

## James S. Owen

My name is Jim Owen. I am a USDA-ARS scientist located in Wooster, Ohio who has attended all the Soilless Substrate Symposiums over the past 20 years, hosted the Symposium in Portland, USA, served on the planning committee for the most recent Symposium in Quebec City, QC, and have served on the scientific committee for last decade. Additionally, I have added to our membership by introducing both students and colleagues to our working group that now attend our symposium regularly. To best understand the soilless system, I have worked on numerous methodologies to analyze substrate physical and chemical properties. Physical analyses have included developing the hanging column method from low tension moisture characteristic curves with Dr. Altland (USDA-ARS), initial evaluation of evaporation method using HyProp compared to Tempe cell, employing the instantaneous profile method to validate HYDRUS modelling with Dr. Jean Caron (Laval Univ.), and currently working with Dr. Ryan Stewart (Virginia Tech) on further methods to investigate gas diffusivity and hydraulic conductivity with a hanging lysimeter. Chemical analysis has included numerous ways to extract, model, and investigate at phosphorus at the molecular level including fractionation, Visual MINTEQ, and X-ray absorption near edge structure (XANES) analysis. Our most current endeavors are to mechanistically understand the benefits and pitfalls of the pour-through extract method, complete analysis of plant, gas, pore-water and substrate nitrogen species and subsequent content, and better understand the effect of dynamic hydrological properties on solute transport through the containers vertical profile, considering root development and subsequent architecture. Therefore, I would like to self-nominate myself for the Chair of ISHS Working Group Substrate Analysis (PS3). Please contact me via phone or email if you have any additional questions. I have included a short biography below my signature. My signature includes links to more information about myself through ResearchGate, Google Scholar, and LinkedIn. Thank you for your time and consideration.

Respectfully,

James S. Owen



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Bio: Jim Owen is currently a USDA-ARS Research Horticulturist located at the Application Technology Research Unit in Wooster, OH. Jim received his B.Sc. in Plant and Soil Science at the University of Kentucky, his M.Sc. in Environmental Science at the University of Rhode Island, and Ph.D. at North Carolina State University with a major in Horticultural Science and minor in Soil Science. Jim's professional experience includes being an instructor at Univ. of Rhode Island, Asst. Prof. at Oregon State Univ., and a rise from Assist. to Assoc. Prof. at Virginia Tech. Jim's current research investigates horticultural productions systems, with a focus on the nexus of water-agrochemicals-substrate and the subsequent physiological impact on crops within controlled environment agriculture including nurseries and greenhouses. Jim's aim is to increase resource efficiency, minimize

environmental impact, and ensure profitability. More details regarding Jim can be found via [Google Scholar](#), [LinkedIn](#), or [ResearchGate](#).