



UofA
UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE

Department of Biological and Agricultural Engineering
Dale Bumpers College of Agricultural, Food and Life Sciences
and the College of Engineering



From
the
Head
Dr. Lalit R.
Verma

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The New Year got off to a good start with the departmental annual program review January 6. All faculty including extension engineers made presentations on their 2003 accomplishments and plans for 2004.



The annual meeting of the Southern Region BAE Department Heads (AC-5) was held on the UofA campus January 7-8, 2004 in the Poultry Science conference room. Bob Gustafson, ASAE president, Dick Hegg, CSREES representative, and Bill Brown, our administrative advisor, joined the 11 department heads who attended this meeting. The second day included a tour of field research.



The BAE Academy inducted its third class of members January 8. Four members were inducted in the ceremony. The academy members held a brief meeting before the induction ceremony and elected new officers for the coming year. Fred Fowlkes was elected as president, Michael Freer as vice-president, and Alan Fortenberry as secretary & treasurer.

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Highlights and Presentations

Yanblin Li received the Arkansas Alumni Association's Distinguished Faculty Achievement Award for outstanding research and service Oct. 10 at the UA Alumni Association Banquet.

Lalit Verma was named "Outstanding Engineer 2003" by the Arkansas Section of American Society of Agricultural Engineering at their annual meeting in Little Rock, Oct. 3.

Phil Tacker attended the International ASAE Summer Meeting in Las Vegas, NV, July 26 - 30. He is the co-author of a paper presented by **Dr. Earl Vories** "Investigating a Multiple Inlet Approach to Reduce Water Requirements for Rice Production." He also attended a short course, "Electrical Control of Fluid Power Circuits: Fundamentals, Tools and Applications," offered in conjunction with the meeting.

Department engineers and faculty attended a professional development seminar on MatLab held in the computer lab at the 4-H center Oct. 2. The department is considering using MatLab as one of the basic tools incorporated into the undergraduate program.

Dennis Gardisser, with Bob Wolf of Kansas State University and Buddy Kirk of USDA/ARS, completed development of "Application Technology III- for Aerial Application" and conducted a national train-the-trainer seminar in Nashville, Tenn.

September 28 – October 1 **Phil Tacker** chaperoned two 4-H contestants to participate in the tractor and automotive competitions at the National 4-H Engineering Science and Leadership Event in West Lafayette, IN. The 4-Her's finished 2nd and 9th in their competitive events and participated in several educational opportunities while on the trip.

Danielle Julie Carrier gave an invited presentation, "An overview of dietary supplements," at the Annual Fall Nutrition Update in Springdale in September.

Phil Tacker and Wayne Smith were invited to present a paper at the Southern Region Water Quality Conference in Ruidoso, New Mexico, October 19 – 22. The paper presented was titled "Water Conservation Practices for Rice and Soybean Irrigation". He also co-authored a poster titled "Water, Labor and Cost Savings with Multiple Inlet Rice Irrigation" for the technical poster session. While at the conference, Phil attended a workshop, "GIS and GPS Applications in Agriculture," offered for professional development.

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UA Inducts 4 Alumni into the Arkansas Academy of Biological and Agricultural Engineering

FAYETTEVILLE — The University of Arkansas department of biological and agricultural engineering inducted four alumni into the Arkansas Academy of Biological and Agricultural Engineering during its third annual induction ceremony Thursday, Jan. 8, in the Arkansas Union Ballroom.

Lt. Governor Win Rockefeller was the guest speaker for this year's ceremony.

The four inductees in this year's academy class included David "Gail" Cowart of Alma, B.S. 1960; Joe D. Faddis of Evansville, B.S. 1967; Dennis R. Gardisser of Lonoke, B.S. 1979, M.S. 1981, and Ph.D. 1992; and Eugene H. Snawder of Harrison, B.S. 1969.

Cowart spent most of his professional career with Amoco Oil Company. He is now retired and living on the Cowart farm in Alma.

Faddis is currently a self-employed dairy farmer. Before that he spent eleven years working for the Buckeye Cellulose Corp. in the crushing division.

Gardisser is the associate head of the biological and agricultural engineering department in the Cooperative Extension Service at Little Rock. He has worked for the Extension service since 1982.

