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Britz-Heidbrink cuts lead time with lean manufacturing

By Jim Black, CIRAS



Members of the Britz-Heidbrink "DID THAT" Kaizen team assigned to reduce lead time

Dan Palmer, vice president of the Manufactured Building Division of Britz-Heidbrink, Inc., wanted to let his people participate in running the company. Britz-Heidbrink manufactures agricultural animal and research buildings in Monona, Iowa, and animal housing systems in Wheatland, Wyoming.

Palmer had previously discussed lean manufacturing practices with Bill Schwinke, an Iowa Manufacturing Extension Partnership (IMEP) account manager, and Roberta Murray from Northeast Iowa Community College (NICC). He had also read a CIRAS News article about the challenges Paragon International, a food concession equipment manufacturer in Nevada, Iowa, had faced implementing lean and its resulting benefits.

Based on this information, Britz-Heidbrink decided to send four employees to Lean 101—a one-day simulation exercise workshop that utilized four scenarios to increase awareness of lean manufacturing and its benefits (see "Lean manufacturing becomes a reality for Paragon International," *CIRAS News*, Spring 2001). After 20 more employees participated in Lean 101

training, Palmer met with CIRAS and NICC to consider utilizing a Kaizen team to implement some of the lean principles.

Kanban team

Palmer began by requesting Jim Black of CIRAS to facilitate a Kaizen team. A key objective of the team was to utilize Kanban (replenishment signals) to

improve inventory management at Britz-Heidbrink. Several classes of parts inventory were selected for testing Kanban—especially fasteners, warehouse items, and lumber. Critical assumptions were identified, including the following:

- Work orders must be accurate and timely to prevent interruptions and rework.
- Standard work must be developed to improve consistency of output and train new employees.
- Material must be received in a more timely fashion or a larger standard work-in-process (WIP) may be required.
- Design time and transit time must be reduced.

"The impact on our business was immediate," said Palmer.

The team developed action plans for implementing over 100 ideas including Kanban testing. Team members met weekly while they implemented improvements. The company devoted a four-page newsletter to sharing lean manufacturing information with employees and highlighting the team mission and activities.

Continued on page 11

CIRAS Mission Statement

The mission of CIRAS is to enhance the performance of Iowa industry and associated entities through education and technology-based services.

CIRAS

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Cutting-edge RP technology remains a staple of CIRAS services

By Steve Devlin, CIRAS

The next best thing to envisioning a product in theory is to see it actually work in practice. Manufacturers and companies can see their ideas become reality during the design stage through rapid prototyping (RP), a process that transforms a computer 3-D file of a product into a physical model ready for analysis.

RP machines vary by speed, accuracy, and materials used in fabricating the prototype, but each system can generate a physical model within a span of several hours.

CIRAS began providing RP technology services in November 1999 when it purchased a Z-Corp 3-D printer. The first of its kind in Iowa, Z-402 uses starch and cellulose to fabricate prototypes. It is an ideal “show-and-tell” tool for manufacturers to demonstrate proof-of-concept because of its speed.

In a project with Innovative Retail Systems, a technology start-up company in Forest City, Iowa, Z-402 developed concept models of a handheld scanner. RP technology was used to improve communication of design intent, typically accessible only through a computer screen or paper printouts. Schafer Systems Inc. of Adair fabricated prototype plastic parts of the scanner housing using Stratasys 2000 Fused Deposition Modeling (FDM). FDM has the capacity to fuse ABS (plastic filament) into a physical model. CIRAS then installed prototype electrical components to create functional assemblies.

Another milestone that marked CIRAS advances in RP technology occurred in June 2000 when Rockwell Collins in Cedar Rapids donated a Stratasys 1650 FDM machine, manufactured by Stratasys Incorporated.

RP successes at CIRAS have encompassed a broad range of projects:

- Concept models and semi-functional prototypes of a new injection-molded hair styling product were created for Casual Cuts of Ellsworth, Iowa.

CIRAS engineers will meet with Iowa manufacturers

Is your company thinking of developing a new product or designing and testing one before it hits production? As part of its in-state marketing program, CIRAS will conduct on-site visits with Iowa manufacturers to discuss product development projects.

If you would like a CIRAS engineer to visit your company, contact Clay Crandall at 712-366-7070; cgrundall@ciras.iastate.edu.



