Alex J. Lindsey

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EDUCATION

Ph.D., Horticulture, Iowa State University, May 2021

Dissertation: Evaluation of Humic Fertilizers on Turfgrass Dissertation Advisors: Adam Thoms, Ph.D., Nick Christians, Ph.D., Marshall McDaniel, Ph.D., Ken Moore, Ph.D., Ajay Nair, Ph.D.

M.S., Tropical Plant & Soil Sciences, University of Hawaii at Manoa, May 2018

Thesis: Bermudagrass (*Cynodon dactylon*) and Goosegrass (*Eleusine indica*) Management in Seashore Paspalum (*Paspalum vaginatum*) Turfgrass

Thesis Advisors: Joseph DeFrank, Ph.D., Zhiqiang Cheng, Ph.D., Orville Baldos, Ph.D.

B.S., Biology (Chemistry Minor), University of Wisconsin – La Crosse, May 2013

RESEARCH EXPERIENCE

Assistant Professor, University of Florida, Start January 2022

Urban Turfgrass Management, Environmental Horticulture Department

Postdoctoral Research Associate, Iowa State University, May 2021-January 2022

Department of Horticulture Supervisor: Adam Thoms Research Projects:

- Evaluated algae-based fertilizers produced from the revolving algal biofilm wastewater treatment system on Kentucky bluegrass establishment and rooting.
- Assessed algae-based fertilizers effectiveness on Kentucky bluegrass and zoysiagrass in field conditions to determine if it could be a sustainable, natural, organic fertilizer source.
- Evaluated algae-based fertilizers effects on soil health.
- Participated as the entrepreneurial lead in the Innovation Corps (I-Corps) program sponsored by the National Science Foundation focusing on commercializing wastewater grown algae-based fertilizer.
- Examined the usage of plant proteins as a fertilizer source on turfgrass growth during establishment.

Graduate Research Assistant, Iowa State University, July 2018-May 2021

Department of Horticulture Advisor: Adam Thoms **Research Projects:**

- Evaluated Kentucky bluegrass and bermudagrass rooting response to fertilizers incorporating humic substances.
- Assessed humic fertilizers impact on Kentucky bluegrass traffic tolerance and recovery.
- Evaluated applications of humic fertilizers at full and reduced rates on turfgrass quality and soil health of a native soil Kentucky bluegrass and creeping bentgrass putting green.
- Determined if a slow release humic fertilizer could be classified as an enhanced efficiency fertilizer.
- Investigated natural/alternative fertilizer sources (algae from wastewater treatment technology and glycerin byproduct from renewable energy group) for sustainable fertilizer programs.
- Participated in hollow-tine core aerification recycling on sand-based putting greens.
- Examined natural/organic herbicides for broadleaf control.
- Assisted with the evaluation of soil surfactants use on baseball/softball infield surfaces.
- Evaluated enhanced efficiency fertilizers on Kentucky bluegrass and zoysiagrass.

Graduate Research Assistant, University of Hawaii at Manoa, August 2016-May 2018

Department of Tropical Plant & Soil Sciences

Advisor: Joseph DeFrank

Research Projects:

- Evaluated post-emergent herbicides alone and in tank-mixes on bermudagrass and seashore paspalum.
- Determined best management practices for bermudagrass suppression and goosegrass control in seashore paspalum putting greens and fairways.
- Evaluated pre-emergent herbicides on seashore paspalum putting greens.
- Investigated topical applications of selective herbicides using a weed wiper.
- Explored the usage of geotextile fabric alone and in combination with herbicides for putting green renovation.
- Examined applications of low rates of glyphosate with and without pre-treatments of calcium on bermudagrass and seashore paspalum.

Seed Production Assistant, Research Corp., University of Hawaii, March 2016-August 2016 Supervisor: Joseph DeFrank

Research Projects:

- Harvested seeds of native plants and conducted dormancy-breaking treatments.
- Planted and treated native plant species with herbicide treatments and collected data.
- Conducted weed control treatments at native plant landscape demonstration project.
- Improved the irrigation system at seed production nursery.
- Assisted with herbicide evaluations on turfgrass experiments at local golf courses.

