

SBIO Extension



Specialists

Brian Bond
Wood Processing
bbond@vt.edu

Urs Buehlmann
*Secondary
Manufacturing*
ubuehlm@vt.edu

Henry Quesada
*Continuous
Improvement*
quesada@vt.edu



**Virginia
Cooperative
Extension**

Virginia Tech
Virginia State University
www.ext.vt.edu

Extension highlights

The wood products industry in Virginia is a critical contributor to the economy of the state, an industry represented by more than 1,000 primary and secondary industries and over \$25 billion in economic impact.

The Department of Sustainable Biomaterials (SBIO) at Virginia Tech is one of the leading U.S. academic programs in the field of renewable materials with a focus on cellulosic materials such as wood products. Besides research and teaching efforts, SBIO has an important role in dissemination of new knowledge in the area of renewable materials through SBIO's three extension specialists.

Fifth Student Innovation Competition and Workshop delivered

On December 5, 2014 Dr. Henry Quesada, associate professor at the Department of Sustainable Biomaterials and Dr. Jaime Camelio, associate professor at the Department of Industrial Systems Engineering both at Virginia Tech organized and delivered the fifth Student Innovation Student Competition and Workshop at Virginia Tech. This event has been held every year since 2010 and it is funded through the Center for Innovation-based Manufacturing (CIbM) at Virginia Tech. This year's event featured two presentations from entrepreneurs. Louis Cirillo, President and CEO at Virtual U, a business located at the VT Corporate Research Center, delivered the first entrepreneurial presentation. VirtualU centers its efforts in pioneering technology to create hyper-realistic digital avatar creation for multiple applications. Matt Jackson, Engineering Community Manager at Local Motors, delivered the second presentation. Mr. Jackson introduced Local Motor's concept of open innovation as well as an ARPA-E student competition that is open for students across the nation. Local Motor's competition awards \$60,000 for first place.



The Multiform team explains their project to the audience at Fralin Auditorium.



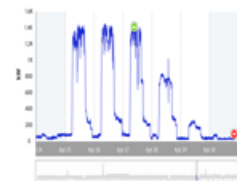
designing and manufacturing handle grips for sport applications. After deliberation from the judges, the first place was awarded to the Multiform team. Students competed for a business start-up package that included \$5,000, space, and business planning support from VTKnowledgeWorks. A total of 35 people attended the event including students, faculty, and administrative personnel at VT.

For the student innovation competition, three student teams competed. The first team presented a business idea of an automatic chalkboard eraser. The second team introduced an emergency light (V-Lamp) that works by harnessing energy generated from human's head. The final project named Multiform, consisted on a customizable system for

Vacuum Drying Workshop Held in Princeton, WV



A workshop discussing the advantages of vacuum drying technology for lumber was held at the Wood Education and Resource Center, Princeton, WV on November 4, 2014. Over 30 people participated at the WERC center or on the live webinar. The purpose of the workshop was to provide current information about the vacuum drying technology available for lumber drying and its potential advantages over traditional methods. Speakers included: Brian Bond, Associate Professor of Sustainable Bio-materials and Extension Specialist, Virginia Tech; Oxana Brenes , graduates student, Virginia Tech, Dennis Socling, President, Process Control Specialist, Inc., PCs VacDry; Jim Parker, Director of Application Development, Vacutherm, Inc; Larry Lashway, Owner and Vice-president of Lashway Lumber, and Ingo Wallocha, Sales Director for Brunner-Hildebrand Lumber Dry Kiln Co.



Energy Savings Through Lean Thinking Workshop delivered in Marion, VA.

Speakers from various organizations including Virginia Tech, the Manufacturing Technology Center (MTC) of Southwest Virginia, and

Enernoc traveled to Marion, VA on November 20, 2014 to present and introduce knowledge on lean thinking and energy saving opportunities.



The audience was composed of industry, academy, and state organizations supporting education in Southwest Virginia.