The CIRAS Z-Corp 3-D printer

- CIRAS students used Z-402 to create temporary physical models of a new walking cast developed by the design staff at Brown Medical in Spirit Lake, Iowa.
- CIRAS students created concept models of a sample tray-handling system for CombiSep Inc., an Ames-based company that specializes in chemical instrumentation. Several design iterations were modeled on the Z-402.
- Working with researchers from ISU's Micro-Instrumentation Center, CIRAS used the FDM machine to create prototype water-testing devices for a NASA research project.
- Working with researchers from the ISU Virtual Reality Application Center (VRAC), CIRAS created functional prototype parts of a design project for Winegard Inc. in Burlington, Iowa.
- CIRAS personnel and ISU students from the American Society of Agricultural Engineers created part patterns of a transmission housing using the Z-402 modeler for their scale tractor project. The patterns were then sent to the University of Northern Iowa Metal Casting Center where three sample parts were cast.

To promote the varied uses of the technology, RP experts at CIRAS have made technical presentations at technology, business, and product development conferences, at manufacturing expos, and to students in the colleges of engineering, education, and design at Iowa State.

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EDE ventures into biodiesel education *By Rebecca Kellogg, EDE*



From left to right, Gerhard Knothe, L. Davis Clements, Rebecca Kellogg, Jon Van Gerpen, Brent Shanks, and Rudy Pruszko at the Becon facility.

Biodiesel production is the focus of a Web-based introductory course and a series of workshops to be held this fall through a collaborative partnership between Engineering Distance Education (EDE), CIRAS, Iowa State University, the Iowa Energy Center (IEC), the U. S. Department of Agriculture (USDA), and area industries. This unique educational opportunity is made possible through the efforts of Jon Van Gerpen, ISU mechanical engineering professor, who has assembled a team of experts in the area of biodiesel production.

Biodiesel is the fuel product derived from vegetable oils or animal fats when they react with an alcohol. Soybean oil and methanol are very popular sources of biodiesel products in the U.S. Quality is a prime consideration in the production of biodiesel and a driving motivation for this current educational development effort. Quality control depends on accurate information and appropriate application of this information. Four learning opportunities will be made available this fall. They include a Web-based introductory course produced by the EDE team and three workshops made possible through IEC funding.

Introduction to Biodiesel

This unit will include a Web-based overview as well as basic information on biodiesel products and production methods. EDE multimedia professionals are currently producing an educational video on biodiesel production featuring the IEC's Biomass Energy Conversion Center (BECON) in Nevada, Iowa. Hosted by Van Gerpen, this introductory-level video features a virtual tour of BECON's biodiesel production process while it addresses topics such as the nature of biodiesel, its uses, cost, and economic considerations. "The goal of the video is to demystify the process of producing biodiesel for the potential producer and/or consumer of this renewable energy source," says Van Gerpen. "We also hope the video will spark interest in attending the planned follow-up workshops and Web-based instruction." This free video can be viewed on the biodiesel project's public Web page via streaming video.

Interactive Workshops

Three highly interactive workshops are planned. Each will be held at the BECON facility and will be a combination of

presentations and hands-on laboratories and exercises.

- **Business Management for Biodiesel Producers (October 23–25, 2002)** will explore the legal and business aspects of biodiesel production and marketing. The target audience will be current and potential biodiesel producers. Rudy Pruszko from CIRAS, together with Van Gerpen and Davis Clements of Renewable Products Development Laboratories, Inc., will develop and lead the workshops. Participants will be able to address legal and regulatory issues along with operational concerns that will enable them to maximize their likelihood of business success.
- **Biodiesel Analytical Methods (December 11–13, 2002)** will cover analytical procedures and test methodologies and considerations. The course will have a hands-on component with laboratory exercises. The target audience will largely consist of test laboratory personnel and quality-control staff for biodiesel producers. Gerhard Knothe, research chemist at USDA's National Center for Agricultural Utilization Research in Peoria, Illinois, together with Van Gerpen and Clements, will coordinate and make presentations.
- **Biodiesel Production Technology Workshop (February 12–14, 2003)** will provide a broad background in biodiesel production technology, the latest process information, chemical processes and operating procedures, and production processes. Van Gerpen will partner with Knothe, Pruszko, Clements, and Brent Shanks, ISU chemical engineering professor, to present this course geared to the information needs of current and potential biodiesel producers, biodiesel plant technicians, and maintenance personnel.

The U.S. Department of Energy's National Renewable Energy Laboratory has funded the content development effort and will oversee the development of the course materials through an advisory board of industry, government, and academic experts. The advisory board will review the progress and assure that final content materials are appropriate and in line with the stated scope of the work.