PUBLICATIONS

Published in Peer-Reviewed Journals (9)

- Lindsey, A.J., Thoms, A.W., McDaniel, M.D., & Christians, N.E. (2021). Plant-available soil nitrogen fluxes and turfgrass quality of Kentucky bluegrass fertilized with humic substances. *Crop Science*, *61*, 4416-4424. DOI:10.1002/csc2.20592.
- Lindsey, A.J., Thoms, A.W., McDaniel, M.D., & Christians, N.E. (2021). Evaluation of humic fertilizers on a sand-based creeping bentgrass putting green. *Crop Science*, *61*(5), 3734-3745. DOI:10.1002/csc2.20577.
- Lindsey, A.J., Thoms, A.W., Dancer, J., & Gross, M. (2021). Evaluation of algae-based fertilizers produced from revolving algal biofilms on Kentucky bluegrass. *Agronomy*, *11*(7), 1288. DOI:10.3390/agronomy11071288.
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2021). Evaluation of humic fertilizers on Kentucky bluegrass subjected to simulated traffic. *Agronomy*, *11*(4), 611. DOI:10.3390/agronomy11040611.
- Lindsey, A.J., Thoms, A.W., McDaniel, M.D., & Christians, N.E. (2021). Evaluation of humic fertilizers applied at full and reduced nitrogen rates on Kentucky bluegrass quality and soil health. *Agronomy*, *11*(2), 395. DOI:10.3390/agronomy11020395.
- Thoms, A.W., Lindsey, A.J., & Pease, B.W. Soil surfactant use on athletic field infield surfaces. *International Turfgrass Society Research Journal*, 1-7. DOI:10.1002/its2.9.
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2020). Kentucky bluegrass and bermudagrass rooting response to humic fertilizers during greenhouse establishment. *Agronomy Journal*, *112*(5), 3396-3401. DOI:10.1002/agj2.20199.
- Lindsey, A.J., DeFrank, J., & Cheng, Z. (2020). Bermudagrass suppression and goosegrass control in seashore paspalum turf. *Journal of Applied Horticulture*, *22*(2), 92-96. DOI:10.37855/jah.2020.v22i02.18.
- Lindsey, A.J., DeFrank, J., & Cheng, Z. (2019). Seashore paspalum and bermudagrass response to spray applications of postemergence herbicides. *HortTechnology*, *29*(3), 251-257. DOI:10.21273/HORTTECH04267-19.

Manuscripts in Preparation (3)

- Lindsey, A.J., Thoms, A.W., Christians, N.E., & Pease, B.W. Evaluation of hollow-tine core aerification recycling on sand-based putting green soil physical properties and playability.
- Thoms, A.W., Dalsgaard, T.O., Lindsey, A.J., & Christians, N.E. Tall fescue mowing height effects under simulated athletic field traffic. *HortTechnology*.
- Mertz, I.T., Thoms, A.W., Christians, N.E., & Lindsey, A.J. Evaluating the use of branched-chain amino acids for increasing creeping bentgrass shoot density under field conditions. *Crop Science*.

Book Chapter (1)

• Thoms, A.W., & Lindsey, A.J. (2022). Advances in maintenance practices. *Achieving Sustainable Turfgrass Management* (Under review).

