

AGRICULTURE

Project Fact Sheet



EDUCATION INITIATIVE

BENEFITS

- A multi-disciplinary workforce for the biobased products industry
- Active industry involvement in developing new curricula
- Accelerated development of the biobased products industry

APPLICATIONS

Education programs that combine the scientific and engineering disciplines, and industry guidance will provide the biobased products industry with qualified researchers. This approach to multi-disciplinary programs may also serve as a model for developing curricula for other new and rapidly-expanding scientific fields. In addition, the research results will be valuable to this emerging industry.

INITIATIVE FOSTERS TRAINING IN BIOBASED PRODUCTS

The emerging biobased products industry uses crops, trees, and agricultural residues to produce consumer products such as plastics, paints, and adhesives. The academic fields encompassed by the biobased products industry range from the biological sciences to agronomy and chemical engineering. Collaboration is the key to developing, manufacturing, and using products derived from biomass and requires researchers able to integrate knowledge from diverse science and engineering fields. The current lack of an educational infrastructure that incorporates multi-disciplinary scientific and engineering disciplines is impeding the development of the biobased products industry.

In 1999, the U.S. Department of Energy began to address this issue by launching an Education Initiative to promote the establishment of multi-disciplinary graduate-level education and research programs. The initiative is in agreement with a study published in 2000 by the National Research Council, *Biobased Industrial Products: Priorities for Research and Commercialization*, which recommends focusing on education and technical training to accelerate the development of the biobased products industry.

The graduate students produced by the multi-disciplinary education programs established under the initiative will be trained in several scientific disciplines. The biobased products industry will partake in this initiative by participating in the design and monitoring of the academic and research programs, and interacting with the students. Internships with biobased product companies will also provide students with valuable, practical experience in developing and manufacturing biobased products.

FIGURE 1



Multi-disciplinary educational programs are fundamental to a successful biobased products industry.



Project Description

Goal: The establishment of new, cross-cutting academic programs in the biobased products field.

Graduate-level programs will produce graduates who are trained in a variety of academic disciplines, such as the biological sciences, agronomy, and engineering, and have performed research in the biobased products industry. Eight U.S. universities were awarded grants worth up to \$125,000 per year for up to three years in duration: Oklahoma State University, Iowa State University (received two grants, one each from the 2000 and 2001 solicitations), University of Georgia, Colorado School of Mines, University of Nebraska-Lincoln, Michigan State University, Kansas State University, and the University of Missouri.

These grants cover the costs for establishing a new academic and research program in the biobased products field, as well as full stipends for two or so Masters or Ph.D. students. Industry will be involved in the new curricula, with representatives from biobased product companies serving as research mentors and as members of academic program review committees.

Progress and Milestones

- Establishment of an advisory committee composed of faculty members and industry colleagues to monitor the progress of graduate students and the new academic program.
- Development of new courses that integrate concepts from the biological sciences, chemistry, and engineering.
- Establishment of multi-disciplinary research teams and research programs in biobased products.



PROJECT PARTNERS

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