

INSIDE

NAFTA essentials for
manufacturers

Page 3

Creative Composites
gets "sound"
assistance
in quality control

Page 4

West Central
SoyPOWER®

Page 6

Need business advice?
It pays to know (the)
SCORE

Page 7

CIRAS forms
partnership with Meat
Science Extension

Page 8

Biobased Industry
Outlook Conference

Page 9

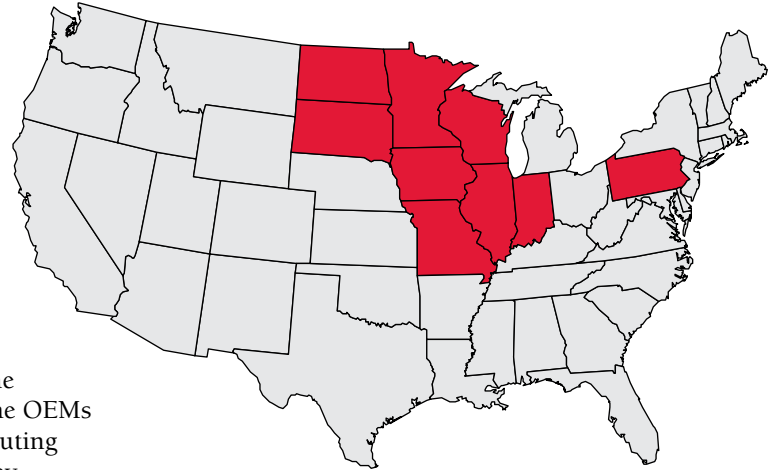
CIRAS partners for OEM supplier development

By Jim Black, CIRAS

To remain competitive in a global environment, original equipment manufacturers (OEMs) must improve the effectiveness of their supply chains. Some OEMs are taking a proactive approach by instituting supplier development (SD) with their key suppliers. This assistance recognizes several current realities:¹

- To be competitive, products must meet customer requirements at a competitive cost.
- Each process and component must be customer-oriented and cost competitive.
- While lean initiatives have flourished in many OEMs, lean has not fully permeated the chain of OEM suppliers.
- Until all links in the supply chain effectively practice lean and focus on eliminating non-value adding activities, the final product cannot be provided to customers at the best possible price and delivery.
- Some suppliers lack resources to implement lean, while some still think OEM needs can be met by large batch size runs and large finished goods inventories.
- Some OEMs have turned to offshore suppliers for some components. As a result, some suppliers are losing sales, while the OEMs have increased uncertainty in their operations due to long lead times, quality concerns, and lost flexibility.
- Better cooperation between OEMs and their suppliers would clearly be mutually beneficial.
- Collaboration with manufacturing extension partnerships (MEPs) provides suppliers with expertise plus independent facilitation of projects that builds trust.

¹ Source: Original Equipment Manufacturers – Supplier Development (OEM-SD) manual developed by Wisconsin Manufacturing Extension Partnership (WMEP).



Nine states (shown in red) participate in OEM SD programs.

Background

Wisconsin Manufacturing Extension Partnership (WMEP) initiated an approach to address these issues with three OEMs, headquartered or operating key plants in Wisconsin. To ensure consistent implementation for suppliers located in different states, two key requirements were a standard delivery process and skilled facilitators for delivery. WMEP addressed these needs by utilizing the MEP system to deploy the training. As the manager of the MEP program in Iowa, CIRAS was invited to partner with WMEP in the program.

To help Iowa suppliers to OEMs, CIRAS joined a consortium consisting of MEPs from nine states: Illinois, Indiana, Iowa, Minnesota, Missouri, North Dakota, Pennsylvania, South Dakota, and Wisconsin (see U.S. map). Three OEMs initially requested assistance from the consortium—John Deere, Harley-Davidson, and Oshkosh Trucks. CIRAS partnered with qualified community college and consulting service providers to assist in program delivery.

Supplier Engagement

OEMs invited their key suppliers to discuss the new approach. During the initial conference, the OEMs explained that their improvement depended on the competitiveness of their

Continued on page 10



Center for Industrial Research and Service
2272 Howe Hall, Suite 2620
Iowa State University
Ames, Iowa 50011-2272

CIRAS Web site: www.ciras.iastate.edu

515-294-3420 / Fax 515-294-4925

CIRAS Mission Statement

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

CIRAS

Ames

Ronald Cox, PhD—CIRAS Director
Root Cause Analysis
515-294-9592 • rcox@iastate.edu

Jim Black, CLM, CSSBB, Jonah
Lean Manufacturing; Six Sigma; Strategic Planning
515-294-1507 • jimblack@iastate.edu

Alexandre Kisslinger, CEM
Energy Audits; Energy Management; Industrial Ventilation
515-294-1588 • alexkr@iastate.edu

JoAnn Miller
CIRAS Business Manager
515-294-4449 • jvmiller@iastate.edu

Jeff Mohr, PE, Jonah
Lean Manufacturing; Noise Control; Project Management
515-294-8534 • jeffmohr@iastate.edu

Sharmon Norris
Bid Preparation Assistance; Post Award Assistance; RFID
515-294-5240 • sharmon@iastate.edu

Mark Reinig
College of Engineering
Economic Development
515-294-7883 • mreinig@iastate.edu

John Roberts, PE
Finite Element Analysis (FEA); Product Design; Product Testing
515-294-0932 • jarobert@iastate.edu

John Van Engelenhoven
Cranes/Monorails; Finite Element Analysis (FEA);
Plant Layout Simulation; Product Testing
515-294-4475 • jve@iastate.edu

Ankeny

Verlyn Anders, CPIM, CQA, Jonah
Compliance Audits; Failure Mode Effects Analysis (FMEA);
Feasibility Studies; Financial Management; Financial and Risk Simulation
Analysis; ISO 9000:2000; Strategic Planning
515-231-4497 • vanders@iastate.edu

Kathleen D. Bryan
Bid Preparation Assistance; CCR and ORCA; Electronic Commerce;
Market Research; Post Award Assistance
515-289-0280 • kathyb@iastate.edu

Boone

Derek L. Thompson
North Central Iowa Account Manager
515-419-2163 • thompson@iastate.edu