Abstracts/Poster Presentations (10)

- Lindsey, A.J., Thoms A.W., Hatten, C.D., & Ramette, M.J. (2021). Evaluation of plant proteins on turfgrass growth during establishment. In *ASA, CSSA and SSSA International Annual Meetings*. ASA-CSSA-SSSA.
- Lindsey, A.J., Thoms, A.W., Dancer, J., & Gross, M. (2021). Evaluation of algae produced from revolving algal biofilms as a fertilizer on turfgrass. In *Algae Biomass Summit, Virtual*. Algae Biomass Organization.
- Lindsey, A.J., Thoms, A.W., Christians, N.E., Pease, B.W., & Goldsby, A. (2020). Creeping bentgrass putting green soil health response to humic fertilizers. In *ASA*, *CSSA* and *SSSA International Annual Meetings, Virtual*. ASA-CSSA-SSSA.
- Thoms, A.W., Lindsey, A.J., & Gross, M. (2020). Evaluating the use of algae produced from revolving algae biofilms for turfgrass growth. In *ASA*, *CSSA* and *SSSA* International *Annual Meetings, Virtual*. ASA-CSSA-SSSA.
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2019). Turfgrass rooting response to humic acid fertilizers. In *ASA*, *CSSA and SSSA International Annual Meetings*. ASA-CSSA-SSSA.
- Thoms, A.W., Lindsey, A.J., Pease, B.W., & Christians, N.E. (2019). Evaluating the use of soil surfactants on baseball infield skins. In *ASA, CSSA and SSSA International Annual Meetings*. ASA-CSSA-SSSA.
- Mertz, I., Christians, N.E., Thoms, A.W., Pease, B.W., & Lindsey, A.J. (2019). Evaluation of creeping bentgrass responses to fertilization with the branched-chain amino acids. In *ASA, CSSA and SSSA International Annual Meetings*. ASA-CSSA-SSSA.
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2019). Turfgrass rooting response to humic acid fertilizers. *Department of Horticulture Research Retreat*, Ames, IA.
- Lindsey, A.J., DeFrank, J., & Cheng, Z. (2017). Response of seashore paspalum (*Paspalum vaginatum*), bermudagrass (*Cynodon dactylon*), and goosegrass (*Eleusine indica*) to post-emergence herbicides. In *HortScience*, *52*(9), S367-S367.
- Lindsey, A.J., DeFrank, J., & Cheng, Z. (2017). Response of seashore paspalum (*Paspalum vaginatum*) sports turf and grassy weeds to post-emergence herbicides. *College Tropical Agriculture and Human Resources and College of Engineering Student Research Symposium*, Honolulu, HI.

EXTENSION EXPERIENCE

Extension/Trade Presentations (16)

- Lindsey, A.J., & Thoms, A.W. (2021). Humic fertilizers update. Standard Golf and Ag Logic Meeting. Beaver Hills Country Club, Cedar Falls, IA.
- Lindsey, A.J. (2021). Fertilizer trials update. Iowa Turfgrass Field and Demo Day. Iowa Turfgrass Institute, Ames, IA.
- Lindsey, A.J., & Thoms, A.W. (2021). Evaluation of humic fertilizers. The Andersons, Inc. Team Training. Virtual.
- Thoms, A.W., & Lindsey, A.J. (2021). What do we know about humic fertilizers? Iowa Turfgrass Conference and Tradeshow. Iowa Turfgrass Institute, Virtual.
- Lindsey, A.J. (2020). Nitrogen use rates and use of humic acids. Iowa Turfgrass Field Day. Iowa Turfgrass Institute, Virtual.
- Thoms, A.W., Christians, N.E., & Lindsey, A.J. (2020). Plant and Soil Interactions. Iowa Turfgrass Conference and Tradeshow. Iowa Turfgrass Institute, Altoona, IA.
- Lindsey, A.J. (2019). Techniques for growing lawns/alternatives. Gardening School. National Garden Clubs, Inc., Madrid, IA.
- Lindsey, A.J. (2019). Professional vs. commercial: what is the difference? Iowa Turfgrass Field and Demo Day. Iowa Turfgrass Institute, Ames, IA.
- Lindsey, A.J. (2019). Weed control in seashore paspalum and herbicide damage during seed production. Pure Seed Team Training. Virtual.
- Lindsey, A.J. (2018). Natural product testing and lawn care aeration. Iowa Turfgrass Field and Demo Day. Iowa Turfgrass Institute, Ames, IA.
- DeFrank, J., Lindsey, A.J., Cheng, Z., Jeremiah, L., Hunt, I., Kira, D., & Ito, R. (2018). Incorporating goose grass & Bermuda grass control with renovation of seashore paspalum greens. SimPlot Seminar, Pearl City, HI.
- DeFrank, J., Lindsey, A.J., Cheng, Z., Jeremiah, L., Hunt, I., Kira, D., & Ito, R. (2017). Incorporating goose grass & Bermuda grass control with renovation of seashore paspalum greens. Landscape Industry Council of Hawaii (LICH) Green Industry Conference and Trade Show, Honolulu, HI.
- Lindsey, A.J. (2017) Seashore paspalum herbicide review. Crop Production Services Seminar and Trade Show, Honolulu, HI.