For additional information on biodiesel and the biodiesel educational tools project, please visit the Web site at <http://www.me.iastate.edu/biodiesel> or contact Jon Van Gerpen at 515-294-5563; jvg@iastate.edu or Rudy Pruszko at 563-556-5110, Ext. 251; rpruszko@ciras.iastate.edu.

IPOC can shed light on federal contracting and BMP programs *By Kathy Bryan, IPOC*

While doing business with the government, the volume of acquisition regulations and paperwork can be overwhelming for even the most enthusiastic bidders. Here are some ways the Iowa Procurement Outreach Center (IPOC) can help businesses sort through the complexities.

IPOC can

- develop contracts with the military and other federal agencies, as well as state and local governments
- provide training to businesses on how to research and bid on contracts and assist in registering and using electronic commerce

- offer workshops on important aspects of government contracting
- provide marketing and technical assistance through proactive outreach with special focus on military markets
- help expand an existing market within the federal government
- research a company's product potential in the federal government marketplace and match its capabilities with upcoming federal government bidding opportunities.

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Connections are made at IPOC events *By Kathy Bryan, IPOC*



Business, Breakfast & More facilitator Ted Williams speaks with small business owner Kha Phan of TalkISP Corporation.

The second annual business showcase, held July 11, 2002, was a great success with over 100 attendees. Small businesses from all over Iowa came to either showcase their business or meet with various government and commercial purchasing agents and obtain solicitations for bids.

Among the many participants was Lois Phillips from the General Services Administration (GSA), Kansas City, Missouri, who assisted small businesses in finding the right GSA contract on which to bid. This was the second year that Phillips attended the event. The list of attendees also included buyers from Iowa State University, the State of Iowa, U.S. Department of Agriculture, U.S. Postal Service, Internal Revenue Service, Iowa National Guard, Neuman Brothers, City of Des Moines, Principal Financial Group, and Wells Fargo Bank Iowa.

Much like the business showcase, the IPOC-sponsored networking breakfasts, held every other month, also offer a

way for small businesses to make their products available to other small entrepreneurs.

Cheryl Fraracci, owner of C & L Enterprises, was a beneficiary of one such breakfast encounter when she met Kathleen Ziemer, owner of ButterfliZ of Iowa. Ziemer now buys light bulbs from Fraracci to light up her rooms where she raises butterflies. In addition, as a direct result of networking at the breakfasts, Ziemer supplies bulbs to Moe Kauslarich, owner of Sew N'Moe, another small business owner.

Business, Breakfast & More

Here's your opportunity to meet with business owners, corporate buyers, and new clients as well as federal, state, and area representatives.

The breakfast begins at 7:30 a.m. and will be held at the Des Moines Downtown Holiday Inn, 1050 Sixth Avenue. The next session is

November 7, 2002 E-commerce for
Small Business

The facilitator for the event is Ted Williams, CEO of the Williams Group, Inc., Des Moines, Iowa.

Business, Breakfast and More is sponsored by Channell Construction Iowa & Nebraska, Principal Financial Group, and the Minority and Women Business Conference and Expo in cooperation with IPOC/CIRAS, the Drake Small Business Development Center, and the Small Business Administration.

EDA university center stresses economic growth

By John Roberts, CIRAS

The Economic Development Administration (EDA) was established in 1965 under the Department of Commerce to generate jobs, help retain existing jobs, and stimulate industrial and commercial growth in economically distressed areas of the United States. Currently, its mission includes promoting a favorable business climate as a way to attract private capital investment and jobs through planning, infrastructure, research grants, and strategic initiatives.

What are some EDA goals?

1. Create jobs and private enterprise in economically distressed communities by improving community infrastructure, expanding commercial and industrial facilities, introducing new technologies, and diversifying the economy.
2. Build local capacity to achieve and sustain economic growth by having entities like university centers partner with a national network of economic development districts and other university centers to assist economically distressed communities.
3. Promote awareness among EDA clients to maximize return on taxpayer dollars through investments that generate private capital investments and high-wage jobs. EDA plans to emphasize this goal as a priority in its interaction with clients and university centers.

What are economically distressed areas?

EDA defines them as communities that experience substantial barriers that inhibit the growth of their local economies and limit their ability to compete effectively in regional, national, and global markets. The criteria that define economic distress include

- high unemployment (for a 24-month period running an average of 1% over the national average)
- less than 80% of the national average per capita income
- communities with substantial and persistent economic deterioration
- sudden and severe changes in local economic conditions causing economic dislocations

The University Center Program

In 1966, EDA began offering grants to universities. The primary purpose of the EDA University Center Program was to partner with institutions of higher education to improve the economies and economic development capacity of their service areas, with emphasis on

economically distressed communities. The programs typically assist one of two types of clients: other economic development organizations or private businesses and industry. Currently, 62 percent of centers focus on assistance to economic development and 38 percent focus primarily on assistance to businesses.

