

BSE Update

*A Newsletter of the University of Wisconsin-Madison
Biological Systems Engineering Department*

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Winter 2012

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Remarks from Chair Richard Straub

As we begin spring semester and as we look back over the year, the Biological Systems Engineering Department has much to be thankful for and much to be proud of. Our student numbers continue to grow with another increase over the last summer to about 125 undergraduates and 40 graduate students. These young folks are an outstanding group of individuals that provide a bright and hopeful future to our Department and who will hopefully contribute as much to our profession, society and the future as those of you alumni who have gone through our Department.

Our faculty ranks have been very productive and stable in a time when many departments have lost faculty. Our faculty generated about 20% more in grant funding in 2011 over the previous year. This past year, we did lose Assistant Professor Matt Digman (Machinery Systems Extension Specialist), who decided to return to the USDA Dairy Forage Research Center, but we have been fortunate in getting the nod to refill this position, helping us maintain strength in this critical core area. We have an outstanding group of young talented faculty as assistant professors in Rebecca Larson (waste management), Troy Runge (bioprocessing) and Xuejun (Jun) Pan (bioprocessing). K. G. Karthekeyan, who has spent the last 2 years in Qatar helping develop an environmental science and engineering program and developing innovative water treatment techniques, will be rejoining us this summer. We look forward to his return and to hearing about his experiences while on leave. While K. G. is returning, Professors David Kammel and Anita Thompson will be on sabbatical some part of the next academic year. Professor Kam-

mel will be working on revising his short course and integration of that new material into a regular course offering, in addition to some international experiences. Professor Thompson will focus her study leave on flood prediction and mitigation, and on ecological implications and engineering approaches to water resource management. Additionally, Professor Rob Anex, who came from Iowa State University as a Wisconsin Bioenergy Initiative hire, has done an amazing job of getting his research and teaching program going since joining us. Rob works in life cycle assessment, system modeling and technology evaluation related to bioenergy.

We also look forward to and welcome the arrival of our new Dean, Kathryn "Kate" VandenBosch, who will begin March 1. It will be good to have permanent leadership in place as we deal with the challenges facing our budget. Please be supportive of Dean VandenBosch as she moves us ahead in a budget time that will definitely result in a smaller faculty base here at the UW-Madison and throughout the UW System. The cuts you have all read about are real and deeper than any I have ever seen, and ultimately will impact our long term ability to serve our students and the public. We will come through this, but not without effect. If you have the opportunity, your support for BSE, CALS, UW-Madison and System, as educational institutions and as an economic engine through our research, would be appreciated. Please help us get the word out that what we do matters and that it makes a difference. Thanks for your support and keep in touch, Dick Straub

Student Update...

Congratulations to the ASABE Officers for 2012

President:

Alex Earhart

Vice President:

Bryan Rowntree

Secretary:

Megan May

Treasurer:

Brandon Nigon

AEM:

Megan Wolf

Public Relations:

Tom Zwald

Polygon:

Shayne Havlovitz

CALS:

Jim Breckenridge

Webmaster:

Ali Pelletier

Lawnmower Clinic:

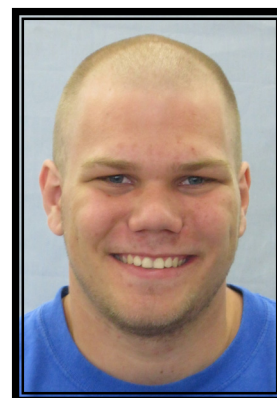
Brandon Nigon
Bryan Rowntree
Kevin Zweig

ASABE News by President Tom Zwald

This last semester has been a great semester for ASABE. Over the summer we were well represented at the quarter scale tractor team competition in Peoria. We also had members attend the International meeting. The year started with a student, faculty and staff mixer where great food was served. The students had a chance to network and we had the chance to introduce ASABE to the new BSE students. We always appreciate this opportunity as it allows our club to grow and reach out to the students.

We also had some more very interesting and informative tours this last semester. We had a tour of Larson Acres, a dairy farm that has implemented some of the latest inventions in cooling, manure management,

and cattle practices. We toured Kuhn Night where we saw numerous other innovations in work and being constructed every day. A group of members went to a haunted corn maze, as a social activity. We had a great showing at the first (and hopefully semi-annual) card night for ASABE. We had great speakers for all of our meetings this semester which allowed a little bit of industry to be brought to us. Then in November we had our officer elections. Congrats to the new officers, and hopefully they can take the enthusiasm we currently have in the club to whole new levels in 2012.



