

The Soil~Plant Analyst



A NEWSLETTER DEDICATED TO THE AGRICULTURAL LABORATORY INDUSTRY
A Quarterly Newsletter of the Soil and Plant Analysis Council, Inc., Spring 2019

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Next Issue July 2019

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Message from President John Spargo



Soil fertility testing is an integral tool used in nutrient management planning in modern intensive agricultural production systems. It is used to determine where fertilizer is needed and how much to apply. Over the last several decades, a great deal of effort has been successfully invested in standardizing soil test methods in the United States, and the SPAC and similar organizations have played a central role. For example, regional soil testing working groups and committees have collaboratively published methods manuals that provide recommended methods to use in measuring key analytes, and detailed descriptions of analytical procedures. Modern soil testing proficiency programs (e.g., ALP and NAPT) allow laboratories to refine the accuracy of analytical results by evaluating their performance against other labs running the same methods. The success of these collaborative efforts has helped significantly reduce inter-laboratory variability of analytical results, but we have made far less progress toward developing a clear and consistent set of guidelines for *interpreting* soil test results used for making fertilizer recommendations.

Frameworks used to interpret soil test values differ among laboratories, and often lack transparency (i.e., direct connection to the data used to create them). These differences cause confusion and reduce end user confidence, which ultimately proves detrimental to efforts that encourage using soil testing to inform nutrient stewardship.

Soil testing serves as an index of soil fertility. The interpretation of soil test results relies on the empirical relationship between soil-test nutrient level and crop response to fertilizer. The accuracy of our interpretation of soil test results is a function of how well those results correlate with crop response to fertilizer.

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Membership Privileges

SPAC membership offers discounted rates for two journals: Communications in Soil Science and Plant Analysis and the Journal of Plant Nutrition. Journal subscription includes on-line access to past Journal issues. Membership in the Soil and Plant Analysis Council for 2019, includes quarterly newsletters, announcements on laboratory analysis workshops, laboratory supply discounts, discount registration for the international symposiums. To renew for 2019: contact Dr. Robert Miller SPAC Secretary.



SPAC Standard Soil Scoops

The Soil and Plant Analysis Council offers standard soil scoops for soil testing laboratories. Standard scoops sizes are: 1.0g, 2.0g, 5.0g, 10.0g and 15.0g based on an assumed soil density of 1.18 g per cubic centimeter. Scoops are manufactured from high quality steel with wooden handles. New for 2018 SPAC offers three handle sizes 3.5", 4.0" and special order 5.0" in length, along with optional high density foam grips. Additional scoop sizes of 0.50g, 4.0g, 15.0 g are now available, and special soil scoops based on volume or scooped mass density can be fabricated.

Scoops can be purchased via an order addressed to the SPAC secretary, rmiller@colostate.edu.



SPAC Lab Workshop - March

The Soil and Plant Analysis Council is hosting a one day Laboratory Workshop March 5, 2019 at the Carnegie Arts Center in Turlock, California. Topics include presentations: Soil Health Methods by Diane Stott; an overview of soil CEC methods; California soil cadmium issues and cool season vegetables by Richard Smith; compost analysis and the USCC Seal of Testing Assurance program, the botanical analysis Laboratory certification program, and a consultants perspective on laboratory service and quality by Carl Bruice. Also included are presentations by instrument vendors: Timberline Instruments, Elementar Americas, EA Consumables, Spectro Instruments and Agricultural Laboratory Proficiency program. Lunch is included in the workshop registration. For more information on the California Laboratory Workshop and registration contact the SPAC secretary, rmiller@colostate.edu.



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IPNI Restructure

Members and the Board of Directors of the International Plant Nutrition Institute (IPNI) voted December 14, 2018, to undertake a major organizational restructure which will include the transfer of key scientific assets and programs to The Fertilizer Institute (TFI), Fertilizer Canada and the International Fertilizer Association (IFA). Through this move, these three organizations will receive enhanced support for initiatives in 4R nutrient stewardship, regional agronomic extension, and engagement with the scientific community, policymakers, NGO's and other stakeholders.

“IPNI has long lent scientific expertise to the fertilizer industry’s efforts to address environmental and food production challenges. The fertilizer industry remains committed to helping farmers improve fertilizer management and to monitoring the performance with which our products are used,” said Tony Will, President and CEO of CF Industries and Chairman of the Board of IPNI.