Davenport

Steven Vanderlinden
Bid Preparation Assistance; Financial Management;
Post Award Assistance; RFID
563-336-3318 or 800-462-3255 • stevev@iastate.edu

Dubuque

Rudy Pruszko
Baldrige Quality Award; Biodiesel; Feasibility Studies
563-557-8271, ext. 251 • rpruszko@iastate.edu

Grundy Center

Ruth Wilcox
Northeast Iowa Account Manager
515-290-1134 • rwilcox@iastate.edu

Lewis

Jill Euken
Biorefining
712-769-2600 • jeuken@iastate.edu

Marion

Paul A. Gormley
Southeast Iowa Account Manager
319-377-9839 • gormley@iastate.edu

Pella

Steven Devlin
Federal Biobased Products Preferred Procurement Program (FB4P)
641-613-3297 • sdevlin@iastate.edu

Steven J. Winter, PhD, PE
Feasibility Studies; Product Design; Strategic Planning
641-613-3297 • sjwinter@iastate.edu

Sioux City

Robert R. Coacher
Western Iowa Account Manager
515-419-2162 • coacher@iastate.edu

Merle Pochop

Compliance Audits; Baldrige Quality Award; Customer Satisfaction;
Failure Mode Effects Analysis (FMEA); ISO 9000:2000; Root Cause Analysis
712-274-0048 • pochop@iastate.edu

Urbandale

Timothy T. Sullivan, Jonah's Jonah
Operations/Production Management; Project Management;
Theory of Constraints; Supply Chain/Distribution Management
515-727-0656 • sullytt@iastate.edu

Waterloo

Michael Willett
Operations/Production Management; Plant Layout Simulation;
Process Simulation; Theory of Constraints
319-433-1286 • mwillett@iastate.edu

Engineering Distance Education

www.ede.iastate.edu

Paul Jewell
515-294-1827 • pjewell@iastate.edu

The Center for Industrial Research and Service (CIRAS) provides education, research, and technical assistance to Iowa industry through partnerships with Iowa's universities and community colleges, government agencies, and professional associations. Assistance is supported in part by the DoC/NIST Manufacturing Extension Partnership, the DoD Procurement Technical Assistance Program, and the DoC/EDA University Center Program.

And justice for all... Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, 3680 Beardshear Hall, 515 294-7612. ECM 06474

NAFTA essentials for manufacturers

By Allen Patch, Commercial Service, U.S. Department of Commerce

In January 1994, the United States, Canada, and Mexico launched the North American Free Trade Agreement or NAFTA, thus forming the world's largest free trade area. The agreement has brought economic growth to all three areas; in the U.S., trade with Mexico and Canada, for example, has increased 200 percent. New free trade agreements have added Australia, the Central American Free Trade Agreement plus Dominican Republic (CAFTA-DR), Chile, Israel, Jordan, Morocco, the North American Free Trade Agreement (Canada, USA, Mexico), and Singapore. In total, seven free trade agreements are currently in implementation with the United States. The Office of the U.S. Trade Representative is moving forward with the negotiation of new free trade agreements that will create expanded opportunities for U.S. manufacturers. At the time that this article was being written, a full 18 regional and bilateral free trade agreements appeared on the Web site of the Office of the U.S. Trade Representative (www.ustr.gov).

What is behind the expansion of free trade agreements (FTAs)? Stalled over debate on agriculture, the World Trade Organization (WTO), currently in the Doha round of negotiations, has been unable to make hoped-for progress in opening markets to manufactured goods. Free trade agreements have emerged as an alternate to the WTO. They achieve significant improvements in market access through tariff reductions and eventual phase-out of tariffs. Building on the success of NAFTA, expanded FTAs provide manufacturers with market growth opportunities. The caveat is that in order to exploit these opportunities, companies must build their expertise in understanding each agreement, particularly the details of the product origin requirements. If FTAs are here to stay, it is worthwhile to understand some of the details and common aspects of each of them.

What is a free trade agreement? As a treaty between two or more countries, an FTA allows for a reduction and eventual elimination of tariffs on goods produced in a partner country and shipped to another partner. An FTA treaty such as NAFTA provides very specific terms to describe how goods may qualify for tariff-free entry. The origin criterion is the specific rule under which goods may be declared as qualifying for the privilege of tariff-free status. Just because a certain product is produced in the United States does not automatically mean that it meets the rules of origin under NAFTA.

NAFTA provides product-specific rules of origin. Shippers can claim a NAFTA preference for their goods based on their own determination but should be prepared to justify their claim if it is challenged. The following six steps provide a general outline of the administrative process that

companies go through to properly qualify their goods for shipment to Canada or Mexico with tariff-free treatment.

1. Classify the product correctly according to the Harmonized Tariff System.
2. Determine the most favored nation (MFN) or the usual duty rate applied across the board. If the tariff is already zero, no analysis or documentation is required or needed. The difference between the MFN tariff and the preferential FTA tariff is the net savings from the free trade agreement.
3. Identify the specific rule of origin that applies to the product. Virtually all manufactured goods will qualify under a specific rule.
4. Use a bill of material showing a cost breakdown to determine whether or not the product satisfies the rule for NAFTA origination.
5. Prepare a NAFTA certificate of origin showing preference criterion "b" as the basis of your claim. The "b" indicates that you are basing the claim on a product-specific rule.
6. Proceed with the shipment. Retain all records for at least five years in case of a NAFTA compliance audit.

The above steps apply to NAFTA and all product-specific free trade agreements. NAFTA, Chile, Singapore, Australia, and CAFTA-DR are all based on product-specific determination.

Our FTAs with Israel, Jordan, Morocco, and Bahrain are based on "substantial transformation." Substantial transformation FTAs simply specify a minimum percentage of the cost or value of the good, for example 35 percent, that must come from the United States. The U.S./Israel FTA states that the product must be "substantially transformed into a new and different article of Commerce" in order to qualify for tariff-free entry.

While NAFTA is here to stay, additional FTAs are key to the U.S. strategy to gain access to world markets. All free trade agreements require some form of documentation of the origin of goods. NAFTA compliance is a professional function that should be performed and documented well before the date of shipment.