Snawder has worked for the USDA Natural Resources Conservation Service since 1968. He currently is a resource engineer designing and installing conservation practices on upland areas with emphasis on water quality in animal waste management systems, erosion control and stream bank stabilization.

The academy was founded Jan. 10, 2002, by the department of biological and agricultural engineering. Members are eminent graduates of the Biological and Agricultural Engineering program of the University of Arkansas, having graduated at least ten years prior to selection for membership.

The academy's objectives are to strengthen the dedication of students to biological and agricultural engineering through personal and professional example, to recognize those graduates of the department who bring honor to the field as practitioners and as citizens, to provide advisory guidance and counsel at the call of the department head, faculty or students, and to encourage personal, corporate, foundation, and government gifts and grants of money, equipment and facilities to the University of Arkansas Board of Trustees for the benefit of the biological and agricultural department.

The department of biological and agricultural engineering is part of the Dale Bumpers College of Agricultural, Food and Life Sciences and the College of Engineering.



Lt. Governor Win Rockefeller speaks to the crowd about the importance of biological engineering.

Our New Inductees



Dennis Gardisser



Eugene Snawder



David Cowart



Joe Faddis



2004 Institute of Biological Engineering Meeting Held in Fayetteville

The theme of the 2004 Annual International Meeting of the Institute of Biological Engineering (IBE) dwell on exploring the exciting and largely uncharted contours of Biological Engineering frontiers. The meeting opened on Friday, January 9, in Fayetteville, with an all-day Invited Plenary Session of distinguished speakers who provided cutting-edge overviews of cross-disciplinary frontiers.

The invited Plenary Session Speakers included Jeff Schloss of the National Institutes of Health for Bionanotechnology, William Heinemann of the University of Cincinnati for Biosensing Engineering, Russell Deaton of the University of Arkansas for DNA Computing and Bioinformatics, Michael Ladisch of Purdue University for Bioprocessing, and Cully Hession of the University of Vermont for Ecological Engineering.

Saturday and Sunday featured Technical Sessions on Bionanotechnology, Biosensing Engineering, DNA Computing and Bioinformatics, Bioprocessing, Ecological Engineering, and Poster Session. Graduate and undergraduate students in the Poster Session were automatically entered for the 2004 IBE Student Poster Competition.

IBE meetings are organized to encourage participation of scientists, engineers and students worldwide; to present advances in engineering sciences, engineering design, technology, educational materials and techniques and other aspects that contribute to the development of biological engineering; and to encourage the development of partnerships among academia, industry and agencies. IBE welcomes professionals and students from all fields of science, engineering and medicine with interest in Biological Engineering. Student participation and presentations are highly encouraged.

The Institute of Biological Engineering was established in 1995 to encourage inquiry, application and interests in Biological Engineering in the broadest and most liberal manner and to promote the professional development of its members. It promotes the view that Biological Engineering is a science-based, application-independent discipline that is aligned with the perspective and foundation of biology. IBE espouses the view that biological engineers should possess the scientific knowledge of biology, including its philosophical views, be proficient in the principles and practices of engineering, and be capable of integrating discoveries from multiple disciplines to design sustainable solutions.



(L to R) Dr. Lalit Verma (President Elect), Dr. Jim Young (President), and Dr. Bob Nerem, the dinner speaker.

BAEG Student Club

This spring, the Biological Engineering Student Club at the University of Arkansas will continue to be recognized as a registered student organization through the associated student government, continue to be active with ASAE, and look forward to becoming an IBE student chapter by the end of the year. One of the goals of the club is to provide its members with exposure to a variety of national, professional organizations pertaining to their field of study. Along with the success of the Roasted Chicken Dinner at the 2004 Annual IBE Conference, the BENG student club is looking forward to many other fundraising and philanthropic events this semester. The club will have its first participation in the Adopt-a-Highway program in late February; a sign is up indicated our stretch of the highway along Weddington drive, on route to Weddington Lake. The U of A will be hosting its annual MATHCOUNTS program at which BENG Club members will be volunteering all day proctoring,



grading, and speaking about their experiences as an engineering major. Also, the club looks forward to a T-shirt design competition and organizing the Biological Engineering Spring Outing. Officer elections will be held in April which will lead into an even more successful fall semester!