The final transfer of assets, including the closing of IPNI’s Atlanta, Georgia headquarters and regional offices will be effective on June 30, 2019. IPNI Canada will continue to operate from its office, and the Foundation for Agronomic Research will remain the umbrella organization for the 4R Research Fund. - *IPNI Announcement*

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Continued from Page 1

This is arguably the weakest aspect of soil fertility testing. Soil-test recommendations are often based on a limited number of fertilizer response trials. In other cases, recommendations are based on the aggregation of multiple disparate soil test correlation data sets taken from different regions without regard to confounding factors that likely influence soil test correlations (e.g., climate, soil mineralogy, crop management systems).

While this problem has long been recognized, greater attention to environmental issues involving nutrient management and wider acceptance of precision agriculture have raised awareness of the differences in soil test-based fertilizer recommendations and the need for more consistent and transparent guidelines for interpretation. To that end, I am pleased to inform you that several collaborative projects are underway to address these issues. These projects are being led by Deanna Osmond (North Carolina State University), Nathan Slaton (University of Arkansas), Josh McGrath (University of Kentucky), Pete Kleinman (USDA-ARS), myself (Penn State University), and others. An overarching goal of these collaborative initiatives is to create an open-access soil-test correlation database for the United States to support a nutrient management decision support tool. The groups are also working on developing standard protocols for conducting and publishing soil test correlation and calibration trials, improving guidelines for using soil testing in precision agriculture, and harmonizing soil test terminology used across regions.

I will keep you informed of the progress as more information becomes available. A great deal of collaboration will be required for these goals to be achieved and many of you will be asked to contribute. I hope that you will consider lending a hand should that call come.





16th ISSPA Symposium

Planning for the 16th ISSPA is being finalized for symposium being held June 17-20, 2019 in Wageningen, The Netherlands. Symposium program co-chairs are of Dr. Oene Oenema of Wageningen University & Research and Dr. Arjan Reijneveld, of Eurofins Agro, Wageningen and Local Organizing Committee coordinator Inez Sinia of Eurofins Agro.

The ISSPA 2019 theme is *'Using tools to optimize plant production and quality: exploring the system approach'*. The symposium program has five primary themes:

- SOIL1: Chemical aspects of soil fertility
- SOIL2: Physical aspects of soil fertility
- SOIL3: Biological aspects of soil fertility
- PLANT: Plant-nutrition/ growth
- PRODUCT: Product (quantity and quality)
- MANURE: Manure/compost and mineral fertilizer
- SYSTEM: System approach

The program includes a Mid-symposium fieldtrip of field production, Tomato World greenhouses and symposium dinner. A half day optional Post Symposium Lab Tour 21st June includes: Eurofins Agro, Laboratory Wageningen University & Research and Soil Museum. There is an optional Pre-Symposium Tour June 14-16, 2019, of Cultural & historical tour of Amsterdam with a visit to the Rijksmuseum and the Van Gogh Museum.

The ISSPA venue will be the Hotel Wageningsche Berg. This hotel is hidden in the woods and 7 km away from the wageningenche mountain, The venue is located in the middle of the wooded area between the Utrechtse Heuvelrug and the Nederrijn. ISSPA2019 will provide shuttle buses and bicycles to Wageningen city center.

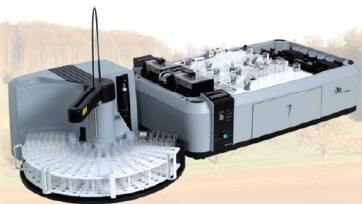
16th ISSPA Deadlines: Abstract submission 15, February 2019; Standard registration, 10 June 2019; Pre-symposium tours, 15 & 16 June 2019; and Symposium 17-20 June 2019.

ISSPA 2019 Travel Award

The ALP Program is sponsoring an industry travel award to attend the 16th International Symposium on Soil and Plant Analysis being held in Wageningen, The Netherlands June 17-20, 2019. The focus of the award is on assisting new career staff who are employed in the Ag lab analysis industry with travel to the international scientific meeting. The award consists of a certificate and \$1000 to be applied towards travel to the symposium. Eligible applicants must be employed in the commercial testing lab industry as a laboratory technician, manager or agronomist and required to have a BS, BA or MS degree in the Ag sciences and have worked in the industry for not more than 12 years in North America. Applicants must provide a 250 word narrative on their background and purpose on attending the ISSPA; along with an updated resume, and one letter of recommendation. Preference will be given to applicants presenting a poster at the 16th ISSPA. Applications deadline is March 24, 2019 and submitted by email to: Christopher Czyryca, robert.miller@cts-interlab.com.

