

THE OHIO STATE UNIVERSITY

## Department of Food, Agricultural and Biological Engineering



FABE Friends and Alumni:

On behalf of FABE, I want to begin by wishing everyone a happy spring! A little over three years ago, I was fortunate to be named the 13<sup>th</sup> Chair of the department. While not a stranger to OSU, having received all of my degrees here, I spent 25 years of my professional career at another institution before returning to Ohio.

It's been a while since our last newsletter. However, let me assure you we continue to expand our educational efforts by attracting just over 500 undergraduate and over 50 graduate students, boasting a vibrant and cutting-edge research portfolio, and continuing to develop and deliver world class outreach and engagement programming.

FABE was fortunate to expand our faculty ranks by recruiting two highly talented individuals last year. During 2014, we hired Dr. Ajay Shah (bioprocess/systems engineering) and Dr. John Fulton (precision agriculture). Please see page 2 for more details on our newest faculty members.

Perhaps the most significant development at Ohio State is the Discovery Themes Initiative. The Discovery Themes provide an unparalleled opportunity to find solutions to society's most pressing problems: energy and environment, food production and security, and health and wellness. With the Discovery Themes Initiative, two new FABE faculty searches are underway, both in data analytics. We are optimistic that additional searches in sustainable materials will begin later this year. For more information on the Discovery Themes, visit [discovery.osu.edu](http://discovery.osu.edu).

Many of you may recall Thursday, September 16, 2010, when an EF2 tornado forged a 12 mile path just south of Wooster, Ohio. Extensive damage occurred to the Agricultural Engineering Building on the OARDC campus. Fortunately, there were no fatalities or major injuries. This spring semester, Wooster students, staff, and faculty will move into the recently rebuilt 40,000 ft<sup>2</sup> Food, Agricultural and Biological Engineering Building. This is an impressive facility designed and built to serve FABE well into the future.

FABE also celebrates the 50<sup>th</sup> anniversary of the SMV sign and looks forward to the 100-Year Anniversary of the department. Please look for more information on the 100-Year Anniversary celebration on [page 12](#) of this newsletter.

Thank you for your continuing interest in FABE, and we hope you enjoy this newsletter.

Scott Shearer  
Professor and Chair

## FABE Welcomes Dr. John Fulton and Dr. Ajay Shah



Dr. Fulton grew up on a 2,000 acre fruit and vegetable farm in Troy, Ohio. John's educational background includes a BA degree from Wittenberg University in physics and MS and PhD degrees in biosystems and agricultural engineering from the University of Kentucky. He was a faculty member at Auburn University in the Biosystems Engineering department between 2004 and 2014 where he conducted research and extension and focused on precision agriculture and machinery automation. While at Auburn University, John led the Alabama Precision Agricultural program, providing farmers and consultants timely information related to precision agriculture, and he was named the 2013 Precision Ag Researcher / Educator of the Year by [PrecisionAg.com](http://PrecisionAg.com). In August of 2014, John began his career at OSU as an Associate Professor of Food, Agricultural and Biological Engineering. He holds the title of Endowed Professor of Food, Agricultural and Biological Engineering and continues research and education on machinery automation and precision agriculture.



Dr. Shah received a bachelor's degree in Mechanical Engineering (2004) from Tribhuvan University in Nepal, a master's degree in Biological Engineering (2009) from Mississippi State University, and a doctoral degree in Agricultural and Biosystems Engineering (2013) from Iowa State University. Dr. Shah leads the *Biobased Systems Analysis Lab*, which focuses primarily on research of sustainable agricultural production and bioprocess/systems engineering. His work includes techno-economic analysis, life cycle assessment and scale-up of biobased and agricultural systems; feedstock production and supply logistics for biobased and agro-industries; preprocessing, densification and thermal processing of lignocellulosic biomass; analysis of agricultural equipment; establishing *Taraxacum kok-saghyz* (TKS) – an alternative natural rubber plant – through direct seeding; and exploring practices to improve post-harvest grain management of small farm operators in developing countries. Dr. Shah joined the FABE faculty in January of 2014 as an Assistant Professor. He is located on the Wooster Campus.