The U.S. Department of Commerce maintains a detailed Web site (www.export.gov/fta) on all free trade agreements (see *Free Trade Agreements for Americans, The Mechanics of U.S. Free Trade Agreements in Goods*, by Frank Reynolds, 2004 International Projects Inc., Toledo, Ohio).

For information on NAFTA, please contact the Iowa Export Assistance Center of the U.S. Department of Commerce at 515-288-8614. ■

Creative Composites gets "sound" assistance in quality control

By Dave Utrata, Center for Nondestructive Evaluation

Founded in 2002 in Brooklyn, Iowa, Creative Composites manufactures natural fiber-reinforced composites for use in a variety of applications, including noise-control acoustic panels. The company's focus is the development of technologies, products, and manufacturing processes for such products, also referred to as biocomposites. Biocomposites combine plant fibers with resins to create natural-based composite materials.



Figure 1: Air-coupled ultrasonic transducers are scanned over kenaf-reinforced panels.

A variety of plant fibers with high tensile strength can be used, including kenaf, industrial hemp, and flax. Fibers can be combined with traditional resins or newer plant-based resins. The result is a plant-based alternative for many traditional steel and fiberglass applications.

Creative Composites worked with the Center for Nondestructive Evaluation (CNDE) group of IPRT Company Assistance to explore how nondestructive tests could be applied to their panels. This was done to determine the potential of tools such as ultrasonic inspection for quality control applications in production and development. Dave Utrata (Iowa State University's Center for NDE and IPRT Company Assistance) utilized air-coupled ultrasonic inspection to characterize the biocomposite panels. Such testing does not require test probes to contact the test pieces nor the use of fluid couplant common in ultrasonic tests. The testing was performed to determine if unusual or severe inhomogeneities were present in the panels. The application of ultrasonic testing for quantitative information requires the use of calibration standards. Since such standards don't exist for new products, the inspector manipulated test parameters until a good set of qualitative information was obtained from

samples. After ensuring that the inspection would provide suitable information, a variety of panels was tested.

Figure 1 shows a panel from Creative Composites being tested at the Center for NDE. Two air-coupled ultrasonic transducers were used, one to send an airborne pressure wave through the panel and the other to receive the transmitted signal. The probes were attached to a yoke, with motor control moving the pair over a scan region of the panel. The amplitude of the transmitted signal was recorded at each point of the scan.

Figure 2 is a photo of the particular geometry of a test panel. The precise nature of the features of the panel is proprietary. The main interest during testing was to determine if the three distinct regions of the panel exhibited uniform properties. Conceivably, better control over the behavior of the different regions, as seen by the ultrasonic test, will result in more optimal control over the panel's acoustic properties.

Figure 3 shows the test result—a C-scan of the panel. A C-scan is a record of the amplitude of an ultrasonic signal transmitted through the panel, collected point by point as the probes are scanned over the test panel. The amplitude levels are plotted using a pseudo-color scale, creating an image that relates spatially to the test piece, giving a sort of "picture" of the panel.

Looking at the scan results, it is apparent that various regions of this test panel demonstrated only a generalized correlation to the panel features. The disc regions show

Help with inspection, quality issues

The NDE group of IPRT Company Assistance helps Iowa companies address technical problems dealing with inspection and quality. Iowa manufacturers can receive up to 40 hours of support on NDE-related matters at no cost. Building on strong research capabilities, the work focuses on education and technology transfer of inspection principles to the manufacturer. Services include explaining and demonstrating the principles of various NDE methods, developing or evaluating current inspection procedures, and performing feasibility studies to determine the best NDE methods that will work for a specific application. A project can be initiated with a simple phone call or e-mail message.

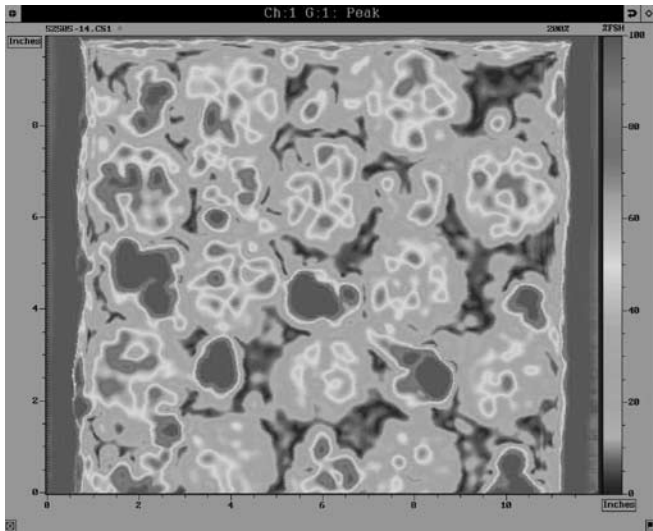
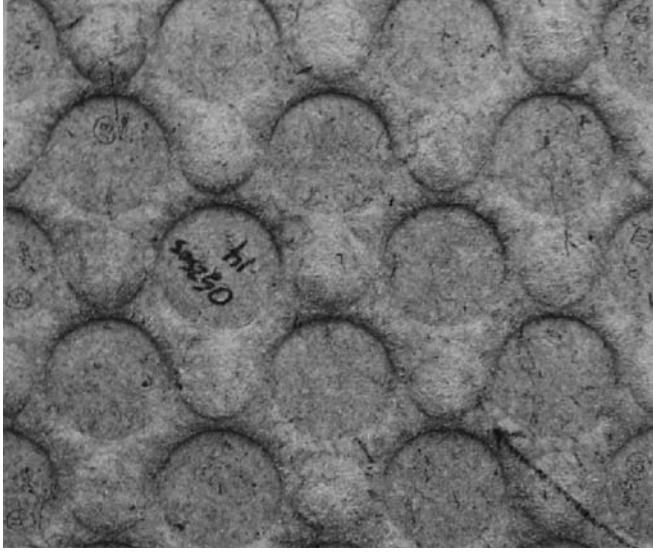


Figure 2 (top): This photo shows the physical features of the panels' surface. Figure 3 (bottom): A transmitted signal map shows variation in signal strength for apparently similar features.

generally green/yellow/red colors that correspond to a mid-range of transmitted signal. The peak level, or purple color, represents a very high amplitude signal that was seen at certain node regions, but not all. Some nodes exhibited a very low amplitude signal, as indicated by blue regions. This information does not immediately tell us what is actually taking place at these regions.