University centers undertake three broad categories of activity:

1. Technical assistance in response to direct requests from university center clients
2. Applied research initiated by the university center to address or study issues, services, and technology that benefit university center clients
3. Dissemination of “off-the-shelf” information in studies, publications, data, etc., about university center activities to a wide audience or in response to a specific request by a business or organization

What is the EDA University Center Program at CIRAS?

The Iowa EDA University Center Program at CIRAS was established 15 years ago. It provides technical assistance and technology transfer to small manufacturers in rural communities by utilizing on-campus research lab facilities, as well as faculty and student expertise. The center provides guidance, information, and design assistance to entrepreneurs in their efforts to develop new marketplace products.

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CIRAS helps company with testing

Merrill Manufacturing is a small company located in Storm Lake, Iowa, that manufactures residential pit-less well systems. The company was interested in adding a larger commercial well system to its existing product line. It had already developed a mechanism for coupling the down pipe to the casing outlet operated during installation and maintenance. The company, however, wanted to verify the operation of this new technique, so it requested CIRAS assistance to test the system.

The CIRAS engineering staff worked with an ISU faculty member and graduate and undergraduate students and performed an initial analysis using basic stress theory and finite element analysis. With help from the Structures Lab, located on the ISU campus, the group developed a method to examine the operation of the system under likely field conditions. The system failed to perform at first. After determining the cause, however, changes were made, and the second test was a success. This project was funded jointly by EDA, IMEP, and the Center for Advanced Technology Development (CATD).

CIRAS 2002 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, and associated entities, through education and technology-based services.*

From the Director

A sluggish economy and statewide budget cuts made this past year challenging for both Iowa manufacturers and CIRAS. CIRAS and Engineering Distance Education (EDE) staff worked hard to combat reductions by improving productivity and increasing income through grants and contracts. Some examples of our efforts follow.

- We added additional part-time student help where we have traditionally employed full-time staff. Combined, CIRAS and EDE employed the equivalent of 11 full-time students to support industry programming.
- Engineering Extension was brought under the CIRAS umbrella, after 90 years as a separate unit. The move will eliminate some administrative overlap, provide a more seamless link between manufacturers and Iowa State engineering faculty, and bring elevated resources within industry's reach.
- We relied more heavily on fees and grants. This past year, each dollar of support from ISU Extension helped to generate an additional \$1.23 in funds from grants and user fees, which were then used to assist Iowa industry.

Our staff also explored ways to amplify services through enhanced partnering opportunities. We continued to strengthen our partnerships with the Iowa Manufacturing Extension Partnership (IMEP), the U.S. Department of Energy, and the Economic Development Administration. We also initiated some new endeavors with USDA and the U.S. Department of Health and Human Services.

Collaborations with IMEP and the Iowa community colleges played a big part in many of the projects that we completed this past year. Examples of some of these projects are highlighted on the reverse side of this letter. The map conveys the extent to which we have been able to reach out to industry across the state.

We received two awards recognizing the quality of our programming. Mike Willett and Dawn Hines were honored by the Cedar Valley Manufacturers Association for their "Outstanding Contribution to the Organization." Tim Sullivan received an award from the National Association of Management and Technical Assistance Centers for his work with Iowa manufacturers on Theory of Constraints.

Though sales have been flat for many Iowa manufacturers, we have heard from many others that have experienced double-digit growth. We are optimistic about the health of Iowa industry, and we remain committed to assisting Iowa's manufacturers in becoming more profitable. We look forward to serving you.

Ronald A. Cox

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Iowa Procurement Outreach Center

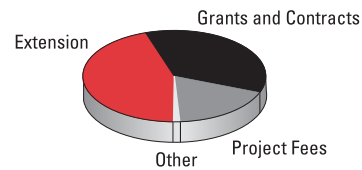
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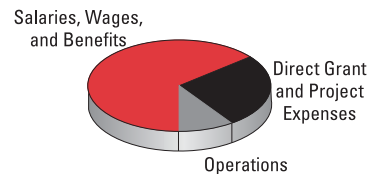
CIRAS Income

