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Gaining World Experience at OSU

Finding a course in the university catalog about how to build a meat grinder is highly unlikely.

For most students, finding practical experience to prepare them for a first-time job is necessary yet difficult.

For Joe Vadder, Biosystems senior, experience began outside the classroom but still on the Oklahoma State University campus.

Vadder currently is working at the new Food and Agricultural Products Research and Technology Center under the direction of Dr. Timothy Bowser.

Last September, Vadder began working on a Temperature Profiling Project and a novel meat

grinder for Bowser.

The most recent project, the novel meat grinder, was Bowser's idea, but the design, ordering of materials and the decision of which shops would build the parts were Vadder's responsibilities.

Eventually, the novel grinder will be marketed to the meat packing industry. The grinder has a unique, safety-minded design, with no sharp blades or edges.

After the machine is complete, Vadder hopes to compete at the ASAE International meeting with the prototype and eventually apply for a patent.

The temperature profiling project, which began last summer, was created for industrial baking.

The profiler will be used in industrial-size baking ovens to monitor the baking consistency of foods produced in mass quantities.

Vadder used dataloggers to monitor the consistency of baking and created a thermal enclosure to protect the profiler from the intense heat of the baking process.

He tested the dataloggers at Advanced Foods in Enid, Okla., where Vadder monitored the oven's baking consistency.

"It is good to have this type of responsibility," Vadder said. "The hands-on experience will look good to future employers."

Vadder, who will graduate in December hopes to be self-employed eventually.



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A Word From The Department Head

Dr. Billy J. Barfield

As spring begins to replace the bleakness of winter, we typically think of new beginnings. In Biosystems and Agricultural Engineering at OSU, we are blessed with a number of new beginnings. The poultry and animal industries are facing major problems associated with water quality and odor control. This is occupying the attention of several of our research folks as they try to find new and innovative solutions to these problems.

Over in the Food and Agricultural Products Center, Dr. Danielle Bellmer and Dr. Timothy Bowser, our new faculty, are settled in and are becoming highly productive as they serve the food industry in the state. They are joined in this activity by other bioprocessing faculty who are developing techniques in using machine vision to grade meat. They also are continuing to work in the development of low-fat products.

We are continuing to explore opportunities in biotechnology. A new and exciting activity for us is the work of bioconversion of residues such as wheat straw into ethanol. If successful, this could represent a major economic opportunity for Oklahoma agriculture. Funding comes from the

Williams Company and the Oklahoma Agricultural Experiment Station.

During the spring months, we will continue our annual recruitment of new undergraduate and graduate students. After five years with steady increases in enrollment, our student numbers have declined this semester. We are making a renewed effort to increase numbers again. We can always use recommendations for student contacts, so if you are aware of anyone who would be interested in our program, call me at (405) 744-5341 or send an e-mail to bill@okstate.edu, and we will be happy to send information regarding our program. We are also interested in graduates who may be interested in pursuing an advanced degree.

We appreciate the donations that have come into our development fund for scholarships this year. These scholarships are definitely a factor for students who are choosing an institution to attend. Your contributions do make a difference.

We always enjoy visits from our graduates. Please stop by if you get a chance.

Best Wishes,
Bill Barfield, Professor and Head

Where Are They Now?

Tracking BIOEN Alumni

Michael Rigney Southwest Research, San Antonio, Texas	PhD
Michael Buser U.S. Cotton Ginning Lab Stoneville, Miss.	MS
Dr. Indrajeet Chaubey Center for Fresh Water Studies University of Alabama Tuscaloosa, Ala.	PhD
Derek Whitelock U.S. Cotton Ginning Lab Stoneville, Miss.	PhD
Dr. Ted Kornecki Soil & Water Management USDA-ARS Louisiana State University Baton Rouge, La.	PhD
David Holt Bliss Industries Ponca City, Okla.	BS
Brad Schaufele Charles Machine Works Perry, Okla.	BS
Jeremy Pilgreen Kinkaid Equipment Haven, Kan.	BS
LaDonna McCowan Doctorate Program Oklahoma State University Stillwater, Okla.	MS
Peng Yue Oklahoma Water Resources Board Oklahoma City, Okla.	PhD

Students to Compete in Tractor Pull

For seven Oklahoma State University Biosystems and Ag Engineering students, hard work and dedication will soon pay off as they travel in May to Moline, Ill. for the first ever Quarter-Scale Tractor Pull Competition.