It is premature to jump to conclusions from data at this point, notwithstanding that such scans make for images that cry out for “intuitive” interpretation. However, the results do indicate that sometimes even adjacent nodes in these panels may behave very differently in the ultrasonic test. It is known that an interior disbond between plies of the biocomposite would effectively kill the transmitted signal. However, a highly attenuative or scattering region of material would do the same. Some destructive testing correlated to the nondestructive results will inevitably be needed for referee interpretation.

Further, it is not clear to what extent the detailed information derived from ultrasonic testing correlates to the overall acoustic performance of a panel. Conceivably, it is

desirable that various geometric features of the panels, such as the disk, ridge, and node regions, show similar ultrasonic transmission behavior. Such conclusions would need to be drawn through a comparison of acoustic performance tests on panels with the nondestructive characterization of the same panels; this collaborative work is ongoing.

If such a comparison shows merit for the nondestructive characterization of the panels, this inspection technique could be adapted to the production line for virtually 100% quality control and assurance. This would nicely complement the company's goal of commercializing biocomposites in a wide range of value-added products.

Positive impact is anticipated from this collaboration of novel product manufacture and informed inspection. For example, an office panel that previously used a steel frame to hold a fiberglass core can now be replaced with a single biocomposite panel.

Nondestructive evaluation techniques have typically been applied to engineering materials such as steel and aluminum. While flaw detection is the most common usage of NDE in practice, these methods may also be used for the characterization of both structure and composition of test samples. This project is an example of NDE methods applied to “nontraditional” materials, which has included soy-based greases and foodstuff. Such activity is of ongoing interest, and the author welcomes any questions or comments along that line. The CNDE group is an arm of the Institute for Physical Research and Technology's Company Assistance effort.

For more information on CNDE or IPRT Company Assistance, please contact Dave Utrata at 515-294-6095; heydave@iastate.edu.

Energy Efficiency Workshops

Along with partners, CIRAS is organizing a series of energy efficiency workshops. The first and second workshops will focus on motors and refrigeration systems, respectively. The first event is expected to take place in late summer and will bring information on motor systems efficiency. The industrial refrigeration training will take place in October. Please visit <http://www.ciras.iastate.edu/energy/workshops.asp> for detailed information and exact event dates.

For more information on these events, please contact Alexandre Kisslinger at 515-294-1588; alexkr@iastate.edu.

West Central SoyPOWER®

By Verlyn Anders, CIRAS

West Central achieved Accredited Producer status through the National Biodiesel Accreditation program in May 2005. At the time, the company was only the second in the industry to achieve certification. CIRAS assisted with the implementation of this standard, which is the biodiesel industry quality assurance program.

The program is intended to ensure that all biodiesel produced meets ASTM D-6751 specifications. As a member of the National Biodiesel Board, West Central was instrumental in establishing the new standard.

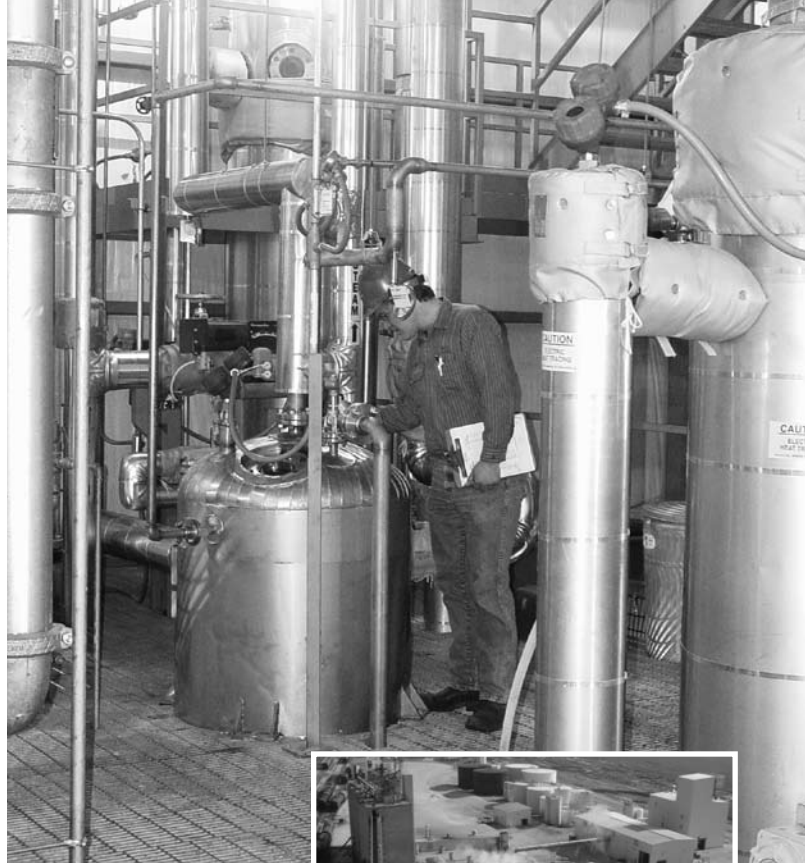
The standard assures quality of the biodiesel product produced and shipped through a documented system of management, production, fuel storage, shipping, and product testing. ASTM D-6751 Specification for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels is the product specification part of the standard. Each load of biodiesel is shipped with a certificate of analysis.

Tim Sullivan, quality systems manager, and Larry Breeding, general manager of the biodiesel operation, said certification provides differentiation in the market along with other benefits. The Renewable Energy Group (REG) will be able to transfer technology to other sites through system procedures and work instructions, which will aid employee training and establishment of the test lab.

In January 2005, West Central requested assistance from CIRAS' Verlyn Anders for implementation of the program. Anders is a specialist with the ISO 9001:2000 standard with over 14 years of experience in the field. West Central specifically requested assistance in training staff as internal auditors. With a certification audit set for March, Anders proposed a plan that involved a review of the standard with a focus on interpretation of the standard in terms of implementation. He also suggested a gap audit in February followed by a pre-certification audit in early March. For both audits Anders was assisted by CIRAS' Merle Pochop, another ISO specialist.