Tom Zwald

Life Cycle Assessment of Cellulosic Ethanol Researched

BSE PhD candidate Julie Sinistore and Professor Doug Reinemann have been researching the environmental impacts of the production of ethanol from corn stover and switchgrass grown in Wisconsin and Michigan as a part of the Great Lakes Bioenergy Research Center (GLBRC). The environmental impacts of cellulosic ethanol production include net resource use (such as energy and water) and emissions to air, water and soil (such as greenhouse gas (GHG) emissions, acidification and eutrophication). They are exploring two major pathways from biomass to cellulosic fuel. The baseline for comparison is a dilute acid pretreatment of biomass followed by enzymatic hydrolysis and fermentation. They are comparing the dilute acid method to the Ammonia Fiber Expansion (AFEX) pretreatment method which was developed by GLBRC researchers. Each pretreatment and biomass combination results in slightly different enzymatic hydrolysis and fermentation conversion efficiencies, therefore, the results are rich with insights into best practices and areas for improvement in ethanol production.

To accomplish the goals, they have acquired a sophisticated modeling platform called GaBi which features an interactive and

Continued on page 5

Student Update...

BSE PhD Candidate Building Envelope Thermal Analysis and Design Using a Rotatable Guarded Hot Box

BSE PhD candidate Andrew J Holstein and Professor David R Bohnhoff are researching building envelope thermal analysis and design using a rotatable guarded hot box. To properly estimate the heat flow through a building's exterior shell one must determine the overall thermal efficiency of the building's envelope. Due to varying material geometries and multiple possible heat transfer modes, the heat transfer through the envelope is non-uniform and three-dimensional. Compounding issues is the effect that air infiltration through building materials has on heat transfer. These factors make it extremely difficult to accurately model the heat flow through a building's envelope. The best method for determining the overall thermal efficiency of a building's envelope is the large scale testing of representative wall and roof sections side by side under laboratory conditions. This testing is done using an apparatus known as a guarded hot box (Fig 1).

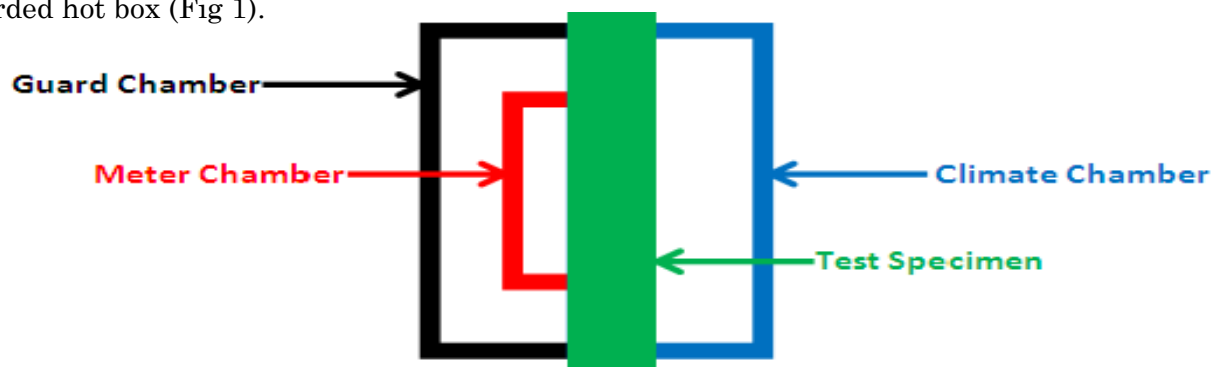


Figure 1: Section View of a Guarded Hot Box

A test specimen is placed between two five-sided chambers. One chamber, called the climate chamber, is cooled to 50°F while the other, called the meter chamber, is heated to 150°F. To eliminate the effect of heat loss through the five walls of the meter chamber, it is surrounded by a guard chamber that is maintained at the same temperature. The 100°F temperature differential between the meter and climate chambers drives heat through the test specimen at a steady rate. This rate can be accurately determined as it is equal to the rate of energy supplied to the meter chamber.

