

CIRAS 2004 ANNUAL REPORT

University Extension

IOWA STATE UNIVERSITY

College of Engineering

CIRAS Mission Statement: *The mission of CIRAS is to enhance the performance of Iowa industry through education and technology-based services.*

From the Director

Extension is just completing a comprehensive futuring exercise, which has been undertaken to guide the organization as it embarks on its second century of service to Iowans. Although CIRAS will be involved with all 10 of the initiatives in the forthcoming plan, two items deserve special mention as we reflect on the accomplishments of this past year.

Special Community Initiatives is an effort to more closely align Extension to the changing needs of Iowans. An example of a community initiative is the focused assistance that the Procurement Technical Assistance Center (PTAC) staff are offering to 10 Iowa counties that are classified by the federal government as economically distressed.

Key to this initiative is the involvement of the County Extension Education Directors (CEED) from these 10 counties. The CEED is responsible for understanding the county constituents and identifying clients that are likely to benefit from selling their services to the federal government. This has provided an efficient method for the PTAC staff to access these clients. Though just underway, a number of promising bid opportunities have surfaced that may lead to government contracts for businesses in these communities.

Development of stronger partnerships is another initiative that is essential to the future of CIRAS and Extension. With continued cuts to the Extension budget, it has become essential for CIRAS to seek innovative partnerships to leverage limited resources. A number of recent applied research opportunities associated with energy systems is very timely given recent energy cost increases that have added to the struggles that manufacturers are facing.

Through a joint effort with the Iowa Energy Center (IEC) and the Department of Energy, CIRAS staff have been assessing the opportunities for energy, productivity, and waste improvements in the food processing industry. The IEC has also provided support for a study of water and wastewater use in manufacturing. In addition, CIRAS teamed with the IEC, the Department of Mechanical Engineering at ISU, and private consultants to develop an energy-use best practices manual for the food processing sector.

As a result of the developing partnership with the IEC, CIRAS has initiated two new projects—one focused on the chemical sector in Iowa and a second looking at the use of premium efficiency motors in manufacturing. We also are now supporting a staff person in the Department of Electrical and Computer Engineering at ISU to oversee continuing education courses for the utility industry, and we plan to hire a new staff person this fall to assist manufacturers with reducing their energy costs.

Given the changing environment that we all must adapt to, we envision a future where focused, community-based initiatives and strong partnerships are essential to providing the crucial support that manufacturers need to increase their profitability and enhance the economy of the state.

Ronald A. Cox

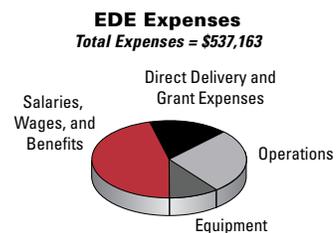
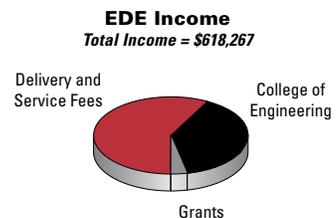
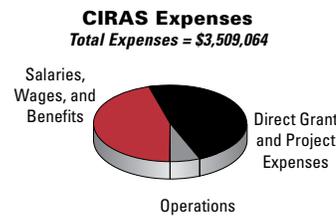
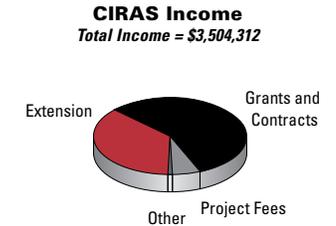
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Iowa Manufacturing Profile

Iowa is home to 5,775 manufacturing establishments. The three areas below reflect how the manufacturing sector plays out as a portion of the state's total economic activity:

Labor Force	15%
Work Earnings	20%
Gross State Product	21%

2003–2004 Highlights

Engineering

- CIRAS engineers evaluated a cooling tunnel for Schebler Company, Bettendorf, and developed a new computer program to use when assessing capabilities of future tunnels. “The program essentially verified the accuracy of our model, which gave us a better understanding of the heat transfer process for the design we had developed,” states Schebler Company President Gerry McClure.
- A company located in Houghton contacted CIRAS for help in redesigning the float for a heated animal drinking system. “The new float should allow us to increase sales and eliminate most if not all warranty situations involving water delivery requirements in extreme situations,” states Tom Wenstrand, president, Hawkeye Steel.
- The Iowa EDA University Center provided technical assistance to 28 rural Iowa companies.

Management Practices

- CIRAS authored a successful grant to the USDA/DOE requesting funds to adopt new technologies for the production of methyl esters developed by ISU researchers. These technologies are anticipated to yield yearly savings exceeding \$100,000 at West Central Cooperative in Ralston and significantly reduce the environmental impact caused by methyl ester production.

Government Procurement

- The Procurement Technical Assistance Center (PTAC), funded through the Defense Logistics Agency, has a pilot initiative to better serve the distressed counties of Iowa. The PTAC staff is working with 10 county extension education directors to provide procurement information to the manufacturers in distressed counties.

Productivity

- Grimm Brothers Plastics, Wapello, was keen to see a reduction in quality problems. By applying Six Sigma tools taught by CIRAS, the team was able to reduce scrap and rework from 11% to 3%.
- A productivity improvement-training project with Schumacher Elevator in Denver helped the company achieve an 84% increase in shipped products per week, which translates into an annual net profit increase of approximately \$300,000 and 12 saved jobs.

Quality

- Double HH Manufacturing, Inc., Rock Valley, needed to become ISO 9001 certified due to demands from a major customer. CIRAS assisted in the certification process that took approximately nine months, retained five jobs with \$350,000 in sales, and added two new jobs.
- Over the last three years, the CIRAS Quality Systems Team has helped Omaha Standard, Council Bluffs, document a quality management system as a means to control processes and prepare the company for ISO 9001 certification. The company estimates benefits to be in the range of \$7 million.

State and National Initiatives

- The USDA and CIRAS have worked for the past two years developing a national certification program to identify, qualify, and label biobased products for federal procurement. Several ISU faculty members and other universities across the country are participating in product testing and developing standard criteria.
- In joint ventures that involve the U.S. Department of Energy, Iowa Department of Natural Resources, and Iowa Energy Center, CIRAS continues to work to improve quality and efficiency in the food processing industry. Efforts have also focused on boosting industrial efficiency and productivity by reducing raw material and energy use per unit of output, decreasing generation of wastes and pollutants, and improving labor and capital productivity.
- ISU Extension/CIRAS is facilitating the work of the newly formed BIOWA Development Association. BIOWA is a trade association, formed to promote and support the growth and development of industries that produce products and energy from biorenewable resources.
- Funds from the W. K. Kellogg Foundation, Iowa Energy Center, Cargill Dow, and the U.S. Department of Energy were used to conduct research and demonstration projects for biobased supply chains that (1) promote local ownership and control, (2) share risk and rewards across the supply chain segments, and (3) model environmental stewardship and economic sustainability for farmers, processors, distributors, and consumers.

Continuing Education

- Engineering faculty working with Engineering Distance Education (EDE) produced and delivered 66 on-line engineering credit courses to 848 off-campus learners, 484 of those employed by Iowa companies.
- Extension staff from ISU's College of Engineering offered courses and workshops attended by 2,357 engineers from across the state.

Project Activity