Using the findings from the gap audit of the existing quality system to the standard, the company worked to improve documentation, training, and other issues. The pre-certification audit affirmed that the company's quality system improvements had corrected system deficiencies, making the company ready for the certification audit.

West Central, Ralston, Iowa, an Iowa-based cooperative with 20 sites, is the leader in production of biodiesel under the brand name SoyPOWER®. West Central produces a dairy by-pass product, SoyPLUS®, which yields soy oil as a byproduct. As a result of experimenting with products to produce with the soy oil, the co-op established a batch



Above: Scott Kingery, West Central process engineer, inspects levels in a vessel. Inset: The soy processing center at West Central's Ralston location.

plant to produce biodiesel in 1996. Due to continual increasing demand, in 2002 a 12-million-gallon continuous-flow plant was built. This plant was the largest United States biodiesel plant until SoyMor, a 30-million-gallon plant, opened in Minnesota in August 2005.

West Central formed REG in 2002 with Ames' Todd & Sargent, an agriculture construction company, to engineer and build turnkey biodiesel operations. Turnkey means REG provides everything from site selection to start-up, including quality documentation and laboratory, personnel training, and management. REG built and trained the staff at the Minnesota facility.

Another REG 30-million-gallon production plant, Western Iowa Energy LLC, located in Wall Lake, Iowa, received the 2005 "Outstanding Business of the Year" Venture Award from the Iowa Area Development Group. This plant will be the nation's largest multi-feedstock biodiesel plant using soybean oil as well as other oils, animal fats, and yellow grease.

Anders recently provided additional assistance by training internal auditors for both the West Central and a Minnesota plant erected and staffed through REG.

For more information, please contact Verlyn Anders at 515-231-4497; vanders@iastate.edu.

Need business advice? It pays to know (the) SCORE

By John Langin, Des Moines District Director for SCORE

Whether you're looking to start your own business or you're already in business and you need some help, it's not always easy to know where you can go to get the expert business advice and assistance you need. SCORE—"Counselors to America's Small Business"—is a nonprofit association dedicated to entrepreneurial education and the formation, growth, and success of small business nationwide. More than 10,500 volunteer counselors provide individual counseling and business workshops for aspiring entrepreneurs and small business owners.

Created in 1964, SCORE has assisted more than seven million Americans with face-to-face and online small business counseling. Sponsored by the U.S. Small Business Administration (SBA), SCORE works in cooperation with the SBA to provide entrepreneurs with information vital to their success, including counseling on loans and financial options, business planning, marketing strategies, product development, and more. SCORE members can work with entrepreneurs through every phase of their entrepreneurial venture, providing information and advice on everything from how to write a business plan, to cash flow management, to growing your existing business.

Even entrepreneurs who never applied for an SBA loan can use SCORE's services. All an entrepreneur needs is the desire to get started in his or her own business or the need to seek assistance with an existing business's problem. From its inception, SCORE's mission has been focused on the American dream of small business ownership. SCORE's unique service is based upon the idea of giving back to the community—in this case the local business community. SCORE members include retired or working business owners, business executives, and operations managers who volunteer their time and expertise to assist small businesses. With the exception of a modest fee for their workshops, SCORE assistance is free and confidential, and all SCORE members have received specialized training by the association.

There are 17 SCORE chapters with over 200 volunteer members serving Iowa, with locations in Burlington, Cedar Rapids, Clinton, Council Bluffs, Decorah, Des Moines, Fort Dodge, Iowa City, Marshalltown, Mason City, Muscatine, Ottumwa, Quad Cities, Sioux City, Spencer, Storm Lake, and Waterloo. These chapters can help you with your small business needs in a variety of ways.

Counseling

Small business owners wear many different hats. On any given day you manage product development, marketing, sales, operations, personnel, and finances. SCORE's experienced business counselors can help in areas where your expertise may fall short. There are even SCORE counselors available in Iowa with expertise in industrial engineering and manufacturing. Bill Galloway of Newton, who's a member of both the Des Moines and Marshalltown SCORE chap-

ters, has assisted several Iowa manufacturing (and related) businesses since joining SCORE in 1997, including

- **Heavy Equipment Manufacturing** of Grundy Center, a leader in the manufacture of construction equipment for the concrete paving industry, including slip form pavers, form riding pavers, grade trimmers, texture/cure machines, work bridges, and more; all equipment is built in the Grundy Center facility and used across the U.S. and around the world
- **Scranton Manufacturing Company, Inc.**, in Scranton, makers of affordable refuse equipment (garbage trucks), including front loaders, rear loaders, satellite bodies, recycling bodies, side loaders, and automated side loaders in a variety of sizes
- **Progress Industries** in Newton, an organization that provides rehabilitation services for mentally and physically disabled adults, including community job placement and on-site job opportunities that include subcontracting, assembling, and packaging

Business counseling relationships can last just a few sessions or a number of years, based on your needs as an entrepreneur. Prepare for your counseling session by arriving with a well-thought-out idea, preliminary business plan, and other information that will help you maximize your one-on-one consultation. SCORE volunteers sometimes counsel in teams, bringing specific strengths to the table. Counselors can also visit you at your place of business to learn firsthand about your venture and your needs.

Workshops and Seminars

Several of the SCORE chapters in Iowa offer low-cost business workshops and seminars for both start-up and in-business entrepreneurs. These workshops cover a variety of topics, including business plans, financing, accounting, legal considerations, insurance, marketing, tax requirements, and personal factors.

Online Counseling and Assistance

In addition to working one-on-one with SCORE counselors here in Iowa, entrepreneurs can also take advantage of SCORE services via the Web at www.score.org. With more than 2,000 pages of content, this how-to site provides practical solutions and suggestions on a wide variety of business issues. Choose from among 1,200 e-mail counselors who are ready to assist you 24/7 and provide advice straight to your e-mail. Along with e-mail counseling, you'll find an online Learning Center that contains informative "how to" articles. You can also check out the Business Toolbox for a list of online resources as well as business plan templates, quizzes, and workshops. Don't forget to sign up for SCORE's eNewsletters for new ideas, fresh insights, and small business tips.

