona Doye, Associate Vice President for Extension of OSU who formally welcome the group. Dr. Doye spoke on the state of agriculture in Oklahoma and emphasized cross-state collaborations for southeast region schools.
- \* Technical Sessions began after Dr. Doye's speech and moderated by Dr. Hailin Zhang according to the program schedule: Moving beyond yield goals –Bill Raun, OK; Fertilization using nitrogen stabilizers: Agronomic effect and environmental implication – Jim Wang, LA; The future of soil testing – Bob Miller, ALP.
- \* Break and Sponsors' exhibit viewing
- \* Technical presentations continued presentations: Five months into Online Sample Info Submission and Payment - Tony Provin, TX; Analysis of leaf tissue nutrient contents of corn, cotton, pecan and blue berry by Near Infrared Spectroscopy – Uttam Saha, GA; Successful plant tissue testing – Kristin, Kicks, NC; MODUS Agronomic Testing Lab Standard – David Hardy, NC.
- \* After lunch, Sponsors presentations from Seal Analytical, Skalar Analyzers, EA consumables, and FIALab.
- \* The group toured OSU Soil , Water and Forage Analytical Lab followed by visiting field project sites on soil health and cover crops, precision N management as well as fertility research on grapes trees.
- \* The day activity was captioned with dinner at the Botanic Garden of OSU

## June 12

- \* The first half of morning sessions focused on technical session on soil health measurements mediated by Dr. Nathan Slaton. The presentations included: Soil health and nutrient cycling in Arkansas – Trenton Roberts, AR; Challenges of soil health/quality analysis service at AU Soil Testing Lab – Gobena Huluka, Arburn; Measurement of CO2 emission in soils – Jason Warren, OK; The session was concluded with presentation of surveyed soil test based P and K recommendations in the Southern Region by Dr. Hailin Zhang.
- \* Break and Sponsors' exhibit viewing.
- \* The second half of the morning sessions begun with updates from ALP by Bob Miller who indicate that ALP begun to Botanic Analysis Certification Program.
- \* Then updates of NCERA-13 from Dr. Manjula Nathan, University of Missouri, who reported issues faced by NCERA public labs but emphasized collaboration on soil health methods.
- \* Dr. Nathan Slaton gave the Administrative reports on the behalf of Dr. McKinney, University of Arkansas (Research) and Dr. Tom Obreza, University of Florida (Extension). He thanked for SERA 6's leadership role in solving analytical and recommendation issues, and encouraged the SERA6 group to continue to engage in soil health subject, website improvement, and effort for unified procedures and recommendation. Dr. Slaton also suggested the use of hemp as an example to consolidate interpretations and recommendations across states.
- \* Dr. Kristin Hicks indicated that she will coordinate the group effort on hemp data gathering.
- \* Dr. Tony Provin led the final open discussion on issues about routine methods update, recommendation

differences raised from CIG survey, tissue test sufficiency ranges, and as well as potential limitations on CO2 burst method of varying field conditions. He proposed SERA 6 group to work on such issues.

- \* Announcement that South Carolina (Clemson University) will host 2020 joint meetings

ADJOURN

## STATE REPORTS

### ALABAMA (Gobena Hiluka –Auburn University)

The past year has been one of profound change for the Auburn University Soil, Forage and Water Testing Laboratory, in terms of organization and administration, staffing, and instrumentation and programming, again. In 2017, administration of the AUSFWL moved from the Crop, Soil and Environmental Science Department to the Alabama Agricultural Experiment Station. As a Service Center, the laboratory is expected to generate sufficient revenues to cover its operating expenses. Due to continuing revenue shortfalls, the management has been trying to find ways to reduce costs and increase revenues. We are in the process of reducing services and potentially increasing prices. We will also try to reduce personnel costs by streamlining management.

Director of Research for Outlying Units of AAES, will continue to administer the AUSFWTL. Dr. Reuben Beverly, who has served as Associate Director since July 2017, has resigned effective 1 June 2019 in order to assume a new position. As reported last year, the Auburn University Soil, Forage and Water Testing Laboratory has been in a state of transition. In calendar year 2018 the lab analyzed the following sample numbers:

Routine soil tests	21,515
Special soil tests	1,038
Soil Quality Index	164
Plant tissues	216
Feed and forages	752
Water	279
Chicken litter	133
Manure and compost	29
<u>Lime</u>	<u>57</u>
Total	24,183