Dr. Earl Kline explained how to generate and interpret a value stream map to the audience. The event took place at the Marion Extension Office.

From Virginia Tech, Drs. Earl Kline and Edgar Arias presented the concept of value-stream mapping (VSM) and data mining for energy consumption respectively. Dr. Henry Quesada, also from Virginia Tech, presented



on energy audits and the linkage between VSM and energy savings. Mr. Nelson Teed from the Southwest Virginia MTC introduced the concept of lean thinking. Finally, Mr. Howard Henward from Enernoc introduced and explained how energy management systems can be used to monitor, control, and forecast energy consumption. A total of 14 people attended the workshop including speakers. The event was funded through a grant from the Virginia Tobacco Commission. The name of the educational grant is the "VCE Agricultural Energy Efficiency Initiative" led by Dr. Martha Walker, Extension Specialist on Community Viability at Virginia Tech.

All presentations were recorded and they can be accessed them by visiting to the Wood Products Community of Practice (CoP) eXtension web site. To

see the presentations please go to the web site

http://www.extension.org/wood_products



Drs. Smith and Quesada enjoying a break during the second day of the lignocellulosic biofuel conference in Hyderabad, India.

Sustainable Biomaterials researchers travel to India

Drs. Robert Smith



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and Henry Quesada professors at the Department of Sustainable Biomaterials at Virginia Tech traveled to Hyderabad, India during November 6-17, 2014 to participate in the second conference and research meeting of the Indo-US Joint Clean Energy Research and Development (JCERD) project. The event took place at the Indian Institute of Chemical Technology in Hyderabad.

During their visit, Drs. Smith and Quesada participated as speakers and panelists at the Indo-US conference on Advanced Lignocellulosic Biofuel. Dr. Quesada presented on the challenges that lignocellulosic biofuel plants are facing today in the U.S. and Dr. Smith discussed the future of the industry and why is important to better understand not just the production technology but also markets and the source of feedstocks.

Also, both researches presented their progress on this research project. Smith and Quesada are identifying barriers and drivers impacting lignocellulosic ethanol production in the US and they are also working in the developing of an optimization model to minimize cost and environmental impact in the supply chain of cellulosic feedstocks such as sorghum. Graduate students Jeremy Withers and Li Liang

SBIO Extension Professors awarded USDA grant to support the export of wooden modular homes to developing countries

Last October 2014, the Federal State Marketing Improvement Program (FSMIP) at the U.S. Department of Agriculture (USDA) awarded a competitive grant to Dr. Henry Quesada-Pineda and Dr. Robert Smith to explore market opportunities for U.S. modular home manufacturers in selected countries. Virginia and the mid-Atlantic region have a number of modular home companies that could improve their performance by increasing the export of homes to developing countries. Since homes can be customized at the factory, it is believed that smaller homes can be shipped in containers and erected quickly by semi-skilled labor at the job site in developing countries in Latin America.

According to the Inter-American Development Bank, one out of three families in the Latin America region lives in an inadequate housing structure. Almost 2 million families that are formed each year are obligated to live in marginal zones in informal housing structures. In countries such as Costa Rica and Colombia there is a high demand for social housing solutions. For example, the social housing deficit in Costa Rica is 1.1 million and in Colombia it is 2.2 million. In both countries there is an important engineering community with growing interest in using more wooden

housing solutions to alleviate the current housing deficit. However, in both countries efforts to promote the benefits of using wooden houses needs to be increased to change consumer's perceptions of wood against other construction materials.

Upcoming events

Category-12 Wood Preservation Re-certification Workshops

The department will hold two workshops for those needing category-12, wood preservation, recertification. The first will be held in at Madison Wood Preservers in Madison, VA from 9:00-12:00 on March 25th and the second in Lexington, VA at the Rockbridge County extension office from 9:00-12:00 the morning of Friday, March 27th. Pre-registration is required, please contact Dr. Bond at (540) 231-8752 or bbond@vt.edu.