- DeFrank, J., Cheng, Z., Lindsey, A.J., Hunt, I., Jeremiah, L., Kira, D., Yamashita, P., & Ito, R. (2017). Weed control tools for seashore paspalum. Crop Production Services Seminar and Trade Show, Honolulu, HI.
- DeFrank, J., Cheng, Z., Nakagawa, N., DeMello, S., Ito, R., & Lindsey, A.J. (2017). Weed control in roadway landscape, Bermuda grass greens and seashore paspalum fairways. Pacific Agricultural Seminar and Trade Show, Pearl City, HI.
- DeFrank, J., Nakagawa, N., DeMello, S., Ito, R. & Lindsey, A.J. (2016). Crop Production Services Seminar and Trade Show, Honolulu, HI.

Extension/Trade Publications (52)

- Lindsey, A.J., Thoms, A.W., Christians, N.E., Gould, T., & Donelan, T. (2022) Evaluation of algae-based fertilizers on Kentucky bluegrass quality and soil health. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Lindsey, A.J., Thoms, A.W., Christians, N.E., Gould, T., & Donelan, T. (2022) Evaluation of algae-based fertilizers on zoysiagrass quality and soil health. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Thoms, A.W., Lindsey, A.J., Gould, T., & Christians, N.E. (2022). Tall fescue nontraffic cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Thoms, A.W., Lindsey, A.J., Gould, T., & Christians, N.E. (2022). Tall fescue simulated traffic cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Thoms, A.W., Lindsey, A.J., Gould, T., & Christians, N.E. (2022). Tall fescue shade cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Thoms, A.W., Lindsey, A.J., Gould, T., & Christians, N.E. (2022). Kentucky bluegrass shade cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Donelan, T., Thoms, A.W., Lindsey, A.J., & Gould, T. (2022). Effects of smooth crabgrass and white clover populations in athletic turfgrass under simulated traffic. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Thoms, A.W., Gould, T., Lindsey, A.J., & Christians, N.E. (2022). Creeping bentgrass fairway cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).