BSE has undertaken the design and fabrication of a Rotatable Guarded Hot Box to increase the industry's understanding of building envelope heat transfer. The test apparatus is fully designed (Fig 2) and construction has begun at the West Madison Agricultural Research Station (Fig 3). Upon completion, the apparatus will be used to test a number of post-frame building wall and roof sections to accurately compare the effects of design choices and construction practices on the overall thermal efficiency of a building envelope.

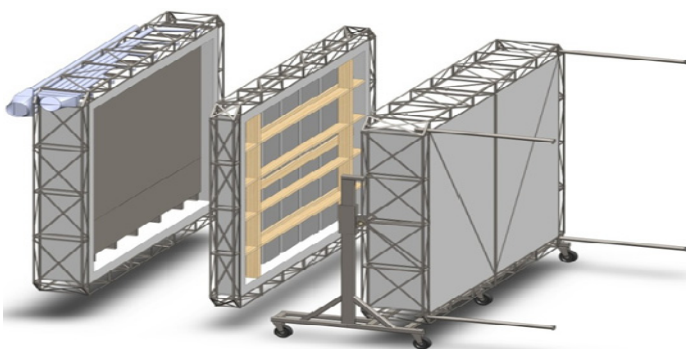


Figure 2: Exploded view of RGHB model (left)

Figure 3: Fabrication progress (right)



Student Update...

Congratulations to BSE Student Scholarship Recipients

The name of the scholarships, the students name, hometown, year in school, and area of study are listed below.

Dick J. and Grace B. Stith Scholarship Fund

Joseph R. Sanford (Soph) Oregon, WI
Natural Resources Engineering

Don S. Montgomery Scholarship

Joseph Michael Nied (Sr) Mayville, WI
Natural Resources Engineering

Christofer Sindunata (Sr) Madison, WI/
Indonesia
Food and Bioprocess Engineering

Ervin W. Schroeder Biological Systems Engineering Scholarship

Jacob F. Hinze (Soph) Shoreview, MN

Gail Edwin and Janice Faye Janssen BSE Fund Scholarship

Katherine J. Berres (Sr) Richland Center
Food and Bioprocess Engineering

Ham Bruhn BSE Scholarship

Brando J. Nigon (Soph) Greenwood, WI
Machinery Systems Engineering

Joshua J. Accola (Sr) Marshfield, WI
Natural Resources Engineering

Kristi M. Freitag (Sr) Birchwood, WI
Natural Resources Engineering

Hjalmar D and Janet W Bruhn Fellowship Fund

Jeffery Mueller (Graduate) DeForest, WI

WDGF — Hjalmar D and Janet W Bruhn Fel- lowship Fund

Li Shuai (Graduate) China

Lynndon and Norma Brooks Scholarship

Bryan T. Rowntree (Sr) Waterford, WI
Machinery Systems Engineering

Orrin I. Berge Scholarship

Ogden J. Holschbach Reedsville, WI
Machinery Systems Engineering

Machinery Systems Graduate Student Award Fund

Dave Cook (Graduate) Eden, WI

Martin E and Kathleen M Burkhardt Biological Systems Engineering

Evan Price (Jr) Moline, IL
Food and Bioprocess Engineering

Robert H. Willa Meier Scholarship Fund

Kevin M. Zwieg (Sr) Ixonia WI
Machinery Systems Engineering

Brittany J. Noe (Sr) Green Bay, WI
Food and Bioprocess Engineering

Breelyn M. Greer (Sr) Minnetrista MN
Natural Resources Engineering

Roger W. Ambrose Scholarship

Philip Thomas (Sr) Greendale, WI
Natural Resources Engineering

Wisconsin Agricultural Engineer Scholarship

Joanna E. O'brien (Sr) Wauwatosa, WI
Natural Resources Engineering

George Heindl (Sr) Madison, WI
Machinery Systems Engineering

Wisconsin BSE Scholarship

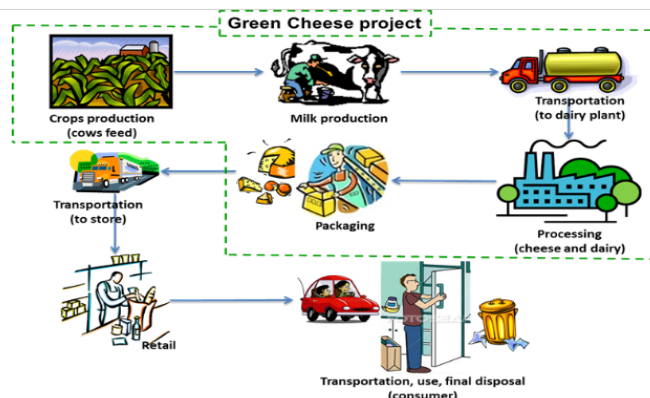
Timothy D. Burhop (Jr) Sheboygan Falls, WI
Natural Resources Engineering

