Undergraduate Research Opportunities: Renewable Energy / Animal Science

The Renewable Energy Program at the University of Minnesota West Central Research and Outreach Center (WCROC) in Morris, MN is seeking three to four Undergraduate Interns for the summer of 2018. The students will be participating in research and outreach related to renewable energy and energy efficient systems for swine and dairy facilities. The goal of the research is to decrease the amount of fossil energy consumed in production agriculture through the adoption of energy efficient systems and on-site renewable energy generation.

Undergraduate students majoring in economics, business, finance, engineering, mathematics, animal science, environmental science, or related fields of study are eligible to apply. Student interns will work with a team of researchers to complete protocols, help develop outreach materials, and other tasks as needed. In addition, each student will be assigned an intern research project to complete over the course of the summer. A paper will be written and a public oral presentation of the research results will be given by the student. Strenuous work in less than ideal conditions may occasionally be required. These are full-time, summer positions (40 hours per week) with a general duration from mid-May through the end of August 2018. Salary for the positions is $11 per hour. Limited housing may be available on a first-come, first serve basis at little or no charge.

For the first internship position, the student intern will assist researchers in collecting data and evaluating results from a 50 kW solar photovoltaic system and two 10 kW wind turbines which provide power to the WCROC dairy. Systems analysis of the dairy energy platform will also be conducted. The student intern will develop a written report and provide a public presentation summarizing the results from field tests.

For the second internship position, the research team will direct an undergraduate student intern to conduct an energy and economic analysis of the new WCROC swine energy system including renewable energy generation, energy efficiency animal cooling and heating systems, and conversion from fossil fuels. The student will also develop a case study modeling the economics of integrating the energy systems within commercial swine facilities. The student will develop a written report and provide a public presentation detailing the results of the investigation.

For the third internship position, the student intern will model the impact of incorporating battery storage into Minnesota dairies using energy consumption data collected from the WCROC dairy and from the dairy’s 50 kW solar photovoltaic system and two 10 kW wind turbines. The student will also evaluate the impact of utility tariffs in west central Minnesota as well as State and Federal incentives and policies on dairy producers who desire to add renewable energy generation and storage systems. The student will develop a written report and provide a public presentation detailing the results of the investigation.

**Essential knowledge, skills and abilities**
- Undergraduate student majoring in the business, economics, science, or related fields
- Basic computer skills including experience with MS Office.
- Willingness / ability to work in a farm and office environment.
- Must be able to work cooperatively with others and accept direction from supervisors.

**Preferred knowledge, skills and abilities**
- Experience working in a research or agricultural environment.
- Experience in organizing and analyzing data.
- Demonstrated communication and professional writing skills.
- Interest in solar and other energy systems.

To apply, please send a resume and a cover letter to Mike Reese (email: reesem@umn.edu) preferably by **February 20th**. Applications are accepted until positions are filled. Questions can be directed to the email above.