### ASC National Competition

In October of 2014, twelve of our Construction Systems Management (CSM) students participated in two categories in the Associated Schools of Construction Regional Competition in Chicago, IL. The first group of students — Nicolas Hale, Heath Holman Dillon Overman, DuWayne Baird, Matt Novak, and Marcus Durbin — participated in the Preconstruction category. The second group of students — Gage Ward, Jordan Barlage, Kevin Jackson, Nicole Cutlip, Tim Cole, and Bobby Elder— participated in the Healthcare category of the competition. Both teams were advised by Jeff Suchy, CSM program lecturer.

Both of the teams were charged with preparing a proposal and presentation to be heard by a panel of judges. The proposals were comprised of a construction schedule, project estimate, site-specific safety plan, Leadership in Energy and Environmental Design (LEED) plan, and procurement and closeout plans. Both teams finished strong, placing third in their respective categories.

### ABC National Competition

Five CSM students — Michael Miller, Tyler Miller, Garrett Bunting, Michael Metz, and Alex Francois — entered the fall's Associated Builders and Contractors Construction Management Competition. The Competition Team, accompanied by advisors W. Mac Ware and Alex Belkofer, traveled to Miami, FL to compete against 19 other universities from around the country.

During the competition, the team's skills and knowledge were put to the test, challenging them on estimating, project management, scheduling, oral and written communication, and leadership skills. All of their preparation, practice, and perseverance paid off, earning them the Overall Second Place Prize.



## Stay Connected with Us

[fabe.osu.edu](http://fabe.osu.edu)

Join our mailing list, and keep up-to-date on upcoming events and department news.

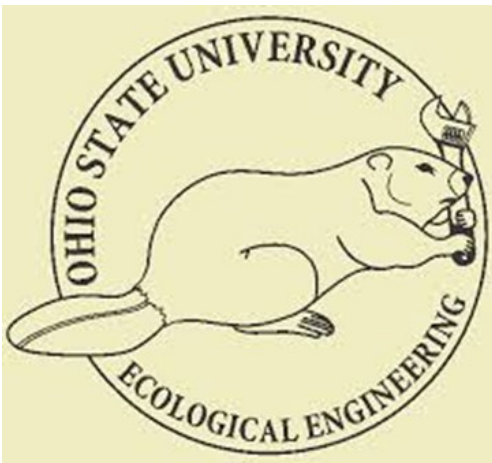
<http://fabe.osu.edu/alumniinfo>



[facebook.com/OhioStateFabe](https://facebook.com/OhioStateFabe)



<https://twitter.com/ohiostatefabe>



### Ecological Engineering Society

The Ohio State University Ecological Engineering Society (EES) seeks to learn and promote ecological engineering among undergraduate and graduate students and community members. They actively participate in projects that serve our community and the environment.

EES has been working on many projects this school year. Their first focus area was on vermicomposting, a process of using worms, food waste, and soil to produce compost. EES visited One20 Farms, a family-run vermicomposting business in Columbus, to learn more about the practice. Later, EES hosted a well attended vermicomposting workshop in the FABE building, where they constructed eight vermicomposters.

With the help of EES's Friends of the Lower Olentangy Watershed (FLOW) liaison, EES assisted FLOW and the City of Columbus with projects to help improve the Olentangy watershed in the fall semester. They participated in activities like invasive species removal (e.g. honeysuckle and creeping euonymus), a river cleanup, and tree plantings. EES also partnered with FLOW to design and build a rain garden and install a rain barrel at a Bird Sanctuary near the Weinland Park area in Columbus. This was an effort to reduce storm sewer run-off and provide water for the bird sanctuary's plant life.

This semester, EES looks forward to seeing the results of a their efforts to restore a vernal pool at Whetstone Park's prairie in the beginning of 2014. This seasonal wetland is hoped to provide a good habitat for frogs and salamanders to breed in the spring.