### ARKANSAS (University of Arkansas Soil Testing and Research Laboratories, Marianna & Fayetteville – Nathan Slaton, Diane Lafex, and Cindy Herron)

- The Marianna Laboratory analyzed 109,057 client samples in 2018, down from the 184,953 client samples in 2017. Grid samples accounted for 66% of the total samples analyzed. The large decline in samples analyzed is directly attributable to above average rainfall since last September. October and November were the two busiest months in 2018 with more than 43,908 analyzed compared to 98,000 in 2017. However, +31,000 samples were analyzed in April 2019.
- Total sample number at the Fayetteville Lab declined in 2018 compared to 2017 (Table 1), due primarily to a reduction in research samples.
- Implementation of LabLite LIMS is in progress with programming tweaks ongoing. Pilot testing and implementation will begin 10 June 2019.
- The Fayetteville Lab added an Elementar CN Analyzer and Ankom XT15 Extractor for forage crude fat determination (2019) and one ICP was replaced at the Marianna Lab in Spring 2019.
- The annual summary of 2017 soil-test data and selected soil fertility and plant nutrition research was published in the Wayne Sabbe Arkansas Fertility Studies 2018, which is available on-line [https://arkansas-ag-news.uark.edu/657\\_Sabbe\\_Arkansas\\_Soil\\_Fertility\\_Studies\\_2018.pdf](https://arkansas-ag-news.uark.edu/657_Sabbe_Arkansas_Soil_Fertility_Studies_2018.pdf).
- New websites will launch for each lab in June 2019.
- Both labs enrolled in ALP for 2019. Other proficiency programs: Minnesota Manure Analysis and National

Forage Testing (Fayetteville), and Minnesota Soil Certification (Marianna)

- A logo was developed to aid in recognition of Arkansas soil fertility research and soil testing services (Fig. 1).
- N-STaR Lab analyzed 1,240 client samples and 136 research samples in 2018, this was down ~650 samples from 2017.
- The annual summary of 2017 N-STaR soil-test data and nitrogen rate adjustments for rice was published in the B.R. Wells Rice Research Studies 2018, which is available on-line [http://arkansas-ag-news.uark.edu/pdf/651\\_BR\\_Wells\\_Arkansas\\_Rice\\_Research\\_Studies\\_2017.pdf](http://arkansas-ag-news.uark.edu/pdf/651_BR_Wells_Arkansas_Rice_Research_Studies_2017.pdf)
- In addition to soils analysis the N-STaR lab has been accepting corn stalk samples on a limited basis in conjunction with county agents to gauge field variability in cornstalk nitrate values to help define a field sampling protocol for furrow-irrigated corn production.

Table 1. Laboratory analyses performed by the University of Arkansas Fayetteville laboratory during 2017 and 2018 (January-December).

Sample Category	2017	2018
Forage/Feed	1,073	1,516
Diagnostic Plant	252	490
Diagnostic Soil	275	264
Manures-Total	1,198	1100
<i>Dry Manures</i>	1086	885
<i>Liquid Manures</i>	208	215
Strawberry	408	302
Orchard Monitoring	0	0
Growing Media	12	79
Plant Samples	7,678	6,778
Soil Samples	2,103	1,778
Prepared Samples	14,627	3,901
<b>Totals</b>	<b>27,626</b>	<b>17,308</b>

Fig. 1. Arkansas Soil Testing and Research logo.



**FLORIDA** (Jamin Bergeron, University of Florida)

Good evening, my name is Jamin Bergeron and I am the laboratory manager at the UF/IFAS Analytical Services Laboratories. This is my second year attending the SERA-6 conference, and I am here tonight to give the State report for the ANSERV Labs. For an update on our lab's activities in the past year, I have the following information to present.

UF/IFAS Analytical Services Laboratories	Samples processed July 1, 2018- June 30, 2019	Samples processed July 1, 2017- June 30, 2018
Analytical Research Laboratory	21730	23868
Extension Soil Testing Laboratory	12851	14625

Environmental Water Quality Laboratory	769	265
Livestock Waste Testing Laboratory	241	325
Total number of samples	35591	39083

A comparison of the fiscal years shows a slight downward trend in the number of samples processed in the labs.

ANSERV Labs	2018-2019: 2017-2018
ARL	9% decrease
ESTL	12% decrease
EWQL	190% increase
LWTL	26% decrease
Total	9% decrease

The ANSERV labs purchased a new conductivity meter in 2018-2019 fiscal year. Building renovations and improvements continue into 2019-2020 fiscal year.