IBE Student Poster Winners

First Place

Ryan Pooran, a graduate student in the Department of Mechanical Engineering at the University of Arkansas, for his poster entitled: "Performance of a Flagellar Motor Based Pump."

Second Place

Ying Cai, a graduate student in the Department of Chemical Engineering at the University of Arkansas for her poster entitled: "Host Cell Redesign for Simplification of Downstream Processing Via Proteome Analysis."

Third Place

Matthew Campbell, a graduate student in the Department of Biological and Agricultural Engineering at Louisiana State University for his poster entitled: "Coastal Wave Dissipation Effects of Engineered Oyster Reef Configurations."

From the Head continued

The 2004 Annual International Meeting of the Institute of Biological Engineering (IBE) with the theme of "Exploring Frontiers of Biological Engineering" was held January 9-11 in Fayetteville. The five technical areas included were Bionanotechnology, Biosensing, DNA Computing & Bioinformatics, Bioprocessing, and Ecological Engineering. The first day included invited plenary session speakers with technical sessions and posters on the second day, followed by a program summary and recommendations in each of the five areas on the third day.

We had 96 undergraduates this fall with 46 freshmen, 22 sophomores, 15 juniors and 13 seniors. We continue to see high interest in the Biomedical Engineering concentration. The graduate program is also growing with 28 graduate students this spring. The College of Engineering now has centralized recruiting efforts with Dr. Carol Gattis serving as the director.

A proposal for a Master of Science in Biomedical Engineering has been approved through the various committees on campus and will be considered by the Department of Higher Education this spring. We hope to have this in place for Fall 2004.

As a result of dedicated efforts of all our faculty, and especially Drs. Griffis and Costello the department received official notification of successful accreditation for six years in early fall. We were visited in October 2002 by ABET Accreditation Board.

A Biomedical Engineering Forum was held January 12, with participants from University of Arkansas for Medical Sciences in Little Rock, Washington Regional Medical Center, and U of A faculty.

We are proud to have Ms. Dawn Farver as our first Walton Distinguished Doctoral Fellow. She comes to our program from The Ohio State University and will be working with Dr. Marty Matlock in the Ecological Engineering area.

ABET Accreditation

As part of our efforts to maintain an outstanding department with an outstanding undergraduate educational program, we strive to meet the standards of the Accreditation Board for Engineering and Technology (ABET). Representatives of ABET visited our campus in the fall of 2002 to assess the quality of all of the undergraduate engineering programs in the College of Engineering. Although our program was one of the first to be reviewed under ABET's new Criteria 2000 in 1996, this was the first time our program was reviewed as "Biological Engineering". An important consideration is our statement of educational objectives. Here is our statement.

The educational objectives of the Biological Engineering program are to produce graduates who:

1. Effectively apply engineering to biological systems and phenomena (plants, animals, humans, microbes, and the environment) with demonstrated proficiency in basic engineering skills, technical knowledge, professional and personal skills and,
2. Are well prepared for future challenges in biological engineering, life-long learning, and professional and ethical contributions to society through sustained accomplishments.

We are pleased to report that our program in biological engineering has been accredited for another 6 years, the longest period of time possible.



Highlights and Presentations cont.

When Craighead, Crittenden, Jackson, and St. Francis counties' corn crops were blown flat by a storm; **Gary Huitink** recommended and assisted these counties with the Roll-A-Cone attachment for combine heads. There farmers were successful in harvesting their crop in August.



A retirement party was held for Jalene Ramsey December 12, after 15 years of devoted service to the department and the university. Jalene took early retirement. She is looking forward to the arrival of a new grandson and cruising as often as possible.

Gary Huitink conducted workshops jointly with the Southern Cotton Ginners Association on cotton ginning safety. These workshops included gin owners, ginners and managers at the Community Center in Dumas August 6, at the NEREC near Keiser August 27 and at the Cotton Branch Experiment Station near Marianna August 28.

Phil Tacker attended the Bootheel Irrigation Conference in Portageville, MO December 15. He made an invited presentation titled "Irrigation Scheduling," and displayed a co-authored poster titled "Water, Labor and Cost Savings With Multiple Inlet Rice Irrigation". He was also an invited participant in a panel discussion session on "Research and Field Experiences With SDI."