## Autumn 2014 Dean's List

### ASM

Zachary Charville  
David Dietsch  
Alan Doran  
Paul Goettemoeller  
Brandon Gustwiller  
Kevin Lynch  
Brian Myers  
Daniel Newell  
Garrett O'Donnell  
Jarret O'Neill  
Garrett Searl  
Aaron Siebeneck  
Scott Smith  
Christopher Vine  
Christopher Yackee

### CSM

Winnie Agbalevu  
Mohammad Alfaour  
Colin Angelotti  
Jacob Beever  
Nicholas Burt  
Corey Chatron  
Michael Cole

Marcus Durbin  
Matthew Edmonds  
Heath Flowers  
Alexander Francois  
Anthony Fredenberg  
Brian Free  
Caleb Gabriel  
Michael Gensler  
Andrew Gest  
Corey Gillaugh  
Jacob Goyer  
Adam Gray  
Derek Hartschuh  
David Hieber  
Kevin Jackson  
Zachary Johnson  
Chandler Kisiel  
Derek Kneeskern  
Matthew Latimer  
Noah Mallen  
Danielle Megger  
Cody Michaud  
Joseph Moses  
David Nace  
Dillon Overman  
Kyle Riley-Hawkins

Nicholas Robinson  
James Roser  
Derek Rowley  
Nathan Schalk  
Christopher Simpson  
Neale Snyder  
Michael Wilkinson  
Jake Zifzal

### FABE

Raphael Banoub  
Nicole Basenback  
Ashleigh Budrick  
Nicole Cabell  
Sean Carpenter  
Layne Connolly  
Kaley Core  
Lianna Costantini  
Chelsea Dailey  
Jacob Fischer  
Benjamin Galun  
Jacob Hassen  
Joelle Hemmelgarn  
Danielle Hery  
Nicole Hird

Elizabeth Horton  
Holly Huellemeier  
David Keck  
Remington King  
Matthew Klopfenstein  
Ryan Knight  
Ira Kuenzli  
Mark Lasch  
Laura Lee  
Logan McClish  
Erica McGriff  
Braydi McPherson-Hathaway  
Clay Mesnard  
Reed Poling  
Anna Ralph  
Molly Roup  
Colin Sasthav  
Rebekah Schonauer  
Aaron Sollars  
Stiphany Tieu  
Bradley Vogtsberger  
Ujesh Vora  
Stephanie Weagraff  
Amir Yousif

### 1/4 Scale Tractor Design Team

In the spring of 2014, the 1/4 Scale Tractor Design Team (pictured right) participated in the International 1/4 Scale Tractor Student Design Competition in Peoria, IL. The team landed an Overall Third Place finish, with First Place awards in the Design Log, Safety, and Ergonomics categories. The Team will be working on the new design through the upcoming spring semester and looks forward to the next competition in May of 2015. More information on the 1/4 Scale Tractor Design Team can be found [here](#).



# Recognizing Excellence



**Chris Gecik**

*CFAES Above and Beyond Award*

This award recognizes staff members for developing and/or participating in project initiatives and/or process operations

improvements that enhance CFAES, Extension, ATI or OARDC and its mission.

For more information on this and other CFAES awards, [click here](#).



**Dewey Mann**

*North American Colleges and Teachers of Agriculture (NACTA) Graduate Student Teaching Award*

This award recognizes graduate students who excel as teachers in the agricultural disciplines. The award is for NACTA graduate student members who are involved in classroom instruction. The NACTA Graduate Student Teaching Award is a criterion-based award and is reviewed by a committee of NACTA members. More information available [here](#).



**Fuqing Xu**

*First Place (PhD category) ASABE Boyd Scott Graduate Research Award*

The Boyd-Scott Graduate Research Award is to recognize excellence in the conduct and presentation of research to build the knowledge base needed by engineers who design equipment, facilities, and processes for the sustainable operation of a biological system. [Click here](#) for more information on this and other ASABE awards.