The ANSERV labs hired a new chemist and a new lab technician in the last fiscal year. In that same time frame, we had two staff members move to other opportunities, and one retirement from the laboratory after 15 years of service. The ESTL is in the process of changing our report format to include results for micronutrients and sulfur on all extension reports. With the addition of the additional data, this change also includes a total price drop from \$12 to \$10 for the customer. Testing is underway and the new reports will be issued later this summer.

The EWQL had a successful biennial NELAC audit with very few deficiencies resulting in renewed accreditation for water analysis.

The ARL will be training some staff from Haiti later in the summer to conduct soil testing as a part of a USAID project and some scientists and laboratory personnel from an Indian University probably in the Fall as a part of capacity building program.

The ARL continues to participate in quarterly NAPT soil proficiency tests and we are using these results to guide some improvements to our procedures across the laboratories. The laboratory is currently investigating improvements to our Organic matter testing by loss on ignition and working to improve our ICP procedures for boron analysis in soil extracts, specifically Mehlich 3 extracts.

**GEORGIA** (Jason Lessl University of Georgia)

### UGA State Report - 2019

New Equipment: Elementar Vario Max, Agilent 5110 ICP, Unity SpectraStar NIR

Sample Numbers:

Type	Number	Difference from previous year
Soil	58550	-10500
Water	9081	2200
Plant	4204	-600
Feed	6764	-1500
Bacteria	3098	400
Miscellaneous	3503	2200
Total	85200	-7800

Staff: Hired a new director, Dr. Reuben Beverly, who started June 1<sup>st</sup> 2019.



## LOUISIANA (Jim Wang –Louisiana State University)

The LSU AgCenter Soil Testing and Plant Analysis Laboratory analyzed 20,182 routine soils samples in 2018. In addition, the lab analyzed 10,015 plant samples and 9,185 optional soil tests. This reflects an increase in routine soil samples by 9% and plant sample by 35%. However, there was slight decrease in water samples.

Lab initiated soil nitrate test for based on water extraction.

Lab has recently updated recommendations for horticultural crops especially on blue berry

The extension specialist associated with Lab, J Stevens, has retired and the position is likely to be filled later with different emphasis.

The lab is in collaboration with research faculty in the process of updating micronutrient fertilization for rice on nitrogen as well as for soybean production for Mo, Fe and B.

In addition, the Lab is in collaboration with research faculty to calibrate N recommendations for using enhanced efficiency N fertilizers in wheat and corn.

## NORTH CAROLINA (David Hardy and Kristin Hicks – North Carolina Department of Agriculture)

### **NCDA&CS Soil Testing Lab 2019 SERA6 State Report**

The Soil Testing Section has analyzed 282,187 in FY 2019 (July 1, 2018 – June 30, 2019) which ends June 30. As a comparison, 303,800 soil samples were analyzed in FY 2018. Growers faced very wet field conditions during the fall and winter months making sampling very difficult, so our volume was reduced. The peak season period in which we charge for soil testing (December 1 – March 30) was delayed two weeks, as grace to growers. Reports issued with fertilizer/lime recommendations totaled 33,198.

The lab placed a 3<sup>rd</sup> pH robot into production; the robot is custom-designed by Automation Techniques located in Greensboro, NC. Kevin Rackers is the contact there., <http://www.automationtechniques.com/>

Three new grinders were placed into service. The grinder is stainless steel and has been custom-designed from the AgVise format. Improvements have been made to enable greasing / replacement bearings, replacement of blades, and eliminating potential for soil carryover. The Biological and Agricultural Engineering Dept. at NC State made the grinder and is willing to manufacture others including blades if interested. The contact is Neal Bain.

<https://www.bae.ncsu.edu/people/nhbain/>

Due to disposal concern of Ba in the Mehlich buffer, the lab began using CaCl<sub>2</sub>.

The lab is working on a hazardous waste disposal plan and system for disposal of acids (M3 extraction and ICP waste) and base (NaOH) from humic matter digestion. Silver from AgCl filling solution is also being handled.

Potassium validation studies in soybeans and corn were completed at the end of the 2018 growing season. Studies were conducted in conjunction with faculty from NCSU- the Crop Science and Soil Science department.

As his MS research project at NC State, Joseph Wilson, a chemist in our soil testing lab, has initiated a 6-month lime incubation study using 11 soils from across the state. The purpose of the study is to re-evaluate our lime recommendations since methods (salt pH method in 2017 and Mehlich buffer- CaCl<sub>2</sub>) have changed.