Total Income = \$2,750,283



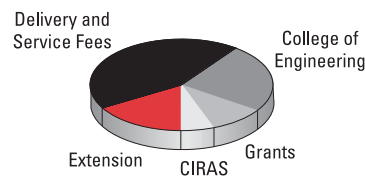
CIRAS Expenses

Total Expenses = \$2,539,653



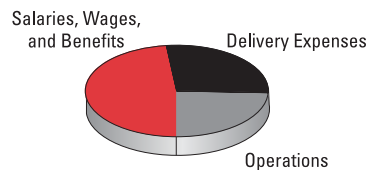
EDE Income

Total Income = \$628,740



EDE Expenses

Total Expenses = \$616,275



Iowa Manufacturing Profile

Iowa is home to 5,943 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	17%
Work Earnings	20%
Gross State Product	22%

And justice for all... Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, sex, marital status, disability, or status as a U.S. Vietnam Era Veteran. Any persons having inquiries concerning this may contact the Director of Equal Opportunity and Diversity, 318 Beardshear Hall, 515-294-7612.

2001–2002 Highlights

Business Planning and Management

- Attendees at the second annual e-business conference explored the latest in Internet technology and security issues with hands-on training in e-business tools.
- CIRAS continued to be a prominent contributor to third-party feasibility studies for the USDA Rural Development Agency. ISU Value Added Agriculture Extension and CIRAS worked on feasibility studies for both Heartland Resources Technologies in Oelwein and for Arts-Way Manufacturing in Armstrong.

Energy

- CIRAS moved forward with the Iowa Industries of the Future (IIOF), a Department of Energy and Iowa Department of Natural Resources initiative that focuses on energy efficiency, waste reduction, and productivity improvements in Iowa industry. Representatives from metal casting companies completed a vision and a roadmap for their industry. Agriculture industry representatives developed a “bioeconomy” vision.

Engineering Distance Education

- EDE delivered distance education courses to over 130 Iowans at the B.S. level, including 60 secondary teachers. Over 350 Iowans are studying at the master’s level.
- Four B.S.E.E. degrees were awarded to students who earned 100% of their credits without traveling to Ames. Master’s degrees were awarded to 12 in FY 2002.
- The Information Assurance Center teamed with EDE to offer a new Graduate Certification in Information Assurance for the off-campus community.

Government Procurement

- The Procurement Technical Assistance Center (PTAC) reported that 420 jobs were created as a result of contracts awarded to companies that received assistance from IPOC and CIRAS staff. IPOC is funded through the Defense Logistics Agency and the Iowa Department of Economic Development.
- Decker Acquisition Corporation of Fayette reported receiving a \$180,000 subcontract from Cedarrapids, Inc., of Cedar Rapids in support of a \$5,100,000 U.S. Army contract for rock crushers.

Product Design and Testing

- CIRAS used the College of Engineering Acoustics Lab water tank to conduct weight-bearing tests on the Bass Baby®, a rotationally molded, two-person fishing boat manufactured by Schafer Systems in Adair.
- CIRAS conducted FEA studies on existing and modified weldment designs to analyze stress reduction effects for Wayne Engineering in Cedar Falls. “With CIRAS input, the reliability of this unit went to 100%,” said Jim Marks, product engineering manager.
- “CIRAS completed a task that I was unable to do at Brown Medical,” stated Shanna Marks, design engineer for Brown Medical Industries in Spirit Lake, which used CIRAS engineering services to reverse engineer and prototype a part before permanent tooling was produced.

- Casual Cuts, a start-up company in Ellsworth, worked with CIRAS and CATD on a design-for-manufacture of a new product. “We were very satisfied with the final prototype and the time in which the project was finished,” said Sandra Lunde, Owner.

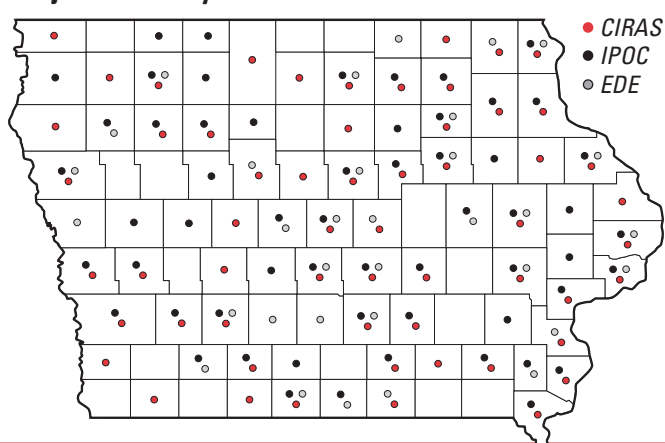
Productivity

- CIRAS conducted several Constraint Management workshops in Decorah and at the Cedar Falls Industry Outreach Center. The forums brought together manufacturers who discussed methods to improve profitability through a constraint-based approach to production control, project management, and inventory replenishment.
- Company management at Trinity Fabricators in New Albin received assistance with plant layout techniques and using simulation tools to optimize material flow and reduce material handling costs. “The project really got my people thinking about the right things, gave them new ideas, and got them fired up about the potential we have as a company,” stated Mike Verdon, president.
- CIRAS staff conducted Kaizen and lean manufacturing workshops at Grimm Brothers Plastics in Wapello to help it reduce quality costs during its efforts to achieve ISO 9000 certification.