Students and faculty in the Biological Systems Engineering Department greatly appreciate the support of these scholarships.

Student Update...

Aguirre-Villegas researching Green Cheese and Anaerobic Digestion

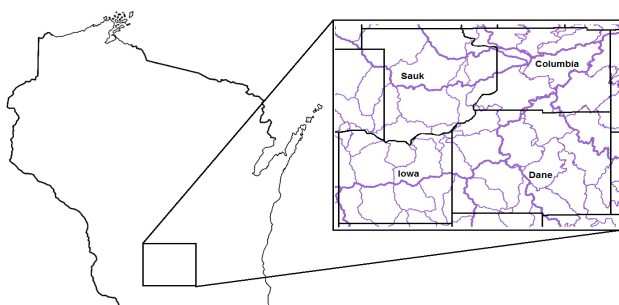
For more than two years Horacio Aguirre-Villegas has been working with Professor Douglas Reinemann on the project “Energy Intensity and Environmental Impact of Integrated Dairy/Bio-Energy Systems in Wisconsin: the Green Cheese Project”. The objectives of this project are to investigate the synergies of the dairy and bio-fuel systems in Wisconsin, and evaluate their related energy and greenhouse gas emissions. The results are published in the following webpage: <http://fyi.uwex.edu/greencheese/>.



During the fall semester, Aguirre-Villegas started working with Professor Rebecca Larson on the project “Impact assessment of anaerobic digestion: economic, environmental, and operational relationships”. The objectives of this project are to design a framework for analysis of anaerobic digestion systems, quantify the overall environmental and economic impacts, and identify gaps in data and analysis procedures of this technology. The project involves analyzing different substrates (biomass crops, dairy manure, and food waste), digestate end products (fertilizer substitutes and bedding), and biogas uses (electricity and heat applications). Specifically, the research focuses on evaluating the environmental impacts such as global warming potential, energy intensity, and land use, by using life cycle assessment methodologies.

Continued from page 2 - Life Cycle Assessment

visual modeling platform and grants access to large databases that contain useful data on common industrial processes relevant to the research. These databases, however, contain little information on complex agricultural processes necessary to model biomass production for biofuels. They have worked to create several new processes in GaBi 4 to model crop production and incorporate biogeophysical modeling results from other GLBRC research areas. In addition to this, they have created several new processes in GaBi to model industrial refining steps specific to cellulosic biofuel production, and these



Map of Wisconsin RIMA, four counties and major watersheds (Reproduced from WIDNR, 2011). Scale refers to magnified region. This figure shows just how little ecological boundaries, like watersheds, line up with political boundaries, like county lines. The aggregation of crop production data at the watershed or county level can significantly alter the GHG emissions of a crop production LCA.

processes incorporate unique refining data from other GLBRC research groups. In this way, they are creating a collaborative model that they hope will produce results that more accurately reflect reality than previous attempts to model cellulosic biofuels production.

Thus far, they have published and presented research that identifies key areas of variability in such modeling endeavors. One major finding has been that the allocation methodology in the life cycle assessment of biofuels can dramatically impact overall GHG emission and net energy usage results. Another interesting result from the research was that the GHG emissions from crop production modeled at the watershed-level with EPIC data are significantly higher (one order of 10) than the GHG emissions modeled at the county-level with agricultural census data. In the next phases of their model-

ing project, the endeavor is to integrate more region-specific data on cropping-systems and the mix of electricity and fuel sources. they also look forward to further collaboration with GLBRC researchers involved in the economic, social and biodiversity aspects of cellulosic biofuels production.

Faculty & Staff Update...