The Tractor Pull is part of the National ASAE Design Competition and is much like the Society of Automotive Engineers (SAE) Mini Baja and the Formula Car Competition.

There are three categories in the competition this year: Design Report, Team Presentation and the Performance Competition.

The Performance Competition will include the tractor pull. Bron Howard, Biosystems & Ag Engineering junior, said each team is given the same motor and tires and the winners of the competition are chosen based on how efficiently their tractor transmits power to the ground.

Through involvement in the pull, students will gain practical experience in the design of drive train systems, tractor performance, engine design, manufacturing, manufacturing processes, analysis of tractive forces and weight transfer.

All the OSU students participating this year are volunteers from the department.

“It looks great for the program,” said Howard.



Sherry Britton (left), junior, Tek Wan Kho (center), senior, and Carly Washmon, senior, all Biosystems and Agricultural Engineering majors, prepare pancakes at the department’s faculty appreciation breakfast.



Marge Johnson (right), unit assistant, thanks Sheila Youngblood, Biosystems and Agricultural Engineering senior for her efforts to make the breakfast a success.

1997-1998 Officer Team

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- Jr. Advisor** **Brandon Claborn**
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Color Video Image Analysis for Carcass Grading

By Alexandra Drenning

Large percentages of livestock slaughtered in the United States are graded by USDA personnel who visually analyze the carcass based on quality and yield grading standards.

An on-line grader in a typical meat packing plant has to assign a grade to a carcass within a five to 20-second time span. The fast pace, along with the product variability, can cause many inconsistencies.

The high costs of employing personnel, coupled with the inaccuracy of subjective evaluation, has caused major meat packers in the industry to search for computerized, cost-cutting alternatives.

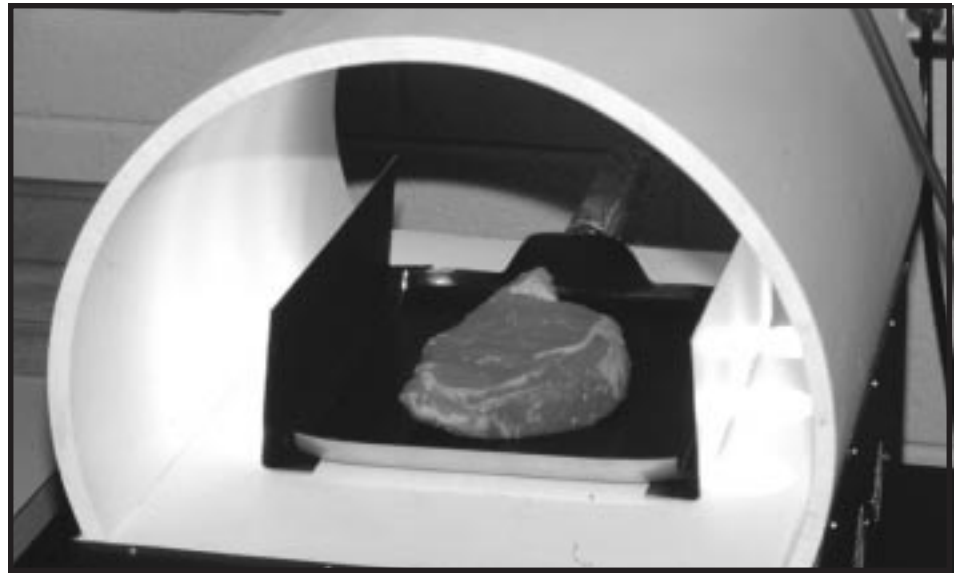
Changes in the meat packing industry are just around the corner, thanks to the research efforts of Dr. Glenn Kranzler, professor of Biosystems and Agricultural Engineering, Dr. H.G. Dolezal, professor of Animal Science, and departmental research assistants, Nisha Biju and Bilynn Schutte.

