

Kenneth W. Pierce

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Education

Ph.D. in Environmental Sciences: Agriculture Concentration - August 2023

Tennessee Technological University, Cookeville, TN

Master of Science in Agriculture and Natural Resources – August 2017

University of Tennessee, Martin, TN

Bachelor of Science in Agriculture (Major: Plant & Soil Science) – June 1981

Tennessee Technological University, Cookeville, TN

Continuing Education

- Sustainable Nursery Irrigation: Water Resources & Regulations Workshop - 2014
- Integrated Pest Management for Nursery Production - 2014
- Disease & Pest Management Workshop – How Can We Make it Safe? - 2013
- Tennessee Master Nursery Program – 2012

Academic Experience

Nursery & Greenhouse Teaching & Research Facilities Manager

September 2014 - Present

Tennessee Technological University, Cookeville, TN

Responsibilities

- Provide labor and supervision for the development, design, and implementation of greenhouse, nursery, fruit, and vegetable crop research.
- Help design and facilitate student experiential learning activities in plant science courses.
- Supervision of student employees and volunteers.
- Assist faculty and student researchers using the facilities and other farm resources.
- Supervision and assistance with operations of greenhouses, field plots, and equipment.
- Perform public, professional, and university service activities.

Instructor

- AGRN 4100 Weed Science – Fall 2021, Fall 2024
- AGRN 1110 Plant Science Laboratory – Spring 2024, Fall 2024

Adjunct Instructor

- AGRN 3000 Soils Laboratory – Fall 2019.
- AGRN 2000 Soils Laboratory – Spring 2020.

Adjunct Graduate Faculty

At the request of TTU's Biology Department - February 2024

Graduate Advisory Committee of MS student Katherine Pabody.

Topic: The relationship between early successional habitat/pollinator strips in small mixed gardens and the presence of insect predators of garden pests and pollinators.

Other Coursework Involvement

Served as co-instructor, guest lecturer, and/or helped design and facilitate experiential learning activities.

- AGHT 3030 Integrated Pest Management – Spring 2015, Spring 2017, Spring 2019, Spring 2021, Spring 2023.
- AGHT 3400 Landscape Horticulture – Fall 2015, Fall 2017, Fall 2019, Fall 2021.
- AGHT 3410 Plant Propagation – Fall 2015, Fall 2017, Summer 2018, Fall 2019, Fall 2021, Fall 2022, Fall 2023, Fall 2024.
- AGHT 3460 Interior Landscaping – Fall 2016, Fall 2018, Fall 2020, Fall 2022.
- AGHT 3470 Landscape Plant Materials – Spring 2016, Spring 2018, Spring 2020, Spring 2022.
- AGHT 4410 Nursery Management – Spring 2015, Spring 2017, Spring 2019, Spring 2021, Spring 2023.
- AGHT 4420 Greenhouse Management & Crop Production – Spring 2016, Spring 2018, Spring 2022, Spring 2024
- AGRN 3100 Turfgrass Management – Fall 2016, Fall 2018, Fall 2020.
- AGRN 3300 Organic Farming Principles & Practices – Fall 2015, Fall 2016, Fall 2017, Fall 2018, Spring 2020.
- AGRN 4100 Weed Science – Fall 2017, Fall 2019.
- AGRN 4210 Soil Fertility & Fertilizers – Spring 2018, Spring 2019.
- AGRN 4960 Topics in Urban Agriculture – Spring 2023, Spring 2024.
- ANS 4940 Aquaponics – Fall 2016 through Spring 2018.
- HEC 3201 Community Nutrition – Spring 2015.

Agronomy and Horticulture Special Research Topics

This involved mentoring undergraduate students with investigating and developing their research topic, acquiring resources, conducting their research, and reporting results.

- Blueberry (*Vaccinium spp.*) propagation and production – Spring 2018.
- Commercial strawberry (*Fragaria x ananassa*) production and marketing – Spring 2018.
- Production, flowering, and propagation of Bird-of-Paradise (*Strelitzia reginae*) plant – Fall 2018.
- Producing and marketing greenhouse crops – Spring 2019.
- Potential value of using clonal understock for grafting ornamental plants – Spring 2020.
- Community gardening development – Fall 2020.
- Feeding preference of *Thrips spp.* between seedlings of two cultivars of cotton (*Gossypium hirsutum* L.). Fall 2020.
- Nursery management practices for two tree crops – Fall 2020.
- Priming of agronomic and specialty crop seed to enhance seed germination and to improve crop uniformity - Fall 2020.
- Tropical plant propagation and production – Fall 2020.
- Comparison of container and hydroponic production systems of *Humulus lupulus* in a greenhouse environment - Fall 2020 and Spring 2021.
- Plant and soil science experiential learning concepts – Spring 2021.
- Tropical plant propagation and production – Spring 2021.
- Orchid propagation via plant tissue culture techniques – Spring 2022.
- Seedling production of native warm season grasses – Fall 2023.