**Brian Heskitt** (top)

**Dr. Sudhir Sastry** (bottom)

**Dr. Chaminda P. Samaranayake**

(not pictured)

*FABE team named finalist for \$2 Million Wendy Schmidt Ocean Health XPRIZE*

Led by Dr. Sastry, this team is competing against 17 other finalists for \$2 million dollars in prizes. The competition is intended to encourage



solutions to global challenges, aims to spur development of new sensors to measure the acidification of ocean waters resulting from higher levels of atmospheric carbon. More information on the competition is listed [here](#).



**S. Dee Jepsen**

*ASABE Educational Aids Blue Ribbon Award*

This international competition promotes excellence in informational materials which

contribute to the understanding of agricultural and biological engineering subjects outside of the traditional classroom setting. Dr. Jepsen received the award for electronic diversity (using DVD's, Web-Based Computer Programs, PowerPoint Shows, Web-Based Video, Audio-Podcasts, and Video-Podcasts) for "ATV Safety for Agriculture." Full details of the competition are listed [here](#).

# Recognizing Excellence



**W. Mac Ware**

*Co-investigator in Winning of Battelle Engineering, Technology and Human Affairs (BETHA) Endowment*

This annual grant competition supports projects that examine the complex relationship between science and technology on society and cultural issues.

Student-developed Sustainable Housing Solutions, in Central America, will engage Ohio State senior capstone students with university partners and residents in Honduras to develop a sustainable, replicable housing solution for the rural poor. Howard Greene, Systems Engineering Manager and Director of the K-12 Education Outreach in the College of Engineering, is the principal investigator on the project. Mr. Ware serves as a co-investigator, along with Judy Tansky, lecturer at the Fisher College of Business. This proposal was one of four winners, chosen from 32 submittals.



**Lauren Slutsky**

*First Place in Case Western for Polymer Initiative of Northeast Ohio Conference Poster Competition*

Lauren won First Place among 77 post-doctoral and graduate student submittals.

*Chosen to participate in ThinkChicago*

ThinkChicago presents outstanding college students with a VIP tour of Chicago's fast-growing tech scene, connects them with leaders of innovative companies, and gives them free admission to the Windy City's premier event: Chicago Ideas Week.



**Dr. Scott Shearer**

*Inducted as Fellow, American Society of Agricultural and Biological Engineers (ASABE)*

ASABE defines the characteristics of a recipient "as a member of an unusual professional distinction, with outstanding and extraordinary qualifications and experience in, or related to, the field of agricultural, food, or biological systems engineering." More information on this honor [here](#).



**Dr. Andy Ward**

*Representing The Ohio State University on the Land Grant University Hypoxia Task Force Initiative*

The Hypoxia Task Force is a partnership of five federal agencies, tribes, and environmental quality, agricultural, and conservation agencies from 12 basin states working to address nutrient pollution and the hypoxic zone, or dead zone in the Gulf of Mexico. To read more about the initiative, [click here](#).



**Dr. Alfred Soboyejo**

*Award for research toward Pan African Material Institute (PAMI), Abuja Nigeria, by the World Bank African Centers of Excellence (ACE)*

This collaborative research award will be shared by our department and 18 other top-rated participating universities worldwide. More information on this award is available [here](#).



## Agricultural Systems Management Club

This past fall semester, OSU's Agricultural Systems Management (ASM) Club hosted a total of eight meetings for students from a wide variety of majors. Club members had the opportunity to hear about student internship experiences and possible career options from agriculture industry representatives from a variety of companies.

The 2014 fall semester kicked off with a great start. The ASM Club served fresh-cut French fries at the Farm Science Review in conjunction with the ASABE student organization. The event was very successful and helped fund student trips and service projects. One of the service projects included landscaping and clean-up work at the Rehabilitation Garden near Dodd Hall on campus (pictured top right). This service project allowed members to get their hands dirty for a good cause, and enjoy a break from classes. The ASM Club also sent a group of 8 members to Louisville, KY (pictured top left), where they served as volunteer judges at the National FFA Convention's Agricultural Technology and Mechanical Systems Career Development Event (ATMS CDE). The focus of the trip was on service, but members enjoyed the bonding time and networking opportunities with other university students, faculty, and staff.