Methods of Evaluation

A color video camera with an image processing micro-computer acquires the image of a steak, digitizes it, then divides the steak into sections for analysis.

Based on the cumulative results, the computer software measures the ribeye marbling and coloring and assigns a quality grade according to USDA standards.

In a comparison of human



OSU's Video Image Analysis prototype scans a ribeye, accurately monitoring beef quality characteristics.

grading and video image analysis, the results were very similar.

The machine is not the first of its kind, but it is one of the first in the United States to have color analyzing capabilities.

“The concept has been tried by other countries for as long as 10 years,” Kranzler said.

“It’s time for the U.S. to play catch up,” Dolezal said.

The Potential

Although the machine is just in its beginning stages, it is a giant step toward improving quality control in the beef industry.

The industry is forced to react quickly to keep up with the demands and changes in consumer preferences.

By using the machine, other variables can soon be recorded and analyzed, such as feedyard, cow-calf and seedstock variables.

These results will help the industry recognize its strengths and weaknesses and make timely changes.

The Changes

The OSU prototype still needs some refinement before it is placed on the market, according to Dolezal.

Improvements in yield grading, lighting and the ability to withstand high temperatures, moisture and everyday wear associated with industry grading are still in the process.

One concern about the new machinery is that it will take over grading and wipe out jobs.

“There will always be a need for human grading,” Dolezal said.

The machine cannot handle defects such as cut-outs and bruising or adjust grading for variable fat thickness.

Special thanks to the:
**“Engineers
of BIOEN
Dreams”**

Victor & Janice Wolff
Ervin & Viola Schroeder
Scott & Jeannine Henderson
David & Irene McKay
Ernestine & Jay Porterfield
Charles & LaDonna Rice
Billy & Annette Barfield
Kem & Teresa Kadavy
Marvin & Bonnie Stone
Alan Ritchey Inc.
Bob Day
Donna Whitmore
Bobby Bledsoe
Charles Haan
Gerald Brusewitz
Ronald Noyes
Jinhui Zhang
Jim Loftis
Louis & Leatrice Bouse
Wendell Blackketter
Brent Bolay
Randy Haynes
Nancy Giles
Warren Taylor
Dean Yoder
John Sweeten
Ronnie Morgan
Junior Bryant
Donald & Donna McCool
Peter McKay

Congratulations to the 1997-98 Graduates

David Holt Mr. & Mrs. Jerry Holt	Biomechanical Kiowa, Kan.
Silvara Junus Mr. & Mrs. Rifai Junus	Food and Bioprocessing Jakarta, Indonesia
Tek Wan Kho Mr. & Mrs. Khai Beng Kho	Environment & Natural Resources Malaysia
Kimberly Lewis Mr. & Mrs. Paul Lewis	Environment & Natural Resources Noble, Okla.
Brad Schaufele Mr. & Mrs. John Schaufele	Biomechanical Lone Wolf, Okla.
Mark Stacey Mr. & Mrs. Bill Stacey	Environment & Natural Resources Ft. Gibson, Okla.
Bernadeth Surjadinata Mr. & Mrs. DJohan Surjadinita	Food and Bioprocessing Jakarta, Indonesia
Richard Taptto Mr. & Mrs. Lynn Taptto	Environment & Natural Resources Anadarko, Okla.
Brian Thomas Mr. Doyce Thomas & Ms. Sandy Thomas	Environment & Natural Resources Mt. Pleasant, Texas
Michael Vantrease Mr. & Mrs. Robert Vantrease	Environment & Natural Resources Sand Springs, Okla.
Kristina Walters Ms. Anita Ellis, Mr. Frank Bellinger	Environment & Natural Resources Marana, Ariz.
Richard Willoughby Mr. & Mrs. William Willoughby	Biomechanical Sarcoxie, Mo.