Ken Shelby retired from the department after 31 years of dedicated service. A party was held in his honor September 26. The department presented Ken with a recliner for his many years of service.

The Grain Sorghum Handbook has just been published. It includes a chapter "Harvesting Grain Sorghum," by **Gary Huitink**, and a chapter on farm safety authored by **Gary Huitink, Phil Tacker and Earl Vories**.

Distinguished Doctoral Fellowships and Doctoral Academy Fellowships

The Department of Biological and Agricultural Engineering at the University of Arkansas has two Distinguished Doctoral Fellowships and four Doctoral Academy Fellowships as well as graduate research assistantships available in several research areas in biological engineering.

FELLOWSHIPS:

Distinguished Doctoral Fellowships offer a stipend of \$30,000 per year plus tuition for up to four years.

Doctoral Academy Fellowships offer a stipend of \$18,700 per year plus tuition for up to four years.

REQUIREMENTS:

Distinguished Doctoral Fellows should have a master's GPA of 3.85 or B.S. GPA 3.65 or higher, a GRE verbal plus quantitative score at least 1300 and a GRE writing score of 5.5 or 6.0.

Doctoral Academy Fellows should have a master's GPA of 3.65 or B.S. GPA 3.5 or higher, a GRE verbal plus quantitative score of at least 1200 and a GRE writing score of 5.0 or higher.

TO APPLY:

Send a letter of application, a resume and transcripts of all college work and three reference letters to:

Dr. Lalit Verma, Head and Professor
Department of Biological and Agricultural Engineering
203 Engineering Hall
University of Arkansas
Fayetteville, AR 72701
Phone: 479-575-2351 Fax: 479-575-2846
E-mail: lverma@uark.edu, Website: www.baeg.uark.edu

BAEG Scholarship Opportunities

The department has several scholarship opportunities available for its students. Last year the department awarded over \$13,000 in scholarships. Listed below are those scholarships and their requirements. We are working toward endowing the Billy Bryan and Joel T. Walker Memorial Scholarship funds. If you would be interested in contributing to the BAEG General Scholarship fund, Billy Bryan or the Joel T. Walker Memorial fund, please complete the form at the bottom of the page and return to the department. Your participation would be greatly appreciated by the students, faculty, and staff.

Biological and Agricultural Engineering General Scholarship – BAEG Majors, based on need.

Billy Bryan Scholarship – BAEG Majors

Xzin McNeal Scholarship – BAEG Major; at least a 2.5 cumulative GPA; need and merit will be considered.

Riggs Tractor Scholarship – BAEG Majors; Preference to students whose family reside in the Little Rock area.

Staplcotn Scholarship – Undergraduate, 2.5 GPA; Arkansas resident, prefer cotton farm family or person connected to the cotton industry; can be renewed, must qualify each semester.

John W. White Scholarship – Amount depends on available funds; need is a priority.

Yes! I would like to contribute to the scholarship fund!

Please accept my contribution to the following scholarship. My check for \$ _____ is enclosed.

Billy Bryan Scholarship Fund _____ **Joel T. Walker** Memorial Scholarship Fund _____

Biological and Agricultural Engineering **General** Scholarship Fund _____

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP: _____ PHONE: _____

E-MAIL ADDRESS: _____

Remit Payment To: Department of Biological and Agricultural Engineering
203 Engineering Hall
University of Arkansas
Fayetteville, AR 72701



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Dr. Jin-Woo Kim
jwkim@uark.edu

Dr. Scott Osborn
gsosborn@uark.edu

Adjunct Assistant Professor
Dr. Em Ward
eward@uark.edu

New Staff Members



Ben Hester, is working in the department as the new Computer Technician. He joined the staff in August 2003

and assists the faculty and staff with their computer needs. Ben has also been working to update the departments web site.



Sara Seabolt, Secretary, joined the staff on January 2, 2004. She will be working with the graduate students and assisting the faculty. Sara had formerly worked in

the Engineering Dean's Office. She is currently pursuing her B.A. in secondary education. She and her husband moved to Fayetteville from Alma.

After completing her B.S. in Biological and Agricultural Engineering, **Katie Vaughn** joined Dr. Julie Carrier as her Research Specialist in December of 2003. She will be working in the field of supercritical fluid extraction.