For more information on SCORE and to get contact information for the SCORE chapter in Iowa nearest you, visit www.score.org today, or contact the Des Moines SCORE chapter at 515-284-4760. ■

CIRAS forms partnership with Meat Science Extension

By Joe Cordray, Professor, and Matt Wenger, Program Coordinator, Animal Science

A new partnership between CIRAS and the Iowa State University Department of Animal Science Meat Science Extension means more training programs and plant consultations for Iowa meat-processing companies.

Iowa has 298 meat companies; 122 are federally inspected and 176 are State of Iowa inspected. Iowa meat companies are involved in a wide variety of activities including harvesting of livestock, production of raw products, and production of ready-to-eat products. The industry produces quality products that are in high demand by regional, national, and international consumers.

Training sessions and plant consultations will focus on manufacturing techniques and food safety. Sessions will be co-sponsored by the Iowa State University Meat Science Extension program, which has a long-standing reputation of excellence.

CIRAS co-sponsors labeling workshop for meat processors

CIRAS was a co-sponsor of a meat labeling workshop held in February as part of the annual meeting of the Iowa Meat Processors Association in Ames. Other co-sponsors were: Iowa State University Meat Science Extension, Iowa State University Department of Animal Science, Iowa Meat and Poultry Inspection Bureau, and the Iowa Meat Processors Association.

Sixty-five meat processors from across the state participated in the workshop. Topics covered included meat product labeling requirements, how to put a sketch label together, creating an ingredient statement, formulating strategies, and state of Iowa labeling procedures. Each individual who successfully completed the short course was designated an Iowa Meat and Poultry Inspection Bureau Trained Labeling Specialist. For the safety of consumers, it is extremely important that meat products be accurately formulated and labeled. Meat products contain many restricted ingredients such as curing ingredients and antimicrobials that must not be used in excess of regulatory requirements. It is also very important that all allergens be properly listed and that regulatory requirements are met when labeling products with special claims, such as organic or lower salt.



The new partnership will result in the scheduling of several courses focused on different aspects of improving processed meat production for greater efficiency and cost effectiveness. Potential topics include: basic meat science; nonmeat ingredients; sausage casings and molds; cooking, smoking, and drying; fresh sausage production; cooked sausage production; dry and semi-dry sausage production; ham and bacon production; packaging; pre-cooked meats; reduced fat products; microbiology; and quality assurance. Programs and plant consultations will be designed to assist meat processing companies in producing high quality, consistent products with exceptional flavor and texture that can be marketed at competitive prices.

Food safety is of paramount importance to both manufacturers and consumers. A major food safety problem can be devastating to a meat processing company, perhaps even forcing the company out of business. CIRAS and Meat Science Extension will actively co-sponsor food safety training activities. Topics to be covered include sanitation standard operating procedures (SSOPs) and hazard analysis and critical control point (HACCP) systems. Both SSOPs and HACCP are a mandated part of the manufacturing monitoring process in meat plants. SSOPs address steps to be taken before and during processing to ensure that sanitary conditions and procedures are followed. HACCP is a proactive system that ensures the safe production of food products and is based on the following seven principles:

- hazard analysis
- identifying critical control points
- establishing critical limits
- monitoring
- corrective action
- record keeping
- verification

HACCP's basic premise is that ongoing process control is better than end-product inspection. Programs will address both the development of SSOPs and HACCP and periodic reassessment, which is necessary to ensure that SSOPs and HACCP systems remain current. Additional program topics might include good manufacturing procedures, standard operating procedures, and new regulatory issues.

In November 2004, *Meat and Poultry Magazine* ranked Iowa State University Meat Science Extension as the

Continued on page 11

Three join advisory council

The CIRAS Advisory Council recently welcomed three new members. The new members are Lorraine Koekenhoff, Augusto Fernando Liska, and Daryl Krieger.



Lorraine Koekenhoff is operations manager at Shaver Manufacturing Company, the leading U.S. manufacturer of fencing equipment providing post drivers and post-hole diggers commonly used by livestock producers, landscapers, nurseries, vineyards, and in light industrial applications. The company was founded in 1944 in Graettinger, Iowa.



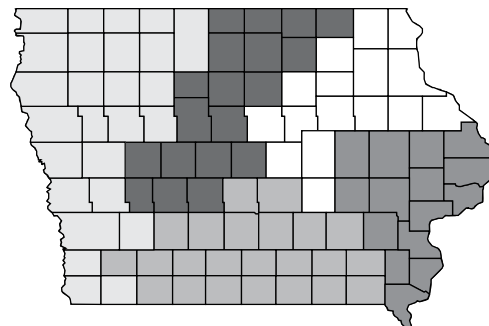
Augusto Fernando Liska serves as global commodity manager, castings and machined castings, at Sauer-Danfoss. Located in Ames, Iowa, Sauer-Danfoss is a worldwide leader in the design, manufacture, and sale of engineered hydraulic and electronic systems and components for use primarily in applications of mobile equipment.




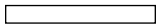



Daryl Krieger is general manager, fabrication, at Winnebago Industries in Forest City, Iowa. Founded in 1958, Winnebago Industries, Inc., is best known for being a leader in building quality motor home products (self-contained recreation vehicles used primarily in leisure travel and outdoor recreation activities).

Account territories

Account managers provide initial manufacturing needs assessments and also explore and match resources to client needs. The state of Iowa has been divided into five account managers' territories. Currently CIRAS has four account managers covering the five territories. Their contact information follows.



- North Central** 
Derek Thompson, thompson@iastate.edu, 515-419-2163
- South Central** 
Derek Thompson (temporary assignment)
- Southeast** 
Paul Gormley, gormley@iastate.edu, 319-721-5357
- Northeast** 
Ruth Wilcox, rwilcox@iastate.edu, 515-290-1134
- Western** 
Bob Coacher, coacher@iastate.edu, 515-419-2162

Biobased Industry Outlook Conference

The fourth annual Biobased Industry Outlook Conference will feature a slate of nationally renowned speakers, including the former director of the CIA. James Woolsey, who led the agency from 1993 to 1995, will discuss enhancing national security by significantly increasing the production and use of biofuels and other bioproducts. Other speakers include Lee Lynd, professor of engineering, Dartmouth College, who will describe different types of bioenergy production; and Vinod Khosla, founding CEO, Sun Microsystems, and Bob Egerton, commercial agribusiness division manager, Co-Bank, who will describe their vision for supporting the continued growth of the bioeconomy.