### **Plant/Waste/Solutions/Media Section**

**New Equipment.** We purchased a Skalar continuous flow analyzer to replace our 20 y old Skalar. We purchased a

Elemental Vario Max for analyzing CN on solid waste. We purchased a new grinder for small samples—IKA tube mill for 50 ml or less

**Research.** 1) Nitrogen Management in Winter Barley to Obtain Malting Quality. We have finished year two of this four year study. 2) Development of plant sufficiency ranges for N, K and S in Industrial Hemp for field production of hemp seed. This is complete and data is being analyzed. 3) Greenhouse study on nutrient concentration differences in hemp tissue between varieties. Completed and published 4) Greenhouse study to develop nutrient disorder identification in greenhouse hemp production. Complete. Preparing for publication. 5) Blackberry study to evaluate fertility recommendations for double-cropped and single-cropped primocane-fruiting blackberries. Year 1 is complete and year 2 has started. 6) Greenhouse study on effects of aluminum on blue coloration in hydrangea flowers. Completed and submitted for publication.

**Sample numbers.** This year was a record year for plant tissue samples at >17,000 samples and also a record year for total samples at > 35,000 plant, waste, solutions and media samples.

QC: we enrolled in PT through NAPT for water samples. Most of our elements are run on ICP and although included in this it is primarily to test ions (on the Skalar) and other parameters like EC, alkalinity, pH.

### OKLAHOMA (Hailin Zhang and Kendal Henderson— Oklahoma State University)

Oklahoma State University SWFAL had less samples in the past year. We were down to just 59,169 total samples. The lab replaced an aging Elementar Vario Max CN with a new Elementar Vario Max Cube CN. We also replaced our Spectro Blue ICP with a new Spectro Arcos II. We had no major personnel changes. We started a program using UPS to ship all our supplies and samples instead of primarily USPS.

### SOUTH CAROLINA (Shannon Alford – Clemson University)

#### SC report:

##### By the sample numbers for 2018

- Soil samples: 45812 (down ~16% from previous 5 year average, but we had an incredibly wet Nov and Dec, which accounts for half of the reduction; even affected sample #s into Jan)

I have started tracking research versus samples from the public so numbers for other sample types (plant and feed; not animal waste or water) seem drastically different from years past

- Plant tissue samples: 470
- Feed samples: 654
- Animal waste samples: 1442 (in-state) + 1460 (out-of-state) = 2902
- Water samples: 574 (saw a reduction here of ~14% with introduction of an out-of-state fee)
- Compost samples: 35
- Other samples (research and commercial customers): 10169

#### Personnel

- 3 employees celebrated 30 years at the lab
- 3 employee changes because of turnover (Chemist, Lab Tech, Program Assistant), 3 new employees started 2018-2019; using Manpower and Master Gardener volunteers to fill some of the gaps

#### Other

- We are continuing the work to update client reports- formats, information, linked resources, etc.
- Starting to review some of our recommendations that have not been updated in about 10 years
- Looking into instrument purchases because both N-combustion analyzers are over 15 years old

### TEXAS (Tony Provin – Texas A&M University)

The Texas A&M AgriLife Extension Soil, Water and Forage Testing Laboratory processed 43,100 samplings in calendar year 2018. Sample flows were highly restricted in late 2018 due to the unprecedented rainfall experienced throughout much

of the state starting in September 2018 and continuing into the first quarter of 2019.

Significant action items in 2018 included:

Extension and Researcher interaction on potassium cotton fertilization recommendations following multi-year and multi-state potassium fertilization studies. The result was the raising of the critical value for cotton soil test potassium. Additionally, a Texas based research/outreach proposal was developed to formula multi-discipline cotton potassium response teams, who would target and inspect cotton fields reported to have early symptomology of potassium deficiencies. Factors including disease, root development, irrigation, soil nutrients, variety and etc. would be evaluated as to ultimately develop a greater understanding of producer concerns and management practices that are associated with the increasing frequent reporting of visual potassium deficiencies.

The laboratory was awarded multiple contracts and subcontracts in 2018, including those from several state agencies and larger metropolitan cities. The primary focus of these contracts has been addressing regional or specific stream segment nutrient impairments due to expected landowner/manager over fertilization actions. A Federal, Department of Defense Subcontract was awarded in late 2018, to develop protocols for the rapid analyses of soil nutrient, salinity and pH. The data from these analyses would be used in the field to allow for the extraction and survival of pathogenic bacteria, potentially needed to allow for the custom development and treatment of individuals exposed to weaponized bacteria. As a component of this grant, the laboratory purchased a Spectro Xepos-P XRD-ED to conduct rapid solution or solid analysis of elements.