Caps are on sale!

Order yours from Biosystems and Agricultural Engineering

111 Agricultural Hall

Stillwater, OK 74078

OSU Hosts ASAE Regional Conference

More than 35 ASAE members from Louisiana State University, Texas A&M and the University of Arkansas converged on the campus of Oklahoma State University for the first Southern Regional Conference.

Many students came to check out the department's latest research projects. Others were exploring the graduate research programs available, while some just came to enjoy meeting others who share the same interests.

"This is the tail end of our spring break, and we thought this would be a great way to wrap it up," said Amelia Vincent a senior at Louisiana State University and member of the Biological Engineering Student Organization.

"I thought the work that OSU was doing with biomass conversion was interesting, since I took a class that related to it last semester at LSU," said Vincent

"We were excited about holding the conference at OSU this year, because it let students who might be interested in the school and the programs get a first hand look at what we have to offer...especially the graduate research programs," said Carly Washmon, Biosystems and Agricultural Engineering senior.



ASAE members stop for a group photo in Stillwater: (left to right) Travis Tsunemori, Dustin Simmons, Jeremy Seiger, Kevin Hunt, Carly Washmon, Kendle Hall, Joe Vadder, Sheila Youngblood, Chris Cross, Walt Rakowitz, Pat Hinze, Kelly Hall, Amber Pargemann, Russell Persyn, Telca Gonzzalez, Jeremiah Friddell.



Students enjoy lunch at Bad Brad's Restaurant.



Dr. Doug Hamilton explains the latest in research at OSU.

Alumni Success Stories

Dr. Mark Silburn 1980

Mark Silburn is a 1980 graduate of Oklahoma State University, where he received his Masters Degree in Biosystems and Agricultural Engineering.

He currently serves as a senior soil conservationist to the Department of Natural Resources in Toowoomba, Queensland, Australia.

Dr. Armand Evers 1992

Armand Evers is a 1992 graduate of the doctoral program at Oklahoma State University, where he received his degree in Biosystems and Agricultural Engineering.

He serves as an engineer to the Ministry of Foreign Affairs in the Netherlands.

Armand is currently working on the World Bank Project in Bangladesh.

BIOEN Wired!

Check us out!

<http://www.agen.okstate.edu>

Information about the department, faculty, scholarships, graduate programs and student organizations

We Want To Know About You. . .

Return this form to *BIOEN Update*, 111 Ag Hall, Oklahoma State University, Stillwater, OK 74078-6016

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Business Address _____

City _____ State _____ Zip _____

Business Title _____

Business Phone _____ Fax _____

What year did you get your Biosystems and Agricultural Engineering degree(s)?

BS 19____ MS 19____ PhD 19____

Your News Is Good News!

Please let us know what is going on with you. We are currently working on "Career Opportunities: Profiles of BIOEN Alumni" to be used in the recruitment of new students to the department. If you want to participate, please send a letter (or e-mail) to us describing your career (where you work and what you do on a daily basis). We would also appreciate any notes about professional honors, career activities, civic achievements, family news, etc. We will use this information in the next issue.



Mark Your Calendar

June	12-16	ASAE International Meeting Orlando, Fla.
August	17	Class work begins
October	30	ASAE Oklahoma Section Meeting
October	31	Homecoming
March	22-26, 1999	Ag Week

BIOEN Update is published each semester. It informs alumni and prospective students of the activities in the Department of Biosystems and Agricultural Engineering.

We invite you to submit questions, comments, articles, ideas, etc. to:

BIOEN Update

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