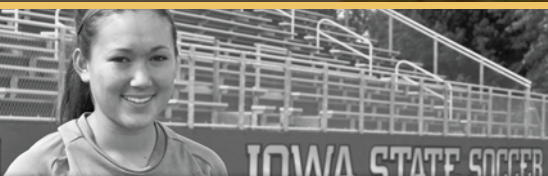


STORIES

IN AGRICULTURE AND LIFE SCIENCES
FALL 2008

Impact: Human Health



UNDERGRAD MIDFIELDER AND
MICROBIOLOGIST PURSUES MEDICAL CAREER



ALUM ADVANCES QUALITY OF
INFANT FORMULA WORLDWIDE



DISTINGUISHED SOYBEAN BREEDER
ENHANCES SOY'S HEALTH QUALITIES

EDITOR:
Melea Reicks Licht ('00 public service and admin. in ag, MS '05 ag education)

WRITERS:
Ed Adcock, Ann Marie Edwards, Barbara McBreen, Brian Meyer, Melea Reicks Licht, Laura Rosenbohm, Susan Thompson

DESIGN:
Grant Luhmann - Ames Laboratory Graphics

PHOTOGRAPHY:
Bob Elbert, Melea Reicks Licht, Barbara McBreen

College of Agriculture and Life Sciences Administration
Wendy Wintersteen (PhD '88 entomology), Dean and Director, Experiment Station

Joe Colletti Senior Associate Dean and Associate Director, Experiment Station

Gerald Miller (MS '71 agronomy, PhD '74) Associate Dean, Extension Programs and Outreach; Director, Extension to Agriculture and Natural Resources

David Acker Associate Dean, Academic and Global Programs; Raymond and Mary Baker Chair in Global Agriculture

College Contacts

For prospective students:
Student Services
Phone: (515) 294-2766
E-mail: agparent@iastate.edu
www.ag.iastate.edu

To make a gift:
Development Office
Phone: (515) 294-7677
E-mail: agalumni@iastate.edu
www.ag.iastate.edu/agdevelopment

To contact the magazine:
STORIES Editor
304 Curtiss Hall
Ames, IA 50011
Phone: (515) 294-5616
E-mail: stories@iastate.edu
www.ag.iastate.edu/stories

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences



Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, 3680 Beardshear Hall, (515) 294-7612.

AH, FRESH INK.

After breaking open a shipment of STORIES from the printer, I can't help but smell that first copy I lift from the box. To me, it's the smell of accomplishment. The accomplishments of our faculty, staff, students and alumni summarized in its pages as well as the accomplishment of sharing some amazing stories with you.


Once that first box is open, I want everyone to have a copy. I practically stop strangers on the sidewalk in front of Curtiss Hall to hand them one. They don't know it yet, but they'll want to read these extraordinary stories of people making a difference in our world.

Those featured in this issue's human health impact section are perfect examples. Take Deb Diersen-Schade, whose efforts have improved the nutritional quality of infant formula and given millions of babies healthier starts in life. Or Jim Reecy, whose work with beef cattle could change the role of meat in our diet. Steven Rodermel and Kang Wang upped vitamin levels in corn as a first step to alleviating life threatening vitamin A deficiency. And Carla Koelher is investigating cell biology in hopes of preventing disease and understanding human aging.

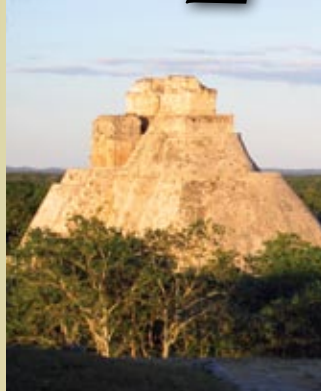
I learned so much putting this issue together, and I hope you will, too. I hope not only will it enlighten you to all the ways agriculture and life sciences contributes to health science, but you also learn a few practical things from our ISU Extension specialists to improve your health and that of your family. I hope you'll enjoy meeting other alumni, faculty and students who are inspiring young people to find their passions, excelling in their fields and serving the public.

So enjoy the prose, the beautiful photographs, the feel of the paper and yes, perhaps even the smell.

Finally, I want to share with you how we distribute STORIES. Our current resources allow us to send print copies to alumni and friends in the Midwest for both issues of the biannual publication, and alumni and friends worldwide for the fall issue each year. We place each issue on our college's STORIES website (www.ag.iastate.edu/stories) with online extras and a complete pdf of the publication. We hope you'll make a note to check us out online each fall and spring. Or, better yet share your e-mail address with us (send to stories@iastate.edu) so you can receive our monthly alumni e-newsletter, Ag and Life Sciences Alumni Online. It will tell you when our online issue is available and keep you up-to-date on college and alumni happenings throughout the year.