The event will be August 28 and 29 at Iowa State University. Electronic registration will be available beginning July 1.

The annual Biobased Industry Outlook Conference has established a reputation for providing current information on manufacturing, distributing, and

marketing of biobased products to industry and community leaders, academicians, and government agencies. In 2005, the two-day event attracted over 400 people. Conference organizers expect a large turnout this year as well.

In addition to the featured speakers, the conference will feature exhibits and breakout sessions on new and promising bioprocessing discoveries and market incentives for biobased products. Participants will also be able to experience a computer-based system that analyzes how harvesting energy crops and residues can impact soil.

Primary conference sponsors are Iowa State's Office of Biorenewables Programs and CIRAS. A complete list of sponsors, information on sponsorship and exhibition opportunities, and registration notification instructions are available at the conference Web site: www.bioeconomyconference.org.

Continued from page 1

best suppliers. The potential of this partnership was so important to the OEMs that they offered to pay the cost of MEP services while delivering Phase 1 (see Program Phases below) projects for their suppliers. This helped the suppliers to see the assistance as a nonthreatening form of partnering. OEMs further addressed lean benefits, the three-phase approach, code of ethics, and supplier buy-in. Selected suppliers and their OEMs developed charters including the following elements:

- business case
- situation and goal statement
- vision and mission
- project scope
- schedule and deliverables
- assignments and roles
- implementation
- savings
- change management support
- communication plan
- confidentiality

A subsequent meeting was held for OEMs, suppliers, and MEPs to review the program and schedule Phase 1 activities. The MEP facilitators were charged with providing unbiased, independent services, while maintaining total confidentiality. This permitted suppliers to share only the information they choose to share with their OEM (as opposed to the OEM sending a facilitator on site).

As the diagram illustrates, the traditional approach involves MEPs and OEMs interacting independently with manufacturers, while the OEM SD approach is based on MEPs and OEMs partnering to accomplish mutual goals.

For the last eight months, CIRAS Industrial Specialists Jeff Mohr and Jim Black have collaborated with qualified MEPs, community colleges, and outside consulting services

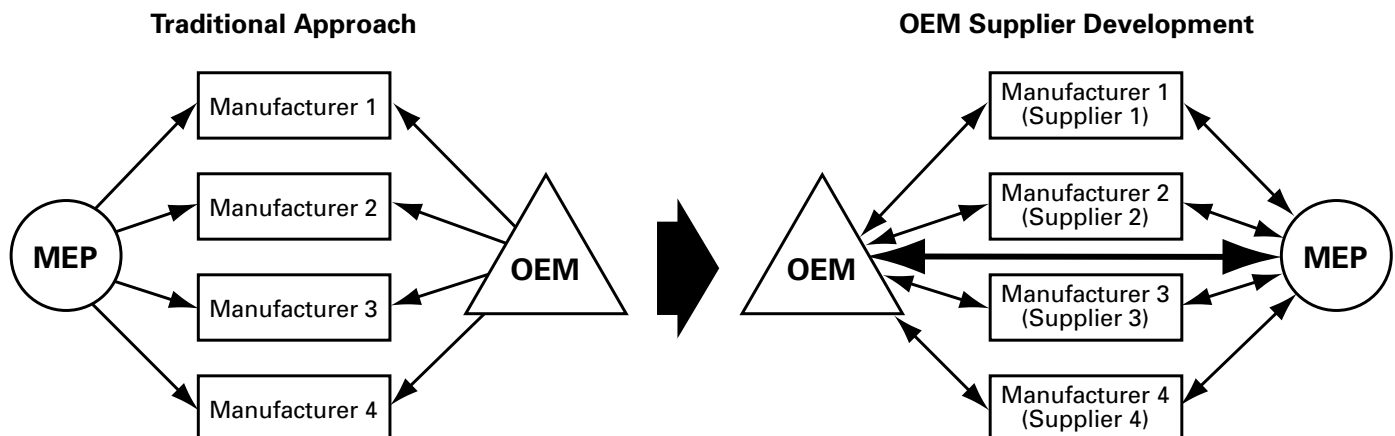
to provide SD assistance for OEM-selected suppliers. All service providers follow the process identified in the WMEP OEM/SD manual, assuring consistent delivery of the program.

Program Delivery

The MEPs facilitated value stream mapping (VSM) workshops and helped suppliers identify their manufacturing critical-path time (MCT), which is defined by WMEP as “the typical amount of calendar time from when a manufacturing order is created through the critical path until the first, single piece of that order is delivered to the customer.”

The case for identifying MCT as the new metric for efficiency of manufacturing operations was made in an article titled “Managing the Extended Enterprise,” co-written by Paul D. Ericksen, enterprise supplier development process lead, John Deere; and Rajan Suri, director, Center for Quick Response Manufacturing, University of Wisconsin–Madison. The authors, whose work appeared in the February 2001 issue of *Purchasing Today*, shared the following observation:

“Manufacturing Critical-path Time (MCT) is a high-level indicator of whether a supplier’s manufacturing operations are efficient. As such, it can be a primary indicator of both supplier order fulfillment flexibility and future viability. Quoted lead times often have no relationship to supplier MCT values, since the quoted lead times can be made much shorter than the MCT via stockpiling finished goods or partially completed components. Such inventory is obviously a waste of working capital. Worse, it can result in even greater waste if engineering changes require material to be scrapped or reworked, or demand falls significantly below what was forecast and the inventory cannot be used for an extended period.”



Conceptual model comparing OEM SD to traditional approach.

Further, they note, “the strongest asset of MCT, however, is that its use as a supply management metric supports and drives continuous improvement of the three traditional supply management metrics. As suppliers work to reduce their MCTs, their as-delivered quality, on-time delivery, and price performance also improve.” MCT is the key measure of supplier “lean-ness.” The summation of MCT, through supplier tiers, indicates the supply chain “lean-ness.”