Quality

- CIRAS Quality Systems specialists assisted Iowa companies in transitioning from the ISO 9001:1994 to the ISO 9001:2000 standard. Staff also offered advanced assistance in the areas of customer satisfaction, failure mode and effects analysis, and root cause analysis.
- Omaha Standard, Inc., in Council Bluffs adopted the ISO 9001 quality standard to improve the company’s competitive position. CIRAS staff conducted an ISO 9001 gap audit, educated the company’s staff, assisted management in applying the concepts, and conducted a pre-assessment audit.
- Two CIRAS staff, trained in the National Malcolm Baldrige criteria and examination process, participated as examiners in the Iowa Recognition for Performance Excellence Quality Award program for the state.

Project Activity



New wood treatment guidelines

A policy requiring that all packaging made of unprocessed raw wood be treated and marked was adopted by the United Nations International Plant Protection Convention (IPPC) in March 2002. The policy mandates that all packaging materials destined for overseas markets show a heat treatment (HT) mark, which is the international symbol for pasteurization of wood products. The purpose of this requirement is to reduce the spread of insects worldwide.

For the European Union, both softwood and hardwood packaging fall under the new standard. Hardwood packaging is an addition to the standard since softwood has been included beginning October 2001. The standard will now cover all hardwood lumber used in pallets, crates, boxes, and containers.

The policy does not set any deadlines or even require compliance, but EU, North America, and other industrialized markets are expected to increase pressure on suppliers to provide them with only certified packaging. An implementation schedule for the standard has been left up to each country.

According to Dennis Michel, forest products and recycling forester at the Iowa Department of Natural

Resources' Bureau of Forestry, industry can anticipate a compliancy requirement by December 30, 2002. "Exporting manufacturers or other businesses may also choose to begin using only hardwood-treated pallets before that date," he added.

In the U.S., the American Lumber Standards Committee in conjunction with the Animal and Plant Health Inspection Service has developed standards and a certification process (for heat treatment) to comply with the European requirements. The process involves heating the core of the lumber to 56 degrees Celsius (133 degrees Fahrenheit) for 30 minutes and stamping the pallet with '56/30,' which indicates that the heat treatment process has taken place. In order to obtain the official stamp, however, a business must contact a certification agency.

The National Hardwood Lumber Association is currently offering a certification program for hardwood products of packaging materials for overseas use and has already enrolled 34 subscribers in 13 states.

For more information on the new pallet guidelines and certification agencies, contact Dennis Michel at 515-281-4924; Denny.Michel@dnr.state.ia.us.

Nation's best students assist Iowa manufacturers



ISU students (from left to right) William Griebel, Michael Larson, Carissa Roenfeldt, and Jen Diaz.

Four ISU students come to CIRAS as National Merit Scholars this year. They were selected in their senior year of high school for academic excellence as part of a nationwide competition. Their capabilities have significantly added to CIRAS expertise and client satisfaction.

Jen Diaz, an El Paso, Texas, native and a junior majoring in economics, computer science, and political science, is on a fact-finding mission, collecting and interpreting data on the state of manufacturing in Iowa.

Diaz is also researching renewable energy for an Industries of the Future project supervised by CIRAS staff Tim Sullivan.

At the engineering end, aerospace engineering senior William Griebel is applying his knowledge of materials, mechanics, and statics as well as finite element analysis and airflow to CIRAS projects. "I think the projects have helped clients, either by confirming their ideas about a product or suggesting possible problems or improvements," said Griebel, who was able to use new software programs, like SolidWorks and COSMOS/Design Star, to tackle engineering problems.

Along with Diaz and Griebel, two other students—Michael Larson and Carissa Roenfeldt—contributed to CIRAS projects over the summer.