Through interactions with other research projects, the laboratory has established increasing capacity for soil physical analysis. The purchase of Meter Pario datalogged soil texture probes, saturated hydraulic conductivity measurement apparatus, soil moisture potential instrumentation and existing equipment is allowing the laboratory to evaluate potential soil health related services to the public.

The laboratory developed a new mechanism for clientele payment of existing invoices, using the Texas A&M Aggie Marketplace. This system allows clientele to pay existing invoices via a secure connection with Visa, MasterCard or Discover credit cards. The laboratory expanded this capacity in the first quarter of 2019 to include prepayment options and the submittal of sample information.

**WEST VIRGINIA** (Eugenia Pena-Yewtukhiw– West Virginia University)

**Summary 2018:**

<b>CATEGORY</b>	<b>SOIL</b>	<b>PERIOD</b>
<b>Samples M3</b>	2772	Sep-Dec
<b>Samples M1</b>	4582	Jan-Aug
<b>TOTAL SAMPLES</b>	7354	Jan-Dec
<b>DISTRIBUTION</b>		
<b>Commercial MM</b>	0	
<b>Homeowner MM</b>	7354	
<b>Related to Sate/Service Agencies</b>	16	Jan-Dec
<b>Research MM</b>	18	
<b>Teaching</b>	8	
<b>OM.</b>	109	

Samples processed for research were related to small nutrient management plots (demonstrations).

Soil sample numbers decreased slight as compared with previous year 2017.

Changed from Mehlich 1 to Mehlich 3 in September 2018. Cost per sample increased. Processing time increase 30% (ICP instrument is slow, due to age).

Dr. Ed Rayburn developed new fertilizer recommendations, with support of Tom Basden, Dr. Eugenia Pena-Yewtukhiw, and Dr. Lewis Jett. The recommendations are still under review. We went from 18 to 76 recommendations. We kept a “non-recommendation selection.

West Virginia University and WV government to continue delivering free service to WV residents provided full funding to support lab activities.

## **ADMINISTRATIVE REPORT**

Report from Administrative Advisors: Nathan McKinney (research) and Tom Obreza (extension)

From our perspective, the SERA 6 leadership and membership are doing a very good job of the following:

- Staying on point with the mission: To increase the awareness, understanding, and interpretation of soil, plant, byproduct, and water analyses and their proper application to land and resource management in the Southern USA through unbiased, scientifically sound information.
- Engaging the membership through email communication, particularly when a question arises. It is good to see the quick responses from several members.
- Inviting retirees, students and affiliates to join meetings.
- Spirited, collegial interaction. No arguments, but honest disagreements are part of the learning and growing process for all SERAs.
- Accomplishments are impressive and documented.
- The annual meetings are well-organized.
- You have managed to keep service providers involved, engaged and supportive with their presence and monetary support. This is rather unique and speaks well of the SERA-6 and the service providers.
- Leadership and Governance. Very good, but Leticia’s enthusiasm and correspondence will be hard to duplicate.

These are the things we can do better:

- The website needs a facelift and some updates.
- You might consider assigning a committee to establish some benchmark measures/metrics/data that can be tracked year-to-year. This will help you report impact and ensure the future of SERA-6. You must measure something in order to prove your worth.
- Engage NRCS on Soil Health? I think we should invite one or more speakers at every meeting, but I leave that as a question rather than a recommendation.
- Methods manual on soil test methods used in the Southeastern US? What is the status? Who is in charge? Deadline for revision?

Hot topics:

- The “soil health” train continues to gather steam. In May, NRCS issued Soil Health Technical Note No. 450-03, “Recommended Soil Health Indicators and Associated Lab Procedures.” (The PDF was attached to the e-mail that carried this report.) It was good to see Tony Provin and Leticia Sonon mentioned as two of the 25 people from which information was obtained to write the note. We encourage SERA 6 to take a critical look at this note to determine how it can best be used in the Southeast.
- Hemp: The “hemp train” is moving at different speeds in different states. We have already seen SERA 6 e-mail traffic soliciting nutrient management recommendations for hemp. We encourage you to continue your communications about hemp across the Southeast so individual states can avoid having to “reinvent the wheel” as states ramp up their hemp-growing programs.

## Some SERA-IEG 6 2019 Pictures (Stillwater, Oklahoma)