Professor Kevin Shinnars Gives Wisconsin Farmers an Edge in Growing Biomass

Wisconsin farmers have a leg up in the business of producing biomass, says machinery engineering faculty Kevin Shinnars. "Because of Wisconsin's long history of producing hay and forage crops, we have a legacy of tools and knowledge to harvest, handle and process biomass crops," said Shinnars.

Wisconsin also is rich in off-farm resources. The state's custom harvesters are experts at harvesting hay and forage crops, and biomass could fit nicely into their businesses. For instance, after they finish chopping corn silage in September, crews could move on to corn stover or switchgrass in October and November, spreading fixed costs over more acres and keeping employees working longer. Although biomass will be an important part of our energy future, the economics of biomass are currently challenging. Profit margins may be slim, so farmers will need to produce as efficiently as possible. Therefore, Shinnars' research focuses on improving systems to harvest and handle a variety of biomass crops, including such perennials as switchgrass and reed canarygrass; annuals like sorghum; and the most readily abundant biomass, corn stover.

"At this point, the most cost effective biomass logistics system is unknown, so in my research group we research a wide variety of harvest and storage systems," said Shinnars. "For instance we have modified combines to perform 'single-pass' stover harvest, including chopped and baled systems. And we have developed several modifications to the combine corn head to windrow the stover during grain harvest. This 'two-pass' approach decouples the grain and stover harvest while producing a much higher quality end product than with conventional harvest systems". To see pictures and videos of some of these machines in action, visit <http://agriculturalmachineryengineering.weebly.com/>

Since biorefineries will need year-round supplies of biomass, storing biomass feedstocks is another important part of the work conducted in the Shinnars group. "We have studied both aerobic storage of dry biomass and conservation of moist feedstocks by anaerobic fermentation. There are advantages to both approaches, but moist feedstocks also offer the opportunity to add feedstock value by pretreating prior to storage. Shinnars has investigated a variety of chemical and biological amendments applied at harvest or prior to storage that not only add value but improve conservation during storage.

"Although dairy will continue to be Wisconsin's dominant agricultural business in near term, biomass has strong growth potential. It is my hope that our research will help that potential become a reality for Wisconsin's agriculture," Shinnars concluded.



Professor Kevin Shinnars, BSE Machinery Engineer

Does it Pay to Cover Silage Bags?

UW-Extension educator/researcher Ken Barnett looked at the cost of covering silage bags to reduce dry matter loss due to bird damage. A study by BSE's Richard Muck and Brian Holmes quantified DM densities and losses in silage bags. Total DM losses (gaseous, seepage and spoilage) ranged from 0 to 38.2 percent, with an average across all bags of 14.2 percent-similar to a well-managed bunker, notes Barnett, adding, however, if the worst three bags were eliminated from the study, average loss dropped to about 10 percent. Unnoticed bird damage to the top of one of the bags caused spoilage loss of 22 percent. If 10 percent DM loss is used as "normal" loss for a silage bag and 22 percent loss is "extreme" from bird damage, then heavy bird damage could cause a potential increased DM loss of 12 percent. A nine-foot by 100-foot bag can store 67,800 pounds (33.9 tons) of silage DM. A 20 by 100-foot bag costs around \$500. It can be reused, but no data on life span is available.

"If it could be used for just five years, then the cost per year would be \$100. The value used for corn silage in this example is \$54.59 per Continued on page 7

Faculty & Staff Update...

BSE Assistant Researcher M-F; Green Bay Packer Cheerleader on Sundays

BSE Assistant Researcher Zach Zopp is not your typical Green Bay Packer backer. He spends his Sundays in the fall on the sideline of Lambeau Field cheering for the Pack.

"While I would love for everyone in Wisconsin to know about the Green Bay Packer Cheerleaders, I am grateful that we are sort of a Packer secret," said Zopp. "A secret that allows me to continue to be a part of a hybrid UW-Green Bay/Green Bay Packer cheer team even after I graduated from UWGB in 2008."

As a collegiate co-ed team Zopp and the other cheerleaders perform many of the same acrobatic maneuvers and pyramids on Lambeau Field that you would see from the cheerleaders at Camp Randall during a UW-Madison Badgers football game. In his six years as a Packer cheerleader Zopp has been part of some of the most thrilling and exciting games in recent Packer history, but nothing "so far" has compared to last season's Super Bowl Championship year. A year, in which Zopp was able to briefly hold the Lombardi Super Bowl XLV Trophy and see that moment broadcast on ESPN Sports Center. "Here's hoping for several more Super Bowl runs in the future," said Zopp. "GO PACK GO."