Two of the ASM Club's major social events included a gathering at Buffalo Wild Wings and an end-of-semester Euchre tournament, held in conjunction with the AgriBusiness Club, at the Scarlet and Grey Café. The new and old club officers also enjoyed a social retreat in Beck's Hybrids suite during an OSU hockey game in the Schottenstein Center. Members are excited about the upcoming spring events that will include more student and industry presentations, trips to Ada, OH and Moline, IL, service activities, the spring Lawn Mower Clinic fundraiser, and plenty of social events! [Click here](#) for more information on the ASM Club and their upcoming meetings and events.

## Attention Construction Systems Management Alumni and Employers!

The CSM Industry Advisory Council (IAC) Industry Interaction Subcommittee has created an OSU CSM LinkedIn page. The mission of the page is to have, "a common access location for students, faculty and staff, alumni, and IAC members to share contact information, news, events and correspondence related to the OSU CSM program." The LinkedIn page is managed and monitored by the subcommittee and is encouraged to be the platform of communication between the CSM program and the professional industry.

Connect with the group at:



[linkedin.com/groups/Ohio-State-University-Construction-Systems-3257182/about](https://www.linkedin.com/groups/Ohio-State-University-Construction-Systems-3257182/about)



OARDC's Agricultural Engineering Building before 2010 Tornado



OARDC's Agricultural Engineering Building after 2010 Tornado



The new OARDC Agricultural Engineering Building



### Open House in Wooster Welcomes the New Agricultural Engineering Building

On September 16, 2010 a tornado laid waste to the OARDC and OSU Wooster Campus. Many of the campus buildings and agricultural areas suffered severe damage, including the Ohio Agricultural Research and Development Center's (OARDC) Agricultural Engineering Building. The building — previously home to several research projects, office spaces, laboratories, and a shop area — was no longer usable under any capacity. Many of the office and research operations were relocated to the (old) Administration Building, where those affected were given space on the first and second floors. To accommodate important research activities, three different spaces were rented within a two-mile radius of the campus: a shop fabrication area for OSU and the USDA Agricultural Research Services (ARS); a OSU fiber project and ARS sprayer research/wind tunnel; and a natural rubber pilot plant and testing area.

Planning for a new agricultural engineering building began in 2011, and in June of 2012 the NBBJ architectural firm was hired for the design. In December 2012, the design was completed and the old building was demolished. Groundbreaking for the new two-story building was held on May 10, 2013.

In addition to office space, the new building will have four laboratories with an open bench design, two pilot lab areas, a wind lab, and a shop area. Total assignable space for the building will exceed 25,000 ft<sup>2</sup>. The building is designed to provide significant energy savings and natural lighting and will be LEED certified. FABE and OARDC celebrated the dedication of the new building on December 19, 2014.



## American Society of Agricultural and Biological Engineers (ASABE) Student Branch

The ASABE Student Branch meets every other Tuesday in the Agricultural Engineering Building to network, socialize, and discuss new trends in agricultural and biological engineering.

At the beginning of the fall semester, the Branch raised money for the year by hosting a food stand at the 2014 Farm Science Review. They were very successful, making a record net profit! Later in the fall, the group benefitted from a special presentation by Cummins on how to interview for engineering positions. The group also took two industry tours in the fall semester. One was to Cummins in Columbus, Indiana and the other was to Abbott Nutrition in Columbus, OH. ASABE members also attended a webcast for the kick-off of Engineer's Week, hosted at Ohio State by DiscoverE. [Click here](#) for more information on ASABE' meetings and socials.



## FABE Graduate Student Organization

The FABE Graduate Student Organization (GSO) is an academic and social organization that plans events and volunteer opportunities for graduate students in the department. Earlier this year, the GSO hosted a successful lunch fundraiser, bringing faculty, staff and students together for an afternoon of socializing. The GSO has welcomed incoming graduate students during orientation week to allow for a seamless, welcoming integration into the department.