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Capital-intensive start-ups can take advantage of new tax relief

By Tim Sullivan, CIRAS

A portion of the Job Creation and Worker Assistance Act of 2002, recently signed into law by President Bush, provides high-impact tax relief and economic stimulus for businesses. This information, made available to CIRAS at a recent Advisory Council meeting, is especially useful to capital-intensive start-up businesses looking for faster cost-recovery avenues.

For example, business start-up costs can receive a new bonus depreciation over and above the normal first-year depreciation costs. This includes an additional depreciation deduction, which is equal to 30% of the “adjusted basis” (usually the cost) of eligible property. Taxpayers can take a Section 179 expense deduction, followed by a bonus depreciation deduction in the first year and a normal depreciation deduction in the first year, calculated in that order.

Eligible property must meet several requirements including MACRS (Modified Accelerated Cost Recovery System) and

specific Internal Revenue Service rules on business equipment and property depreciation costs. Cost recovery is also dependent on how capital intensive the business is and the depreciation options available. In addition, the act also allows net operating losses arising from tax years that end in 2001 or 2002 to be carried back five years. Previously, such losses could be carried back only two years.

Businesses are strongly advised to consult with their accountants for additional information and to determine their eligibility.

For more information, go to www.irs.gov and type “Job Creation and Worker Assistance Act of 2002” in the search box. This site provides detailed information on eligibility and important deduction deadlines.

IPOC

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- obtain information on 15 million items the government buys on a regular basis, as well as provide copies of over 50,000 federal, military, and industrial specifications
- help locate bar coding suppliers, review bid documents, get information on contract administration, and help businesses understand the entire procurement process

Although IPOC's primary business is procurement assistance, it is also active in the Best Manufacturing Practices (BMP) program. IPOC is a BMP satellite center. The purpose of a satellite center is to provide regional representation and awareness of the BMP program.

The Iowa Satellite Center's strategic focus is to implement advanced manufacturing practices and electronic commerce between original equipment manufacturers (OEMs), first-tier manufacturers, and small-/medium-sized manufacturers. These lower-tier vendors provide the majority of manufactured components for most OEMs in the U.S.

IPOC is part of the CIRAS team, and its offices are located at the main CIRAS office in Howe Hall at ISU. It is funded under a cost-sharing agreement between the Defense Logistics Agency (DLA), the State of Iowa, and Iowa State University.

If you have questions or concerns about government contracting, or are interested in registering with IPOC, call 800-458-4465 or e-mail kbryan@ciras.iastate.edu.

Economic growth

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The EDA recently established new guidelines that emphasize the importance of project results as a measure of funding accountability. Under these guidelines, the EDA will continue to target resources in economically distressed communities. It will also expect these investments to both generate lasting, long-term economic growth and achieve the highest return on taxpayer contribution. The returns will be measured in how they attract private capital investment and create high-wage jobs.

CIRAS was recently approved to continue receiving EDA funds and will collaborate with Iowa manufacturers and entrepreneurs under the guidelines. The University Center is focusing on projects that meet the following guidelines:

1. Product and process design improvements must maintain or expand current market share.
2. Develop new products within an existing manufacturing company.
3. Work with start-up companies to resolve their product design and productivity needs.

These projects will also be required to show evidence of a high level of success and the ability to generate economic benefits such as increased revenue, sales, or an ability to add or retain jobs.

For more information on EDA, contact John Roberts at 515-294-0932; jroberts@ciras.iastate.edu

Cutting lead time

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Kanban project outcome

Although the team has not completed all its objectives, it has achieved significant improvements in key metrics:

1. Labor hours were reduced by \$29,000, with these savings immediately passed along to customers.
2. Raw material inventory was reduced by \$150,000, with resulting savings in cost of capital.
3. Funds freed up by a reduced inventory were used to grow the business.

“As the Britz-Heidbrink executive team formulated our business plan and strategy,” says Palmer, “we recognized that on-time delivery, superior quality, and competitive pricing would be required to effectively capture market share. We sought and found the most direct, cost-effective means to our objective in lean manufacturing.”

Standard work/lead time reduction team

Based on the success of the first team, Palmer asked Black to facilitate a second team with the following objectives:

- Develop a customer service system that captures all customer specifications up front to improve customer communication and reduce multiple contacts for change orders.
- Convert customer service specifications into a work-order system that creates material requirements and collects labor hours, quality data, financial data, and lead time.

- Reduce lead time.
- Implement visual signals.