Zach Zopp cheering on the Pack in Lambeau

Emeritus Picked the Badger FB Season Ticket Holder of Game

Leonard Massie has been a Wisconsin Football season ticket holder dating back to his days as undergraduate student at UW-Madison. He earned two separate Bachelor degrees in both agricultural engineering (1960) and civil engineering (1961), eventually staying on to complete his Masters work in agricultural engineering (1963). He later earned his Ph.D. in civil and environmental engineering at UW-Madison in 1975.

It was at UW that Leonard first met his wife Marianne. After meeting at a blind date fraternity party in the fall of 1958, they began attending football games together throughout the course of the rest of their college careers. As the only girl to have ever agreed to a date with him twice, they wed in 1960. Game day has and will always continue to be a way of life in the Massie family as three of his four children attended UW, including his son Tim who played tuba in the band during the 1980s. As a student, Massie's Camp Randall experience wasn't complete until the band wrapped up the 5th quarter. Although his degrees and education have long been since completed, the Agricultural School still remains a fixation in Massie's game day routine on fall Saturdays. CALS hosts a tailgate celebration once a year. It is there that he has been able to brush up on his polka skills, polishing his moves in preparation for "Roll out the Barrel".



Leonard Massie

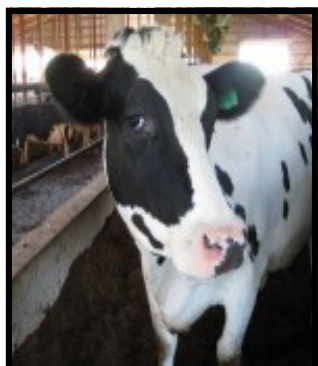
Continued from page 6 - Cover Silage Bags

ton at 65 percent moisture or \$155.98 per ton on a dry matter basis. A 'normal' dry matter loss of 10 percent would result in a loss in value of the corn silage of \$528.78," he discusses. "An 'extreme' dry matter loss of 22 percent would result in a loss in value of the corn silage of \$1,163.32. The difference in value of the lose corn silage between the 'normal' and 'extreme' corn silage is \$634.54. Thus, the silage bag cover valued at \$500 could have covered its purchase price in the first year in a case of 'extreme' bird damage." Barnett says the increased value of corn silage due to high grain prices will warrant precautions not previously economical with lower-priced grain.

Massie now attends games with his grandson and granddaughter to ensure that the enthusiasm for attending continues on into the next generation. Nominated by his daughter Jill, as part of being named the Season Ticket Holder of the Game, Massie received a reserved parking space and tailgate spread courtesy of Oscar Mayer. In addition, he was recognized on the field during the November 26 game vs. Penn State.

Faculty Update...

New Milk Quality Website Launched by Professor Doug Reinemann



BSE professor and director of the UW Milking Research and Instruction Lab, Doug Reinemann, launched a new website at <http://milkquality.wisc.edu/> offering updated information and decision-making tools for farmers to manage herd health and milking systems.

"Udder health and milking management have always been regarded as important factors in achieving high milk production, efficient milking and excellent milk quality," said Reinemann. "When you have milk price premiums reported to be the largest financial opportunity related to milk quality, there are certainly incentives to manage for it every day in the parlor."

Reinemann was joined in this project by Pamela Ruegg, Dairy Science professor and Extension milk quality specialist, to help Wisconsin dairy producers improve milk quality. The website is not just for farmers. Resources are also available for veterinarians, extension agents, researchers and industry representatives. "Producing high-quality milk is not a one-person job. It takes a team-based approach to be able to evaluate, manage and meet milk quality goals. Including extension and agricultural professionals helps farmers achieve goals more rapidly and increase farm income," said Ruegg.

Reinemann and Ruegg have collaborated before to develop extension programs and publish academic papers focused on herd health and milking management, the UW Milk Quality Website represents the first time these resources are available in one place. "This is an opportunity to share our research, as well as the latest science-based, peer-reviewed information on dairy production from around the world. We are responding to requests for better accessibility," said Ruegg. "The website has now become a comprehensive resource for dairy producers to achieve milk quality success. It's a one-stop-shop." The website will be updated weekly with featured articles and news releases covering various topics on milk quality. Spanish-translated educational materials will also be available.