- Thoms, A.W., Gould, T., Lindsey, A.J., & Christians, N.E. (2022). Fine fescue full sun cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Thoms, A.W., Gould, T., Lindsey, A.J., & Christians, N.E. (2022). Fine fescue shaded cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Donelan, T., Thoms, A.W., Gould, T. & Lindsey, A.J. (2022). Effects of various wetting agents on athletic turfgrass under simulated traffic. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Donelan, T., Thoms, A.W., Gould, T. & Lindsey, A.J. (2022). Recovery of fairway creeping bentgrass (*Agrostis stolonifera*) and tall fescue (*Festuca arundinacea*) from injury. *Iowa State University Research and Demonstration Farms Progress Reports* (In press).
- Lindsey, A.J., & Thoms, A.W. (2021). Soil health solutions/Soil solutions for healthy turfgrass. *Turf Magazine*, Winter, 16, 17, 35.
- Lindsey, A.J., & Thoms, A.W. (2021). Impact of humic fertilizers on putting green turfgrass and soil health. *Golf Course Magazine*, November, 70-74.
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2021). Turfgrass biological soil health. *Iowa State Education and Outreach Publications*, HORT 3111.
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2021). Turfgrass calendar: warmseason grasses for lawns in Iowa. *Iowa State Education and Outreach Publications*, HORT 3105.
- Lindsey, A.J., Thoms, A.W., Christians, N.E., & Adam, R.S. (2021). Natural (organic) fertilization for turf. *Iowa State Education and Outreach Publications*, HORT 3031.
- Thoms, A.W., & Lindsey, A.J. (2021). Crabgrass (*Digitaria* spp.) fact sheet. *Iowa State Education and Outreach Publications*, HORT 3115.
- Thoms, A.W., & Lindsey, A.J. (2021). Black medic (*Medicago lupulina*). *Iowa State Education and Outreach Publications*, HORT 3114.
- Lindsey, A.J., & Thoms, A.W. (2021). Humics can improve turfgrass sustainability. *Golf Course Magazine*, May, 69.
- Lindsey, A.J., Thoms, A.W., Christians, N.E., & Pease, B.W. (2021). Nitrogen release and mineralization rates of various fertilizers applied on Kentucky bluegrass. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).

- Lindsey, A.J., Thoms, A.W., Christians, N.E., & Pease, B.W. (2021). Evaluation of humic fertilizers on Kentucky bluegrass soil health. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Lindsey, A.J., Thoms, A.W., Christians, N.E., & Pease, B.W. (2021). Evaluation of humic fertilizers on soil health with creeping bentgrass on a USGA root zone. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Lindsey, A.J., Thoms, A.W., Christians, N.E., & Pease, B.W. (2021). Evaluation of humic fertilizers on Kentucky bluegrass under simulated traffic. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Lindsey, A.J., Pease, B.W., & Christians, N.E. (2021). Kentucky bluegrass shade cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Lindsey, A.J., & Pease, B.W. (2021). Dollar spot control evaluation on putting greens. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Lindsey, A.J., & Pease, B.W. (2021). Dollar spot control evaluation for Sipcam Agro USA. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Lindsey, A.J., & Pease, B.W. (2021). Comparison of GameOn vs. SurePower for efficacy and tolerance. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Lindsey, A.J., Pease, B.W., & Christians, N.E. (2021). Tall fescue shade cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Pease, B.W., & Lindsey, A.J. (2021). Wetting agents on golf course surfaces. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2021). Tall fescue simulated traffic cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2021). Fine fescue full sun cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2021). Fine fescue shaded cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).

- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2021). Creeping bentgrass fairway cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 0(4).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2021). Tall fescue nontraffic cultivar trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2020(1).
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2020). Evaluation of humic fertilizers on soil health with creeping bentgrass on a USGA root zone. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2020). Evaluation of humic fertilizers on Kentucky bluegrass soil health. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Lindsey, A.J., Thoms, A.W., Pease, B.W., & Christians, N.E. (2020). Evaluation of humic fertilizers on Kentucky bluegrass under simulated traffic. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Lindsey, A.J., Thoms, A.W., & Christians, N.E. (2020). Nitrogen release and mineralization rates of various fertilizers applied on Kentucky bluegrass. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Thoms, A.W., Lindsey, A.J., Pease, B.W., & Christians, N.E. (2020) Kentucky bluegrass shade cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Thoms, A.W., Lindsey, A.J., Pease, B.W., & Christians, N.E. (2020). Tall fescue nontraffic cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Thoms, A.W., Lindsey, A.J., Pease, B.W., & Christians, N.E. (2020) Tall fescue shade cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2020). Tall fescue simulated traffic cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Christians, N.E., Thoms, A.W., Pease, B.W., Mertz, I., & Lindsey, A.J. (2020). Kentucky bluegrass full sun cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2019(1).
- Lindsey, A.J., Thoms, A.W., Pease, B.W., & Christians, N.E. (2019). Effects of Fiesta on broadleaf weeds and turf quality. *Iowa State University Research and Demonstration Farms Progress Reports* 2018(1).