Community Service & Non-technical Presentations

- Coordinated FFA State Nursery & Landscape CDE Contest – April 2018, April 2020, April 2022, April 2023, April 2024.
- Coordinated FFA Nursery & Landscape CDE Training Clinic – August 2016, February 2017,

August 2017, February 2018, August 2018, September 2018, February 2019, September 2019, February 2020, September 2021, February 2022, September 2022, February 2023, February 2024, September 2024

- Program Speaker, Putnam County Master Gardeners - July 2022
- Coordinated FFA Regional Nursery & Landscape Career Development Event (CDE) Contest - April 2015, April 2016, April 2017, April 2018, March 2019.
- Program Speaker, Putnam County Master Gardeners - June 2019.
- Livingston Academy, Careers in agriculture & farm tour – February 2018.
- Prescott South Middle School, Careers in agriculture presentation – September 2017.
- Putnam Co. School System, Ready2Go careers in agriculture presentation & farm tour – June 2017.
- Heritage Academy, Careers in agriculture & farm tour – November 2016.
- Tennessee Governors School, Water cycle project & farm tour – June 2016.
- Upper Cumberland Forestry Association, Grafting demonstration – November 2015.

University Service

- TTU Sustainable Campus Committee 2024-2027
- Chair, TTU Farm Resource Allocation Committee – 2015-2024
- School of Agriculture Director Search Committee – Spring 2022.
- Soils Instructor Faculty Search Committee – Spring 2020.
- School of Agriculture Director Search Committee – Fall 2016.
- Plant Science Instructor Faculty Search Committee – Spring 2015.

Professional Memberships

American Society of Horticultural Science

International Plant Propagators Society – Southern Region of North America

Tennessee Nursery & Landscape Association

Publications

Pierce, K. W. and M. P. Natrass. 2023. Rapid-screening bioassay assessing potential allelopathic influence on spinach by aqueous extract from fresh, whole-plant sorghum-sudangrass tissue. Hort Sci. 58(10):1183-1189. DOI: <https://doi.org/10.21273/HORTSCI17158-23>

Technical and Conference Presentations

Pierce, K. W. and M. P. Natrass. 2023. TTU Creative Inquiry Poster Presentation: Rapid-Screening Bioassay Assessing Potential Allelopathic Influence on Spinach by Aqueous Extract from Fresh, Whole-Plant Sorghum Sudangrass Tissue. 19 April 2023. (EVSA Category Winner)

Pierce, K. W. and B. A. Darroch. 2017. Allelopathic effect of *Arundo donax* L. aqueous extract on *Lens culinaris* Medik. Tennessee Academy of Science. Martin, TN. November 2017.

Publication in Preparation

Pierce, K. W. Allelopathic effect of *Arundo donax* L. aqueous extract on *Lens culinaris* Medik. Omics Journal.

Awards and Recognitions

Outstanding Farm Worker Award presented by the College of Agriculture & Human Ecology – Spring 2023.

Outstanding Agriculture Service Award presented by the College of Agriculture & Human Ecology – Spring 2021.

Employment History

Container Division Manager

June 2003 – August 2014

Shadow Nursery, Inc., Winchester, TN

Responsibilities

- Managed all daily activities associated with the production and distribution of a diverse collection of woody and herbaceous plant species. Production activities included propagation, planting, pruning, fertilization, irrigation, pest scouting, pesticide application, and appropriate recordkeeping. Distribution activities included accurate plant labeling, maintaining inventory records, shipping documentation, and compliance with state and federal agricultural quarantines.
- Interacted with customers and suppliers via telephone, facsimile, email, and written correspondence.
- Conducted research using printed material, internet resources, and consultation with other growers and production specialists to ascertain the best management practices.
- Monitored production houses and automated control systems at multiple locations.
- Procured and maintained adequate inventories of production inputs.
- Performed or supervised the calibration of nursery and greenhouse equipment.
- Maintained inventory of personal protection equipment and helped ensure compliance with Worker Protection Standards.
- Monitored plant health / performance and maintained the required records of plants received under APHIS Post Entry Quarantine.
- Assisted in obtaining the necessary APHIS Phytosanitary Certification for plant shipments.
- Conducted tours of company operations and represented the company at industry events.