Scott Sanford Authors New and Revised Energy Publications

There are four new and one newly revised publications on greenhouse energy use and efficiency available from the University of Wisconsin Extension authored by Scott Sanford from the Rural Energy Program. The publications cover general energy efficiency for greenhouses, energy conserving curtain systems, heating systems, the use of biomass energy for greenhouse heating and a case study looking at the biomass heating options for two different size greenhouses and which options make economic dollars and cents. The publications can be downloaded for free at <http://learningstore.uwex.edu/Energy-Conservation-C29.aspx>.

Reducing Greenhouse Energy Consumption: An Overview - A3907-01
Greenhouse Unit Heaters: Types, Placement, and Efficiency - A3907-02
Using Curtains to Reduce Greenhouse Heating and Cooling Costs - A3907-03
Biomass Energy for Heating Greenhouses - A3907-04
Biomass Heating in Greenhouses: Case Studies - A3907-05

The publications were made possible by a grant from the North Central Sustainable Agricultural Research and Education program (USDA).



Alumni Update...

'74 Construction Administration Graduate Honored by

"I am truly honored and blessed to have received such a great start. My education here in Ag Engineering was a solid foundation for me and my career," said '74 Construction Administration graduate Richard M. Lynch. "Along with enjoying what I do for a living, I have also been able to give back to the community over the years as a volunteer."



Richard M. Lynch

BSE faculty, staff and students held a reception in the Ag Engineering building on October 14th to honor and celebrate with Lynch who was presented a 2011 Distinguished Achievement Award during the 64th annual Engineers' Day dinner banquet at the Monona Terrace Convention Center. In a distinguished career that spans nearly 30 years with Madison construction firm J.H. Findorff and Son, Lynch has overseen projects ranging from the Monona Terrace Community and Convention Center and Overture Center for the Arts to the American Family Children's Hospital and Epic Systems campus.

One of Wisconsin's leading builders, Findorff annually completes more than \$300 million in construction projects. Lynch started his career with the company in 1984 as a project manager and became an owner and vice president in 1992. He was named executive vice president in 1997 and president in 2002, a role he still fills today. Under Lynch's leadership, Findorff has remained at the forefront of cutting-edge construction processes, equipment and technology. Additionally, the company is committed to using green building practices and includes on its staff Leadership in Energy and Environmental Design (LEED) accredited professionals. As part of its corporate vision, Findorff strives to be a leader in sustainable construction both on and off the job site. In addition to numerous "best contractor" awards, the company also has received many accolades for its environmental excellence.

Beyond Findorff, Lynch contributes his expertise to such organizations as the United Way of Dane County, Downtown Madison Inc., the Madison Community Foundation, the Madison Chamber of Commerce, National W Club, and others. He is past president and an active committee member of the Association of General Contractors of Wisconsin, serves on the UW-Madison Department of Civil and Environmental Engineering advisory board, and is a speaker in various classes at the university. A Prospect Heights, Illinois, native, Lynch worked during high school as a laborer for his father — an engineer, contractor and developer. Lynch entered UW-Madison with medical school in mind, but learned his strongest interests were in architecture and construction. He earned his bachelor's degree in construction administration in 1974 from what now is the Department of Biological Systems Engineering and, before joining Findorff, spent the first nine years of his career working for a smaller family-owned contractor. In his spare time, Lynch enjoys swimming workouts, golf, reading and anything outdoors. He has been married to his wife, Mary, for 37 years and has three children: Courtney, 33; Ryan, 31; and Sean, 29.

Paul Meyer - recently accepted a new position as an Engineering Project Team Lead on the Torque Converter Design Team within Caterpillar's Advanced Component and Systems Division. In this position he is the team lead for a group of five engineers who concept and design torque converters for medium and large Wheel Loader, Wheel Dozer, Compactor and Wheel Skidder applications. He is required to lead interactions with customers, manufacturing, and suppliers to insure that: customer requirements are clearly understood, the design will be capable and reliable, reliability and cost targets are met, and that development timelines adhered to. As a Team Lead, Meyer must also provide guidance, coaching, and direction to the engineers to insure that the team keeps up-to-date on changing processes and technologies.

