

HPTA 2024 Annual Meeting Speakers

Tuesday, October 15, 2024



11:00 AM

Adam Thoms

Associate Professor – Turfgrass Management and Sports Turf

Department of Horticulture

Iowa State University

Bio:

Adam Thoms is an Associate Professor and Turfgrass Specialist for Iowa State University. He runs many turfgrass management and variety trials at Iowa State to investigate how to more efficiently and economically manage turfgrass. Dr. Thoms also teaches two classes as part of the turfgrass option for Iowa State. He is also active in the Sports Field Managers Association. He has a M.S. and Ph.D. in Plants, Soils and Insects from the University of Tennessee.

Presentation Description:

There are many claims for humic acids and how they can help improve turfgrass management, but there is little scientific research to support these claims. This presentation will cover the research trials investigating how humic containing fertilizers can improve turfgrass rooting and growth. Humic containing fertilizers were also investigated to see how they could help lower the nitrogen needed for both home lawn turfgrass and golf course putting greens. These studies revealed that turfgrass quality with humic containing fertilizers and lower nitrogen rates would remain similar to full nitrogen rates without humic containing fertilizers, while reducing clipping yield. These studies reveal that humic containing fertilizers could help reduce the rate of nitrogen needed for healthy and playable turfgrass stands.



11:45 AM

Dan Olk

Research Soil Scientist

USDA

Bio:

Dan Olk is a soil biochemist with the U.S. Department of Agriculture-Agricultural Research Service and works at the National Laboratory for Agriculture and the Environment in Ames, Iowa. He is a Ph.D. graduate of the University of California, Davis and was a post-doctoral researcher at the International Rice Research Institute in the Philippines before his employment with the USDA-ARS (2001-present). Since 2009 Dan has conducted field evaluations of humic products in corn-soybean rotations of the U.S. Midwest, studying the efficacy of humic products for improving crop growth as influenced by environmental variables, including annual weather patterns and soil type.

Presentation Description:

Can humic products--at their low application rates--contribute to improved soil properties? Evidence exists from an Australian government bulletin for controlled studies, but the scientific literature has little field evidence. On local Iowa soils, our initial results show some benefits to subsoil depths after 4-5 years of humic product application. These results include penetrometer resistance, bulk density and dry aggregate stability. We hypothesize that these benefits arise from greater growth of crop roots, which commonly occurs with humic product application.



1:00 PM
Candiss Williams
National Soil Health Specialist
National Resources Conservation Service

Bio:

Candiss Williams is the National Soil Health Specialist with the USDA NRCS Soil Health Division. In this role, she is responsible for national leadership of NRCS soil health technology, development and associated conservation and soil health policy development, implementation, and coordination. Prior, she was a Natural Resource Specialist and Soil Scientist for the NRCS Conservation Effects Assessment Program (CEAP) Cropland and Modeling Team and Outcomes Team, where she evaluated emerging computational techniques and research to improve conservation program effects on soil and water quality. She has held positions with USDA-ARS and NRCS as a Research Soil Scientist evaluating and documenting conservation effects on soil and water quality. She holds a PhD in Agronomy from Purdue University with a focus on soil and water chemistry and a master's degree in soil chemistry from Tuskegee University. Candiss will discuss how new technologies are integrated into NRCS' conservation program workstream.

Presentation Description:

Candiss will give an overview of NRCS, how NRCS incorporates new technologies and improves existing technologies into our workstream, how humic products currently fit within existing programs and how new technologies could be added. This would include how NRCS uses Conservation Innovation Grant data to update existing practices and activities or develop new practices to include these technologies IF it improves resource concerns.



3:00 PM
Daniel Zandonadi
Research Scientist
HUMA

Bio:

Daniel Zandonadi holds a Doctor of Science in Bioscience & Biotechnology. He is currently a Senior Plant Physiologist and Agronomist at Huma, Inc. and a full professor of Plant Physiology at the Federal University of Rio de Janeiro. Dr. Zandonadi has extensive experience as a field agronomist, having conducted plant field studies on crops such as corn, soybean, tomato, lettuce, sugarcane, coffee, and strawberry. His work includes large-scale field research at Brazilian Agricultural Research Corporation (Embrapa) farms and experiments with small family farmers under protected cultivation systems. He is an expert in plant bioenergetics, focusing on nutrient uptake systems and photosynthesis influenced by biostimulants. Dr. Zandonadi has dedicated the last 20 years to plant physiology and agronomy. He earned his Doctorate, Master's, and Bachelor's degrees from North Fluminense State University (UENF) in Rio de Janeiro, Brazil. He currently leads research on biostimulants and plant yield, evaluating humic and nanocarbon products in collaboration with private companies.

Presentation Description:

Organic matter has long been recognized as essential for plant growth. Early in the history of plant science, even before the discovery of the plant hormone auxin, the term "auximones" was coined to describe plant growth-promoting humic acids derived from Sphagnum peat. In the last two decades, the discovery that the major energy transduction systems of plant cell membranes—specifically the proton pumps—can be tightly regulated by humic substances in a manner similar to hormonal signaling has attracted the attention of plant physiology researchers. Both plasma membrane and vacuolar membrane pumps are modulated by humic substances, triggering ion signatures that correspond to specific patterns of plant growth and development. To enhance understanding of the humic chemistry responsible for the biostimulant activity of humic substances, continued laboratory research is essential, and the outcomes serve as key guidelines for understanding what is happening in the field. At the same time, field research combined with physiological measurements is needed to confirm plant responses to humic substances in practical, real-world conditions.