

Fiscal Year: July 1, 2011 - June 30, 2012

AGRICULTURAL & BIOSYSTEMS ENGINEERING DEPARTMENT REPORT

A. List College/Department Goals and Priorities for the Past Year

- To provide high quality undergraduate educational programs in selected areas of Agricultural and Biosystems Engineering and Agricultural Systems Management.
- To provide high quality MS and PhD educational programs in Agricultural and Biosystems Engineering.
- To attract and retain a large number of quality and diverse undergraduate and graduate students.
- To conduct scholarly activities that extends the knowledge base to; enhance agricultural production efficiency, profitability, and sustainability, maintain quality and/or add value to biological materials, and develop efficient use and stewardship of environmental resources.
- To provide extension and outreach education focused on; agri-production systems, biological materials, environmental resources management, energy production and efficiency, and structures and environment.
- To provide opportunities for professional development of faculty and staff to keep knowledge and skills current in their areas of professional practice.
- To provide greater assistance to graduating seniors in this time of tight job markets.

B. Provide Executive Summary of Accomplishments in Achieving the Goals and Priorities for this Past Year which include the following areas:

a. Teaching

- ABEN student numbers as well as student diversity have been steadily increasing. We taught 33 classes/labs this year. New technology and software were procured for improved hands-on student experience. Several high level guest speakers provided exposure to real life engineering situations. Extreme improvement was seen in class performance according to pre and post testing, exam scores, and student feedback. New curriculum was developed for the Numerical Modeling course, and a new course is in development to expose students to Matlab.
- ABEN department has submitted a program review report for the oncoming review and accreditation of its undergraduate engineering program by ABET.
- ABEN undergraduate students participated in the international quarter scale tractor competition held by ASABE.
- Tom Bon received H. Roland and Janet Lund Excellence in Teaching Award.
- ABEN faculty participates in the AgIDEA program.

b. Research/Scholarly/Creative Activities (tabulate totals)

- ABEN faculty published 54 peer reviewed journal articles, and 40+ invited research presentations, proceeding papers, and posters were presented by ABEN faculty
- Faculty in this department received 23 grants totaling \$3,031,416, and 10 Pending grants totaled \$715,000. Two faculty members are collaborating on 2 additional

pending grants totaling from a possible \$1 million to \$10 million, and 39 grant proposals were submitted that were not funded.

- Scott Pryor received the College of Engineering Best Researcher Award.
- ABEN faculty maintained active international collaboration with Kazakhstan, China and Uzbekistan by serving on thesis committees of graduate students and hosting international scientists including a Fulbright scholar from Uzbekistan.

c. Service/Outreach/Extension

- ABEN faculty generated 45 book chapters, production guides, bulletins, reports, non-refereed articles and abstracts.
- The department faculty prepared 25 videos, news releases, and newsletters.
- ABEN faculty participated in 38 interviews and meetings.
- ABEN faculty were active members of several professional organizations, served on proposal review panels and journal/conference editorial boards, and participated in many service activities including university/college/departmental committees, multistate project groups, ASABE committees, planning committee for BigIron, etc.
- Ken Hellevang received the NDSU Extension Service Program Excellence Award and 2011 AGSCO Excellence in Extension Award while Tom Scherer received NDSU Extension Program Excellence Large Team Award, North Dakota Irrigation Association, Irrigation Excellence Award

C. College/Department Goals and Priorities for the Coming Year

- To attract, recruit and retain a diverse group of highly qualified students into our undergraduate and graduate programs, and provide them the best value education.
- To strengthen research by applying principles of agricultural and biosystems engineering towards solving local and global issues of sustainably providing food, fiber, feed and fuel for a growing population.
- To provide extension and outreach education focused on agricultural production systems, biological materials, environmental resources management, energy production and efficiency, and structures and environment.
- To provide opportunities for professional development of faculty and staff to keep knowledge and skills current in their areas of professional practice.
- To improve ABEN's visibility in the State by forging new relationships and strengthening existing links to alumni, employers of our students and other stakeholder groups.

Research, Scholarly, and Creative Activities

		Total
Peer Reviewed Publications (published or accepted)		54
National or International Invited Presentations		40
Juried presentations/performances/exhibitions		0
Research Grants and Contracts	Cumulative Amount: \$3,031,416	74