Prior to taking this job, he was an Application Engineer in Caterpillar's Defense and Federal Product's Truck Engine Group for three years. His role was to provide power solutions for combat and tactical vehicle manufacturers. He was required to be the interface between customers, OEMs and suppliers on

Continued on page 10

Alumni Update...

Continued from page 9 - Paul Meyer

all engineering integration issuer relative to power train. In addition, Meyer was required to help build relationships and assist in identify business opportunities for expanding Caterpillar's product offerings (engines and transmissions) to foreign and domestic military OMEs. This required domestic travel up to 25 percent.

William C. Baum Jr. (Skip) - is a registered engineer in five states including Wisconsin, Minnesota, South and North Dakota, and Montana specializing in wood frame construction design.

Naomi Bernstein (formerly Uhlenhake) - Naomi married Andy "Bernie" Bernstein (ASABE & 1/4 Scale Member 2006-2009) on June 10, 2011 in Burlington, WI with five BSE graduates in the wedding party and many more in attendance, they want to thank BSE for giving them a wonderful group of friends and family.

Alex Charvat - This 2000 Ag Engineer MS Grad is an engineer by trade but his hobby is mastering weapons. As a structural engineer, he understands and can adapt to all the intricacies of nearly every weapons system. Charvat was one of 16 marksmen featured during Top Shot Season 3 on History Channel. He was the last person eliminated prior to the finals. View his last competition and a follow-up interview at <http://www.youtube.com/watch?v=ZSbGjjdxAgk>.



Alex Charvat

"It was a fun experience, though I didn't come home any richer because of it," said Charvat. "I guess I'll keep the engineering job, but I like to shoot because I like the mechanics of it. It's like a big puzzle." His passion for shooting runs so deep that his oldest daughter is named after Annie Oakley. A country boy at heart, Charvat lives with his family in the woods and doesn't have cable, so he'd never seen a single episode of Top Shot. But his ROTC background and hunting experience gave him an edge over most of the competition.

While an undergrad at UW-Madison, Charvat was elected Team Captain of the UW Army ROTC Rifle Team three times. He also worked as an Engineering Technician under the supervision of Drs. Dave Green and Jerry Winandy in the Engineering Properties of Wood Group at the USDA Forest Products Lab. Between receiving his undergrad degree and entering his masters program, Charvat worked as a forester in North Bend, Oregon for the Menasha Corporation. After receiving his masters, Charvat worked as an engineer for log builders in Plymouth, WI until leaving to set up his own company, Alexander Structures, in 2002 in Conifer, Colorado. Charvat builds cabins through 8,000+ square feet residential dream homes. He has experience with both full and half-log designs and all national building codes. He is a member of the ASCE and the Log Home Council where he is the former Chairman of the Log Grading Committee, and he is the Engineer of Record on the Log Home Council's Log Grading Program. Alex has also built his own log cabin and his own 3000 sq.ft. log house - performing all labor from site layout through finishing. Because of his experience, plans are engineered for what works on the job site, not what looks good on paper. Charvat received his BS-Natural Science degree in May 96.

Thank You

Contributors to BSE from
June 2011 - January 2012:

Lorin O Berge
Eliot D Bergeland
Gary D Bubenzer
Martin E Burkhardt
Dennis M Catterson
Kevin F Connors
ConocoPhillips (1 match)
Michel O Dreischmeier
David H Dupre
Marshall F Finner
Thomas G Franti
Alan C Geisthardt
Byron G Jevne
Richard & Barbara Holloway
Brian & Mary Holmes
Brian & Jill Huenink (2 gifts)
Amy L Jacobs
John Deere Foundation (1 match)
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Funding Update...

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We sincerely wish to thank our alumni and friends who have generously supported the College of Agricultural and Life Sciences Department of Biological Systems Engineering. Your gifts today are more important than ever as the University faces challenging budget constraints. Gifts made to the Department of Biological Systems Engineering help us with scholarship, facilities improvement, endowed professorship and graduate fellowships, and carry on our tradition as leaders and innovators in the biological systems engineering field.

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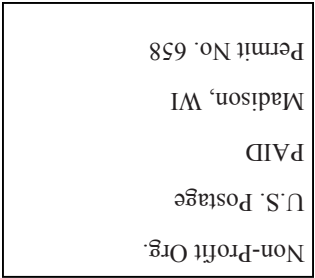
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