

Graduate Research Assistantship

Variable Rate Irrigation Management

The Biological Systems Engineering Department at the University of Nebraska-Lincoln invites applications for a graduate research assistantship position. The selected candidate will pursue a Master of Science degree in Agricultural and Biological Systems Engineering. A start date of January 2017 is preferred, but a start date of May 2017 would be considered. The assistantship will consist of an annual stipend and funds to support tuition and health insurance costs.



Research Description

There is increasing pressure on our water resources, which prompts us to manage our water more precisely. With an increasing demand for food production, variable rate irrigation (VRI) is a technology that may improve water use efficiency, which is yield divided by depth of water pumped for irrigation. VRI has many potential applications, and the specific benefits of each application should be quantified in order to inform producers who are considering investing in VRI technology. Research is also needed to develop a decision support system that would automate the process of making dynamic irrigation prescription maps for VRI management.



Research responsibilities for this assistantship include field research at multiple field sites which will compare VRI with conventional irrigation. One of the methods for VRI management will use software to create irrigation prescriptions based on a spatial soil water balance and remote sensing imagery from satellite and unmanned aircraft. The remote sensing imagery will be used to model spatial variability in crop water use and to detect crop stress. This collaborative project includes Drs. Heeren, Neale, Woldt, and others, providing the student an opportunity to work in an interdisciplinary environment.

Qualifications

Applicants must have a B.S. degree in agricultural engineering, biological systems engineering, civil engineering, or a related program, with a grade point average higher than 3.0 on a 4.0 scale. Funding after the first year is subject to satisfactory progress. The field research will require the candidate to go through radiation training for a neutron probe to measure soil water content. Also, the field research would require the candidate to make frequent trips to a field site 35 miles from campus. Therefore, previous driving experience is required for this position, and the candidate would be expected to obtain a Nebraska driver's license after arriving on campus.

Application

Email your resume or CV to Derek Heeren (derek.heeren@unl.edu) by September 1, 2016 for priority consideration.

Research website: <http://heeren.unl.edu/>