Liju Yang, Post Doctoral Research Associate, joined staff in August 2003. She will be working with Dr. Yanbin Li in the area of biosensors, specifically impedance biosensors and DNA based biosensors for rapid detection of foodborne pathogens.



Meet our new Graduate Students

Vibhava joined the department in January 2004. Vibhava will be pursuing his masters degree under the direction of Dr. Sreekala Bajwa. He will be working in the area of precision agricultural and water quality. He graduated from Allahabad Agricultural Institute-Deemed University in India.



Dawn Farver joined the department in January 2004. Dawn will be pursuing her doctorate degree under the direction of Dr. Marty Matlock and working in the area of comprehensive



stream study. She received her B.S. and M.S. degree from Ohio State University. Dawn is our first Walton Distinguished Doctoral Fellow.



Nalini Kotagiri joined the department in January 2004. Nalini will be pursuing his doctorate degree under the direction of Dr. Jin-Woo Kim. Nalini graduated with his masters degree from Andhra Medical School in India.



Awards and Accomplishments

Promotions

Tammie Edrington was promoted to Administrative Assistant in January. She will be working with Dr. Lalit Verma. Tammie began working at the University of Arkansas in August 2001, as a secretary in the Biological and Agricultural Engineering Department.



Yanblin Li received the Arkansas Alumni Associations's Distinguished Faculty Achievement Award for outstanding research and service Oct. 10 at the UA Alumni Association Banquet.

Dr. Li was recognized as a "Master Collaborator" for his service to the department of Biological and Agricultural Engineering, Poultry Science, and Food Science. The award also included \$5,000.

Dr. Li's research interest is food processing and bioprocessing engineering, specifically in food safety engineering: microbial prediction.

He has published a total of 55 refereed journal articles (48 as senior author) and has nine manuscripts in review. He has written two book chapters and is co-inventor on four patents issued and four patents pending.



Abani Pradhan won the Third Prize of Graduate Student Poster Competition sponsored by the Food Safety Consortium's 2003 Annual Meeting.



Robert Wolfe, **Dennis Gardisser**, John Slocombe and Bryan Shaw won the ASAE Blue Ribbon Award for an Outstanding Entry in the 2003 Educational Aids Competition Publications: Fact Sheets for their project entitled: "Nozzle Types for Boom Sprayer Applications of Crop Protection Products."



Dawn Farver, is the first BAEG Graduate Student who was awarded the Walton Distinguished Doctoral Fellowship. She was awarded \$30,000 per year to pursue her doctorate degree. Dawn will be working with Dr. Marty Matlock.



Moving, changing jobs, new happenings

Let us know...

Name: _____

E-mail: _____

Company: _____

Address: _____

City: _____

State: _____ Zip Code: _____

Home Phone: _____

Business Phone: _____

Comments: _____



Please mail, e-mail or fax updated information to:

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Educational Objectives: To Produce graduates who:

1. Effectively apply engineering to biological systems and phenomena (plants, animals, humans, microbes, and the environment) with demonstrated proficiency in basic engineering skills, technical knowledge, and professional and personal skills and
2. are well prepared for future challenges in biological engineering, life-long learning, and professional and ethical contributions to society through sustained accomplishments.

Calendar of Events

FEBRUARY

- 3** Engineering Expo- 12:00-4:00 p.m.
14 Valentines Day

MARCH

- 12** Last day to apply for University Scholarships
15-19 Spring Break
19 University Holiday

APRIL

- 17** Students Day of Caring
29 Last Day of Classes
30 Dead Day

MAY

- 1-7** Final Exam
8 Commencement
17 Summer Session 1 Begins
31 Memorial Day Holiday

BAE Lifeline

Department of Biological and
Agricultural Engineering
203 Engineering Hall
University of Arkansas
Fayetteville, AR 72701-1201

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Dale Bumpers College
of
Agricultural, Food and Life Sciences
and
College of Engineering

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Dept. of Biological and Agricultural
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baeg@engr.uark.edu
www.baeg.uark.edu

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Bumpers College 479-575-2252
www.uark.edu/depts/dbcafls/

~

College of Engineering 479-575-6012
www.engr.uark.edu/

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equal opportunity/affirmative action institution.