Program Phases

For each Phase 1 project, six deliverables were developed, including:

1. current state VSM
2. future state VSM
3. VSM implementation plan
4. current MCT
5. future MCT
6. supplier buy-in to the lean-ness gap (current MCT minus future MCT)

Nine Iowa suppliers have completed their Phase 1 projects. During Phase 2, the suppliers will present their implementation plans to their OEM and use lean tools to carry out the projects identified in Phase 1. Ongoing project review meetings with OEMs will be held during the six-month project implementation window of Phase 2.

Phase 3 will continue the development of a lean culture within the supplier companies. Activities for this phase will include: (1) completion of the team (core, steering, project, and work) structure; (2) team/facilitator training; and (3) aligning organizational activities with the company vision.

Implementing lean up and down the supply chain holds great promise for OEMs. As the benefits of this program become more apparent, there is great potential for more OEMs to join and for more suppliers of each OEM to participate.

For information on how CIRAS can help OEMs develop multi-state supplier development programs or help suppliers implement value stream mapping or lean enterprise, contact Jim Black at 515-294-1507; jimblack@iastate.edu, or Jeff Mohr at 515-294-8534; jeffmohr@iastate.edu, or visit the CIRAS Web site at www.ciras.iastate.edu/productivity/.

Meat Science Extension

Continued from page 8



Attendees at the Labeling 101 for Meat & Poultry Products Workshop complete a test for designation as a Trained Labeling Specialist.

No. 1 meat science extension program in the United States. In the ranking, they indicated that “perhaps nowhere is the commitment to keeping industry managers informed about food processing and food safety technologies more evident than at Iowa State University.” The partnership between CIRAS and Meat Science Extension will help to make two strong programs even stronger and extend services to Iowa meat companies.

For more information, contact Matt Wenger at 515-294-9279; mwenger@iastate.edu.

Fourth annual mini-expo and breakfast

Purchasing agents for large businesses and state and federal agencies will attend this event to discuss current bidding opportunities available. If you are interested in providing goods and services to these groups, you'll want to attend as well. Last year, over 150 participants were present.

Date: July 20, 2006

Place: Top of the Tower at Holiday Inn
Downtown Des Moines, 1050 6th Avenue

Time: Breakfast 7:30—Mini-Expo 8:30

If you are a purchasing agent and need suppliers, we would be happy to reserve a table for you.

For more information on all these events or to make reservations, call Kathy Bryan at 515-289-0280; kathy@iastate.edu.

INSIDE

NAFTA essentials for manufacturers	Page 3
Creative Composites gets “sound” assistance	Page 4
West Central SoyPOWER®	Page 6
Need business advice? It pays to know (the) SCORE	Page 7
CIRAS forms partnership with Meat Science Extension	Page 8
Biobased Industry Outlook Conference	Page 9



WebWatch: Energy management

As fuel prices continue rising, it becomes increasingly popular to talk about cutting energy costs. However, trimming fuel expenses is only part of the story—industry must take a holistic look at energy management. The way that energy is used is just as important as the amount that’s used.

CIRAS staff can help you create an energy management program that will strengthen your bottom line by improving overall energy efficiency. The process begins with an energy audit that will help you understand energy costs, identify potential savings, and develop beneficial recommendations. The benefits of an energy audit include lower energy expenses, increased production reliability, increased productivity, increased comfort levels for building occupants, and reduced environmental impacts.

An energy audit is only one component of CIRAS’ comprehensive energy management program. Proper training in energy management and implementation of energy-saving practices are also offered.

Learn more about energy management practices at www.ciras.iastate.edu. Click on “Energy.”

Focus: Energy

CIRAS News is published quarterly by the Center for Industrial Research and Service and edited by the CIRAS publications team. Design and production is by Engineering Communications and Marketing, Iowa State University. Contact John Van Engelenhoven at 515-294-4475 or jve@iastate.edu with questions and comments regarding the newsletter.

Articles may be reprinted with the following credit line: “Reprinted from *CIRAS News*, Vol. 41, No. 4, Summer 2006, a publication of Iowa State University’s Center for Industrial Research and Service.” Please send a copy of the reprint to *CIRAS News*.

IOWA STATE UNIVERSITY
University Extension

CIRAS Search Search
Staff | Contact Us | Advanced Search

CIRAS - Energy
Energy Management

- Industry Services
 - BioIndustry
 - Energy
 - General Info
 - Energy Audits
 - Energy Management
 - Engineering
 - Management Practices
 - Procurement
 - Productivity
 - Quality Management
 - Industrial Research
 - Economic Development
 - Online Courses
 - Hiring Students
 - Visitors
- About CIRAS
- Iowa Manufacturing
- Library
- Industry Advisory Council

What is energy management?
Energy management (EM) in this scenario is a program to involve facility personnel from different levels in knowing the costs of energy and managing an organization so that it is energy conscious. An established EM program leads to cost savings and profit maximization due to an improvement of overall energy efficiency.
[See in-depth information and related links.](#)

What are the benefits of energy management?
A well-applied EM program will reduce energy consumption by

- establishing commitment from staff at all levels
- training for “energy-wise” decisions and good use of resources
- communicating achievements and potentials
- continually improving the program and developing projects

What can CIRAS do for my company?
CIRAS staff can assist Iowa manufacturers in developing a tailored EM program, providing training, and implementing energy-saving projects. CIRAS staff will initialize the EM program so that the facility can continually improve it and maintain cost savings.

What is my next step?
Contact the following staff member to see what CIRAS can do for you:
Alexandre Kissinger 515-294-1588 alexkr@iastate.edu

ciras

The Center for Industrial Research and Service (CIRAS) provides education, research, and technical assistance to Iowa industry through partnerships with Iowa’s universities and community colleges, government agencies, and professional associations. Assistance is supported in part by the [IUCINSI Manufacturing Extension Partnership](#), the [Iowa Powerplant Technical Assistance Program](#), and the [IUCRITA University Center Program](#).

If you have any suggestions, corrections, or need any assistance accessing the information on our site, please contact the circasweb@iastate.edu. Commercial or private sites linked from this page are intended only to supply information. No endorsement of products or firms is intended, nor criticism implied of those not included.

IOWA STATE UNIVERSITY
Becoming the Best.
CIRAS, 2272 Howe Hall, Suite 2620, Ames, Iowa 50011, 515-294-3420
Copyright © 2006, Iowa State University of Science and Technology. All rights reserved.

www.ciras.iastate.edu