Standard work/lead time project outcome

The Kaizen team challenged some “sacred cows” in their processes, although team members were skeptical that people could be convinced to give up some of the “we’ve always done it that way” practices. Team discussions focused on convincing all members that each stakeholder would benefit if the new procedures were accepted. Key achievements to date include:

1. Establishing standard work procedures that covered a full process, from gathering customer specifications to building production to shipping and installation of the building
2. Developing a concept for implementing utility operators in pre-preparation to reduce lead time
3. Completing analysis of standard work, which identified tasks that would reduce lead time by 50%; so far, 40% of the lead time reduction has been accomplished

“The impact on our business was immediate,” said Palmer, who states that the results gained thus far have fully funded the investment in training. “The cash required to operate the business has been reduced, primarily due to the impact of our inventory reductions and minor throughput improvements. I am eager to take the lean manufacturing effort to the next level,” he adds.

For more information about lean manufacturing concepts and applications, review the Web link at <http://www.ciras.iastate.edu/publications/CIRASNews/2001Spring.pdf> or contact Jim Black at 515-294-1507 or jimblack@ciras.iastate.edu.

RP technology

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Currently, the CIRAS product development team is working on three projects using RP machines combined with rapid tooling technology. They include:

- A concept design development project for the Maytag refrigeration division, where rapid prototyping is being used to create initial communication models.
- Fabricating new product prototypes for Randolph Dental in Burlington, Iowa, using its 3-D system’s stereo lithography (SLA) machine.
- A new product development project with Geni-Sus, Inc., in Des Moines to create concept models, ear molds, and functional prototypes.

For more information on RP techniques and uses, visit the CIRAS Web site at www.ciras.iastate.edu or contact John Roberts at 515-294-0932; jroberts@iastate.edu.

CIRAS lends a helping hand



Three teams of engineering students modified a toy tractor donated by John Deere for 3-year-old Colby, who has cerebral palsy. The semester-long project was one of 20 “physical assist” devices developed by Iowa State students for those who face physical challenges. The tractor project was made possible when a CIRAS staff Tim Sullivan responded to a request from Colby’s physical therapist.

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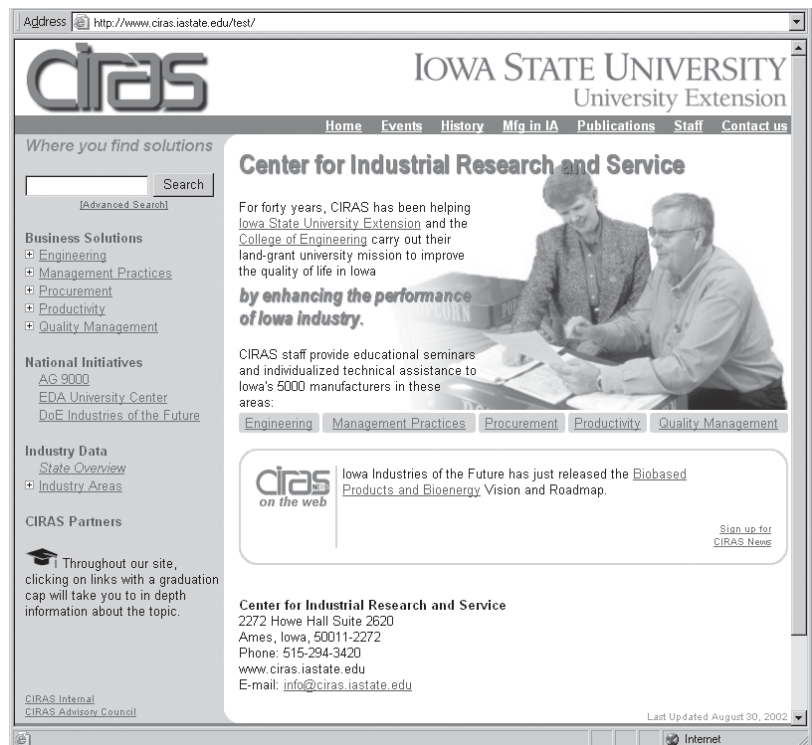
CIRAS Web site gets new look

If it's more information you're looking for, you've got it! The newly redesigned CIRAS Web site provides additional technical and management information along with services and expertise that CIRAS provides to Iowa manufacturers and companies.

The site features industry statistics, in-depth information on a variety of topics important to manufacturers, and case studies and workshop descriptions that show how CIRAS can help Iowa companies increase productivity and enhance customer and employee satisfaction.

"New features include a search engine and events calendar," says CIRAS computer and technology specialist Chris Thach, who redesigned the site.

"The new Web site will make it easier for Iowans to find out what CIRAS can do for their companies," he adds.



Visit the Web site at <http://www.ciras.iastate.edu> and see what CIRAS can do for you!