After Typhoon Haiyan hit the Philippines, the GSO organized a fundraising effort to support the UNICEF for Philippines Typhoon Relief effort. The group sponsored a bake sale and a "Coin War" between faculty and staff, undergraduate, and graduate students, raising over \$300 (via Coin Star Company). More information on GSO's meetings, events, and fundraisers is available [here](#).



## Slow Moving Vehicle Signs Created by Ohio State, Celebrates 50 years and Used Nationwide, Internationally

*By Tracy Turner, College of Food, Agricultural and Environmental Sciences*

COLUMBUS, Ohio – We’ve all seen it -- the familiar bright orange triangle mounted on the back of agricultural equipment and horse-drawn vehicles in order to warn the public of a slow-moving vehicle. “Created by engineers and students in Ohio State University’s Department of Food, Agricultural and Biological Engineering, the Slow Moving Vehicle (SMV) sign is now celebrating its 50<sup>th</sup> year in use and is credited with reducing traffic crashes and saving lives nationwide,” said Dee Jepsen, state safety leader for Ohio State University Extension. OSU Extension is the outreach arm of the college.

“The SMV Emblem was created in 1962 in response to studies that showed about 65 percent of motor vehicle accidents involving Slow Moving Vehicles were rear-end collisions,” she said. “At that time, we needed something to warn drivers as they approached farm machinery travelling less than 25 miles per hour.”

Through the years, the SMV emblem was added to other agricultural equipment including horse-drawn buggies and wagons. After much testing of various designs, it was found that a triangle-shaped emblem, with a 12-inch-high florescent orange center and three 1¾-inch-wide reflective borders was most effective for day and night visual identification.

“Through the continued use of the SMV emblem, fatal crashes on roadways have gone down,” Jepsen said. “In fact, within the last five years, the Ohio fatality rates of rear-end crashes between motor vehicles and farm machinery are minimal, which has been the ultimate goal of the SMV emblem.”

“There are still crashes that occur, but at a lower rate with significantly fewer fatalities. With urban sprawl and more people travelling on rural roads, the SMV emblem has been a huge safety benefit. The SMV sign is now required by law on self-propelled machines and towed equipment when traveling on roads at speeds of 25 miles per hour or less. The emblem has been adopted for use in other countries, and is currently undergoing review to receive designation as an International Safety Standard,” Jepsen said.



“The SMV emblem was the very first national standard for farm machinery on public roads and it has become a clear, early-warning symbol for the motoring public,” she said. “It was created to save lives, and it’s exciting to know that after 50 years, it’s still one of the most recognizable signs for roadway safety!”

More information on the SMV emblem can be found at <http://agsafety.osu.edu/smv-emblem>.

**From left to right:** Tom Bean, FABE faculty emeritus; Mike DeSpain, Product Safety Engineer with John Deere Global Crop Harvesting; Ted Gastier, OSU Extension Faculty Emeritus and former FABE graduate student who worked on the SMV development; Karl Klotzbach, Product Safety Compliance Engineer with CNH; and Dr. Dee Jepsen, Associate Professor in FABE.



**THE OHIO STATE UNIVERSITY**

## 100-Year Anniversary Celebrations

***Attention all ASM, CSM, and FABE students, alumni, faculty, and staff!***

*Please join us in celebration of the first 100 years of the  
Department of Food, Agricultural and Biological Engineering*

**Columbus**

**Wednesday, April 22, 2015**

**Spring Banquet and  
100-Year Anniversary Celebration**

Nationwide & Ohio Farm Bureau 4-H Center

5:30-9 p.m.

\$10 per person

**Wooster**

**Thursday, April 23, 2015**

**Open House and  
100-Year Anniversary Celebration**

Agricultural Engineering Building

1-4 p.m.

Free

**Please RSVP by Wednesday, April 15**

[Click here](#) for more details and to RSVP