COLLEGE OF AGRICULTURE AND LIFE SCIENCES
SCHOOL OF PLANT AND ENVIRONMENTAL SCIENCES
VIRGINIA TECH

HAMPTON ROADS
Agricultural Research and Extension Center

Join Dr. Criscione's Nursery Production Lab at Virginia Tech

Graduate Research Assistantships Available

Dr. Kristopher Criscione is in the School of Plant and Environmental Science at Virginia Tech and located at the Hampton Roads Agricultural Research and Extension Center (Virginia Beach, VA) and is seeking highly qualified and ambitious students for a fully funded graduate research assistantship pursing either a Ph.D. or M.S. degree. The program would begin either **Fall 2025** or **Spring 2026.**

About the Opportunity:

As a graduate student in Dr. Criscione's lab, you will contribute to developing sustainable and actionable solutions for the ornamental nursery and greenhouse horticulture industries, with a focus on rootzone management. The associated research will have an emphasis in root development; however, the program will be flexible to tailor towards the interests of the selected graduate student.

Primary Research Interests:

- Root morphological, architectural, and hydraulic development in the container rootzone- Understanding how container-grown ornamental plant roots are impacted by soilless substrates, irrigation applications, rootzone temperatures, and fertility practices.
- Plant growth regulators- Identify alternative management practices to augment container root development.
- Agrochemical movement in nursery operations- Use laboratory and field-based measurements to track agrochemical runoff.
- Nursery substrate management- Progressing nursery substrates techniques to improve plant growth and reduce water and fertilizer applications.
- Nursery production and automation- Investigate more efficient methods in production management through mechanization or computerization.
- Mitigating abiotic stress in ornamental crops- Soilless substrate and plant water relations under optimal and stressed growing conditions.
- Reducing peat use and reliance in ornamental horticulture- Exploring alternative substrate materials to improve grower flexibility in substrate management decisions.

Program Details:

As mentioned, the program would begin either Fall 2025 or Spring 2026. The position will be based out of the Hampton Roads Agricultural Research and Extension Center (Virginia Beach, VA); however, depending on the program, the first 1-2 years the student will be located at Virginia Tech's main campus (Blacksburg, VA) during the Fall and Spring semesters. Once

course work is completed, or during the summer and winter months, the student will be conducting research in Virginia Beach. Students will receive a competitive 12-month stipend that includes tuition and health benefits. All research will be fully funded. Moreover, students will receive fully funded travel to academic and industry conferences, with professional development opportunities.

About the Facility:

The Criscione Lab is fully equipped with root morphological and phenotyping imaging systems. The lab is capable of measuring substrate physical and hydraulic properties, chemical characteristics, and rootzone temperatures. The facility is provided with a unique nursery raised bed capable of measuring surface and sub-surface runoff along with multiple replicated irrigation zones. The lab has a runoff pad with a simulated catchment reservoir basin and a gravel pad, also constructed with multiple replicated irrigation zones. There is greenhouse space for greenhouse-based experiments. Students will receive office space and will be required to work both inside the lab and in outdoor conditions with periods of unfavorable weather conditions.

Academic Qualifications:

- A B.S. or similar degree in horticulture, plant science, soil science, biological sciences, environmental sciences, or similar fields.
- A minimum 3.0 GPA from undergraduate work.
- If interested in a Ph.D. program, a M.S. degree is highly preferred.

Preferred Qualifications:

- High interests in horticulture and plant and soil science.
- Ambitions for professional and personal development.
- A strong desire to learn how to learn, and ability to be self-dependent, motivated, and enthusiastic about their work.
- The candidate must be proficient in Microsoft Excel, Word, and PowerPoint.
- Applicants with a background in statistical analysis, or that have demonstrated effective written and oral communications and laboratory skills will be considered strongly.

Interested candidates:

Interested candidates should contact Dr. Kristopher Criscione (kscriscione@vt.edu) with their current CV and a ***one page (3-4 paragraphs)*** statement of purpose that describes background and experience, qualifications, and interests in research and desire to join the lab. Additional materials such as references, sample writing, transcripts, and GRE/TOEFL scores may be required at the institution's discretion. Any questions are welcomed.