University of Missouri's Center for Agroforestry - Graduate Research Assistant Positions Available

Accepting applications for graduate students – M.S. or Ph.D. level – in fields related to horticultural breeding and genetics. Our lab resides at the University of Missouri's Center for Agroforestry, which provides an ideal environment for students to learn about unique systems-level solutions to problems at the intersection of agriculture and the environment. Our lab houses breeding programs for several tree nut species – black walnut, northern pecan, chestnut, and hazelnut, and our principal goal is to provide improved tree nut varieties to growers in Missouri and the broader North Central U.S. We conduct genetic and phenotypic studies that serve to guide our breeding programs and make them more efficient and exact.

We are seeking highly motivated students that have a passion for plant breeding and an interest in sustainable agriculture. Applicants must have an interest in all aspects of plant breeding (i.e., field, lab, and greenhouse work). Coursework and lab experience in molecular biology and genetics is preferred but not required. Our lab provides a unique opportunity for students to gain experience from within a horticultural breeding program, to learn how germplasm is characterized and selected for integration into crossing schemes. To benefit from this opportunity, students will work part-time on their research and part-time on other aspects of the lab's work, with the intent to learn the whole program.

Our program holds a variety of mature germplasm resources, including large clonal collections of walnut, chestnut, and pecan as well as walnut mapping populations. Additionally, we collaborate closely with members of the Hybrid Hazelnut Consortium, who have an extensive collection of wild and improved germplasm available for study. A variety of research topics are available from these collective materials, including studies of trait inheritance, germplasm characterization, and linkage mapping. Some possible thesis topics include but are not limited to:

- An 8-parent diallel study of black walnut, accessing the inheritance of a variety of traits.
- Linkage mapping of commercial traits and disease resistance in black walnut.
- Morphological characterization and association studies of commercial pecan germplasm.
- Molecular study of chemical flavor in commercial hazelnut kernels.
- Geographic Information Systems mapping of suitable environments for tree nut production and progeny evaluation.

Through their research, students will gain an understanding for the regional and domestic nut industries and how their research their research tangibly supports those industries. Students will have many opportunities to present their work at both academic conferences and grower meetings. If you have questions or wish to submit your CV, please email Ron Revord at ron.revord@gmail.com.