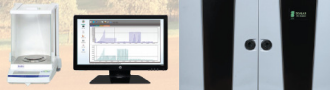


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MASTPAWG Meeting

The Mid-Atlantic Soil Testing and Plant Analysis Work Group (MASTPAWG) met North Carolina State University in Raleigh, NC, January 30 and 31, 2019. The meeting was hosted by *David Hardy, Soil Testing, Agronomic Division, NCDA&CS*. The program included presentations: "Blending" Soil P Recommendations across the Southeast – *Deanna Osmond, NCSU*; Soil Test Indicators of Corn K Fertility – *Bob Miller, ALP*; Development of Nutrient Management Process in Maryland – *Andrew Ristvey*; North Carolina's Early Experience with Industrial Hemp Production? – *Brandon Poole, NCDA&CS*; Industrial Hemp Research- An Overview of Hemp Research in KY – *David Williams, Univ of Kentucky*; NCDA&CS Agronomic Division Laboratory Safety Program – *Colleen Hudak-Wise NCDA&CS*; Should We Measure Active Organic Matter for Routine Soil Testing? – *Steve Culman, Ohio State University*; Soil Test Calibration Concepts: a Review – *Robert Florence, Univ of Tennessee*; The History of Soil Testing in North Carolina – *David Hardy, NCDA&CS*; An Overview of Biofuel Research in North Carolina – *Carl Crozier, NCSU*; Where We are with Nutrient Management – A North American Perspective – *T. Scott Murrell, IPNI*; and Measuring Soluble Salts – Are They All the Same? – *Bill Roher, AgroLab Inc*. Sponsors included EA Consumables, Elementar Americas; Skalar, Agricultural Laboratory Proficiency Program; Spectro Instruments, Texas Scientific Instruments and NAPT. The meeting included a tour of NCDA&CS lab facilities. Then next meeting is set for February 2020.

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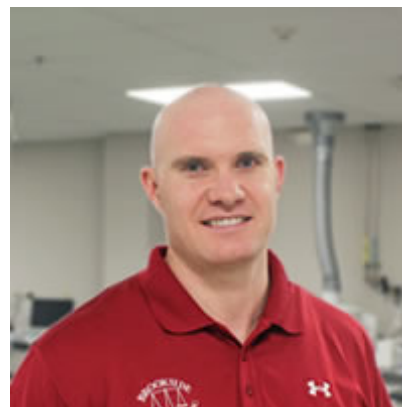
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New SPAC Board Member - Luke Baker

The SPAC welcomes to the board Dr. Luke Baker, PhD of Brookside Laboratories Inc. (BLI). He is the President/CEO at BLI located in New Bremen, OH. He received his B.S. in agriculture and chemistry (2003) at Wilmington College in Wilmington, Ohio. He earned his M.S. in soil fertility/soil chemistry (2005) and Ph.D. in soil environmental chemistry (2008) from Kansas State University in Manhattan, KS.



BLI provides testing for plant, soil, and waters for agronomic and environmental purposes. In addition, BLI has a fully accredited Geo-tech laboratory for testing of putting green and top dressing materials. BLI was the first and remains one of only 10 accredited laboratories in this field. Dr. Baker is a resource scientist for professional consultants making turf and agricultural recommendations throughout North America and the world (BLI services approximately 2,600 golf courses worldwide). Other duties include consultant training and guidance for interpretation/development of recommendations for water, soil, and plant chemistry as well as soil physics specific to golf course management. More recently, Dr. Baker has assisted consultants with environmental-site analysis and development of recommendations to help minimize the environmental footprint of golf turf management. In addition, he is working with the green roof industry to establish standard testing procedures.

Over the years, Dr. Baker's research has been heavily focused on phosphorus, from plant fertility to its use as a soil amendment to reduce lead and zinc bioavailability to organisms, and the use of by-products for the remediation of heavy metal contaminated soils. Although his current job limits his research involvement, his current research focus has been on the development of testing to improve nitrogen recommendations in the U.S. Corn Belt. In addition, Dr. Baker has worked over the years to set up testing to assess Soil Health and estimate nitrogen/phosphorus mineralization from soils. In 2017, Luke stepped into the position of President/CEO of the laboratory and leader of the Brookside organization.

Dr. Baker is a member of the Soil Science Society of America, Agronomy Society of America, the American Mineralogical Society, the American Chemical Society, Gamma Sigma Delta Honor Society, the Association of Official Analytical Chemists and serves on the board of the NAPT program. He has received several awards for both excellence in teaching and research and has been frequently invited to speak on nitrogen and phosphorus cycling, phosphorus issues in surface waters, soil health, and managing environmental footprints (sustainability).