Significant Achievements

- Coordinated the construction of five 30' x 100' greenhouses for the evaluation and production of Asian Maples and alternative crop species.
- Built a digital photographic library of plant cultivars and production methods and compiled resources for launching an online, retail, mail-order operation.

Quality Assurance & Analytical Services Center Manager

May 1993 – May 2003

Tennessee Farmers Cooperative, Lavergne, TN

Responsibilities

- Supervised a Registered Seed Technologist and other laboratory technicians in the analyses of seed, fertilizer, feed, feed ingredients, forages, and other agricultural products.
- Supervised and regularly performed a variety of qualitative and quantitative assays using analytical processes such as gravimetric chemistry, ion selective electrodes, enzyme-linked immunosorbent assay (ELISA), extraction, filtration, titration, and microscopy.
- Interacted with individuals and groups at all socio-economic and education levels via telephone, facsimile, email, written correspondence, and in person.
- Trained employees in the proper use of personal protection equipment and performed regular safety inspections.
- Procured and maintained an adequate inventory of seed testing and other laboratory supplies.
- Performed calibration, maintenance and basic repair of laboratory equipment and growth chambers.
- Collaborated with feed quality assurance personnel in maintaining Food and Drug Administration (FDA) compliance for medicated feeds.
- Collaborated with seed quality assurance personnel and regulatory officials to help ensure compliance with the Federal Seed Act and state regulations.
- Directed participation in collaborative proficiency studies with other laboratories to help ensure assay accuracy and precision.

- Participated in Association of Official Analytical Chemists (AOAC) activities to assess new technology and analytical processes that could be implemented to enhance or reduce the costs of the services provided.
- Prepared an annual operating budget with five-year expense projections and submitted detailed requests for capital expenditures, fixed assets, and new technology.
- Conducted facility tours and represented the company at industry events.

Significant Achievements

- Developed a Standard Operating Procedures (SOP) Manual for all laboratory processes.
- Developed or evaluated and implemented new testing protocols (glyphosate tolerance in seed, combustion nitrogen analysis technology, and automated fiber extraction).
- Implemented the use of database software to log sample information, track the sample through the analytical process(es), and to record, process, and report data.

Crop Protection Product Applicator

April 1990 – April 1993

Shadow Nursery, Inc., Winchester, TN

Responsibilities

- Pest scouting and pesticide applications in field stock and propagation areas.
- Cultivation, fertilization, propagation, irrigation, and pruning.
- Assisted with digging, grading, packing, storage, and coordinating shipments of bare root plants.
- Installed and maintained irrigation lines and control devices.
- Operated a variety of specialized nursery equipment such as an air-blast sprayer, seed cleaning devices and mechanized harvesting equipment.

Significant Achievements

- Implemented treatment protocols to ensure USDA & state compliance for plant shipments.
- Assisted with the conversion of a tractor pulled fertilizer spreader altered to apply sawdust to seedbeds and with developing a hydraulic roller to remove drip irrigation line from nursery rows.
- Cooperated with representatives of chemical companies in establishing and evaluating test plots to expand the number of plant species and cultivars on pesticide labels.

Purchasing / Marketing Agent

June 1981 – June 1990

Tennessee Farmers Cooperative, Laverne, TN

Responsibilities

- Purchasing, pricing, inventory management, and providing product use recommendations for seed and crop protection products.
- Assisted with overseeing contract production and distribution of the Co-op's line of seed products.
- Coordinated research and demonstration plots, compiled data and disseminated yield results and recommendations through field days, employee education, grower events, and printed publications.

Significant Achievements

- Expanded the selection of specialty crop protection products available through the Co-op system.
- Helped increase the awareness among growers of the value of purchasing named varieties and 'seed quality' inputs compared to 'bin run' or 'Variety Not Stated' (VNS) seed.

Residence Hall Manager

September 1979 – June 1981

Tennessee Technological University, Cookeville, TN

Responsibilities

- Managed two residence halls and supervised three Resident Advisors to meet the on-campus housing needs of approximately 360 students.

Experience Value

- Learned to interact with and developed an appreciation for the uniqueness and contributions of students with extremely diverse ethnic, cultural and socio-economic backgrounds.