- Lindsey, A.J., Thoms, A.W., Pease, B.W., & Christians, N.E. (2019). Effects of natural fertilizers on irrigated and non-irrigated turfgrass. *Iowa State University Research and Demonstration Farms Progress Reports* 2018(1).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2019). Tall fescue shade cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2018(1).
- Thoms, A.W., Pease, B.W., Lindsey, A.J., & Christians, N.E. (2019). Tall fescue simulated traffic cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2018(1).
- Christians, N.E., Thoms, A.W., Pease, B.W., Mertz, I., & Lindsey, A.J. (2019). Kentucky bluegrass full sun cultivar evaluation trial. *Iowa State University Research and Demonstration Farms Progress Reports* 2018(1).
- DeFrank, J., & Lindsey, A.J. (2018). HDOT sponsor research and resource development for native Hawaiian species in roadside landscapes. *Landscape Hawaii*, Jan./Feb., 22-24.
- Lindsey, A.J., DeFrank, J., & Cheng, Z. (2017). Incorporating goose grass and Bermuda grass management with renovation of seashore paspalum greens. *Landscape Hawaii*, Nov./Dec., 8-11.
- DeFrank, J., Cheng, Z., & Lindsey, A.J. (2017). Research update on Bermuda grass treatment. *Landscape Hawaii*, May/June, 16-17.

TEACHING EXPERIENCE

Guest Lecturer, Iowa State University, Fall 2021

HORT 351 – Turfgrass Establishment & Management Lecture Topic: Thatch and Cultivation.

Guest Lecturer, Iowa State University, Fall 2021

HORT 291A – Horticulture Professional Development: Turfgrass Competition Lecture Topic: Turfgrass Identification.

Lab Instructor, Iowa State University, Fall 2020

HORT 351L – Turfgrass Establishment & Management Laboratory Couse Description: Principles and practices of turfgrass establishment and management using a hands-on approach.

Teaching Assistant, Iowa State University, Spring 2020

AGRON 526 – Field Plot Techniques Course Description: Planning experiments for agricultural research, analysis of data, and concepts in data interpretation.

PROFESSIONAL ASSOCIATIONS

- American Society of Agronomy (ASA)
- American Society for Horticultural Science (ASHS)
- Golf Course Superintendents Association of America (GCSAA)
- Crop Science Society of America (CSSA)
- Soil Science Society of America (SSSA)
- Sports Turf Managers Association (STMA)

CONTRIBUTIONS TO FUNDING

- Evaluation of revolving algal biofilm (RAB) algae as turf fertilizer, 2021-2022 Regents Innovation Fund Grant: Office of Economic Development and Industry Relations, \$50,000
 - Assisted in securing funding, lead research and commercialization, prepared reports, and presented data.
- Iowa State I-Corps Program, 2021

NSF Innovation Corps Minigrant, \$3,000

- Secured funding, entrepreneurial lead, determined the market fit for a new sustainable fertilizer product.
- Investigation of wastewater algae for use as a turfgrass fertilizer, 2019-2021 Industry Grant: Gross-Wen Technology, \$25,000
 - Assisted in securing funding, lead research, prepared reports, and presented data.
- Evaluation of humic substances for use as turfgrass fertilizers, 2018-2021 Industry Grant: The Andersons, Inc., \$75,000
 - \circ $\,$ Developed protocols, lead research, prepared reports, and helped secure funding.

AWARDS & HONORS

- Lumir and Sara Dostal Family Fellowship, 2020
- Priem Scholarship, 2017-2018
- Second Place Graduate Student Poster Competition, American Society for Horticultural Science, 2017
- Golden Key National Honor Society, 2009-2013
- Eta Phi Alpha Honors Fraternity, 2009-2013