2019 Western Nutrient Conference

The WERA-103 (Western Extension/Education and Research Activities) 2019 Western Nutrient Management Conference is set for March 8-9, 2019 Eldorado Resort Casino in Reno, Nevada at the . The goal of the conference is to facilitate sharing of new soil fertility and nutrient management research information and fertilizer industry developments in ongoing soil fertility research at universities across the Western region. Keynote sessions include: agricultural biostimulants; approaches to N recommendations; rhizosphere issues related to nutrient management; specialty crops; resilient Ag systems; managing nutrients and water/fertigation; pH management and salinity/sodicity management. The conference is open to university extension soil fertility and crop production specialists, industry agronomists, crop advisers, agency personnel and students. Included will be student posters and awards for research. Registration cost is \$150. More information can be found at: www.conference.ipni.net/conference/wnmc2019 .



WERA-103
Nutrient Management and Water Quality

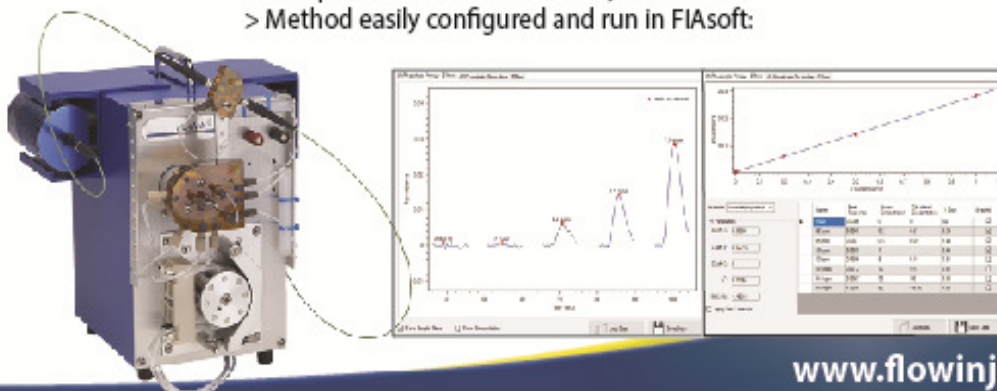
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CIG-P Project

On January 29, 2019 in Raleigh, NC, 25 southern and Mid-Atlantic soil testing and nutrient management researchers and extension specialist met for a day-long working meeting to discuss several soil testing and nutrient recommendation issues. The first topic was a comparison of phosphorus and potassium recommendations across southern state boundaries for nine crops. In some cases there was fairly good agreement (more often true for K than P) between state recommendations but for other crops there were larger differences. These data highlight the need for better coordination. The group also worked on revising a soil testing and recommendation survey that was sent to southern land grant fertility specialists in 2018. The intent is to send a revised survey to all land-grant soil fertility faculty in the United States in order to better understand nutrient management decision making. Thirdly, the group focused on developing standard protocols for conducting and publishing soil test correlation and calibration trials to help with uniformity across regions. - *Deanna Osmond, NC State*

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Calendar of Events for 2019 - 2020

March 5, 2019. SPAC Laboratory Workshop - California. Turlock, CA, USA.

March 7-8, 2019. WERA-103 Western Nutrient Management Conference. Reno, NV, USA.

June 9-11, 2019. SERA-IEG-6 meeting, Stillwater, Oklahoma, USA.

June 17-20, 2019. 16th ISSPA Symposium. Wageningen, The Netherlands.
www.isspa2019.com

July 7 - 11, 2019. Rhizosphere 5 Conference. Saskatoon, Saskatchewan, Canada.

July 10 - 12, 2019. Canadian Soil Science Society Saskatchewan, AB, Canada.

July 16 - 18, 2019. Soil Health Institute's 4th Annual Meeting. Sacramento, CA, USA

July 22 - 25, 2019. American Society of Horticultural Science Annual Conference. Las Vegas, Nevada, USA.

July 23-25, 2019. InfoAg Conference Ag St. Louis, MO, USA.

November 10-13, 2019. ASA, CSSA, AND SSSA Annual Meetings. San Antonio, TX, USA.

November 18-19, 2019. North Central Extension-Industry Soil Fertility Conference, Des Moines, IA, USA.

February 7-8, 2020. Mid Atlantic Soil and Plant Analysis Group. Raleigh, NC, USA.



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