Postdoctoral Position in Quantitative Genetics and Plant Breeding

A postdoctoral associate position is available to work as part of a multi-disciplinary team uniting high-throughput phenotyping and crop modeling with quantitative genetics and genomics to improve water use efficiency (WUE) and biomass production in sorghum. The position will be based in the Institute for Genomic Biology and in the Department of Crop Sciences at the University of Illinois.

The position is part of a new ARPA-E funded project titled “W.E.S.T. Water Efficient Sorghum Technologies” which will transform US sorghum production by producing germplasm with superior WUE for breeding improved commercial lines, using technologies such as high-throughput physiological screening, systems modeling for guiding improvement, and transgenic materials. Our approach includes greenhouse studies that allow rapid phenotyping of transgenic plants to select promising material for further analysis, along with a strong focus on field screening experiments using sites in Illinois and Texas. The project is a partnership between University of Illinois at Urbana-Champaign, Cornell University, University of Nebraska-Lincoln, University of Wisconsin-Madison, and USDA ARS Texas. The position will involve close collaboration with a dynamic team of plant physiologists, computer scientists, and statistical geneticists.

The job duties and responsibilities of this position will be:

- Design, implement, and analyze quantitative genetic experiments in biomass sorghum.
- Assess heritabilities and correlations with biomass yield for suites of phenotypes collected via remote sensing, high-throughput robotic phenotyping, and traditional methods.
- Predict biomass yield in inbreds and hybrids using genomic data and correlated traits.
- Predict transgene performance in different genetic backgrounds using genomic and transcriptomic datasets.

Required knowledge, skills and abilities:

- Ph.D. in plant breeding, quantitative genetics, statistics, or related field.
- Previous experience conducting field experiments in crop plants.
- Previous experience using genomic data for mapping and/or prediction.
- Expertise in one or more programming languages for statistical analysis (eg: R, SAS, Python).
- Excellent interpersonal and communication skills with an established publication record.

Review of applications will begin immediately and applications will be accepted until the position is filled. Please send cover letter, C.V., and the names of three references to Melinda Laborg (laborg@illinois.edu). Questions regarding the position can be sent to Patrick Brown (pjb34@illinois.edu).