Kind regards,

Melea Reicks Licht

CONTENTS
ALMANAC 2



6
FACULTY AND STAFF

Alicia Carriquiry
Elwynn Taylor
Anna Johnson
Andy Zehr



12
STUDENTS

Julie Chen
Chet Hollingshead
Emma Flemmig
Nathan Upah



ON THE COVER:
Statistician Alicia Carriquiry is one of many faculty whose efforts impact human health. She and colleagues developed a new approach to analyzing dietary intake data. Read more on page 6.



17
IMPACT:
HUMAN
HEALTH

- Low-linolenic soy oil
- Enhanced-nutrient beef
- Soy isoflavones
- Monitoring mosquito diseases
- Mollusk research aids human vision

OVER THE SUMMER, I RECEIVED A NOTE FROM Nancy Degner, the executive director of the Iowa Beef Industry Council, telling me about a successful farm tour organized for 36 registered dietitians in Iowa.

The tour, organized by Nancy's organization, the Midwest Dairy Council and the Iowa Pork Producers Association, featured visits with farm families raising beef cattle and pigs in central Iowa. The group also toured the new ISU Dairy Farm and viewed the late-afternoon milking.

Nancy told me the dietitians learned how Iowa families care for their animals and address environmental issues, how co-products from ethanol plants can be fed to animals and how safe, nutritious meat and dairy products are produced. Accompanying the group were College of Agriculture and Life Sciences faculty and extension staff from animal science, food science and human nutrition and our Iowa Pork Industry Center.

Nancy concluded by stating, "I just wanted to let you know that having an ISU scientist or specialist at each stop really made the tour a success. We had the farmer present to tell their story, the family story, and then the science to back it up. Our three organizations really appreciate their assistance and your support."

I appreciated hearing about the efforts of Nancy and her colleagues and their plans to conduct more tours like this in different parts of the state. In an entirely different kind of effort, but with similar goals, Trent Loos, a journalist and rancher, made a journey in a chuck wagon to make a point about modern food production. Trent stopped at the Iowa



State campus in August and talked to several of our faculty about the science, economics and food safety involved. I encourage you to watch some of Trent's video clips of his "LoosTales FoodLink Chuck Wagon Tour" on YouTube, www.youtube.com/user/LoosTalesFoodLink.

We're learning more all the time about how science can impact food production and getting the story out through extension. We'll continue to do so, in partnership with groups like Nancy's and people like Trent.



Wendy Wintersteen
Endowed Dean of Agriculture and Life Sciences



PARTNER
PROFILE 29
• Meat Industry Partners

23
ALUMNI
Deborah Diersen-Schade
Carla Koehler
Monty Collins
Tom Jurgensen
John Moline

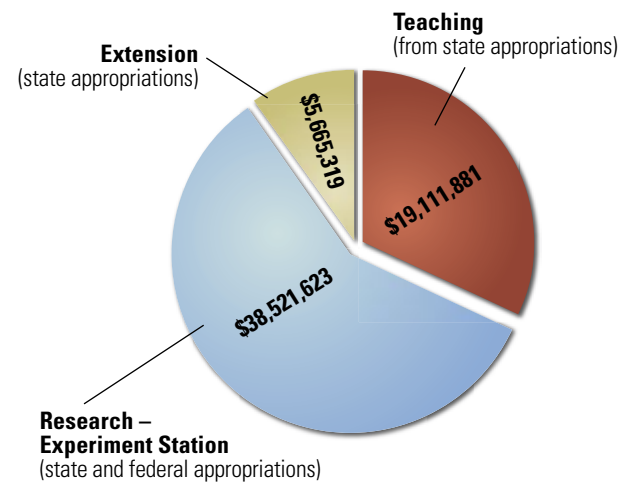


INVESTING IN
EXCELLENCE
• Fred Foreman Scholarship
• Campaign Update
• ISU Executive Campaign Committee

IOWA STATE UNIVERSITY

College of Agriculture and Life Sciences

TOTAL BUDGET FY08
\$63,298,823



EXTENSION SERVICE TO IOWANS

In 2008, **151,926** Iowans participated in Agricultural and Natural Resources Extension's noncredit workshops, conferences, field meetings and home study programs. Another **169,956** Iowans called Agricultural and Natural Resources Extension hotlines or received individual consultations.

WHAT'S IN A NAME?

Two college undergraduate programs are going by new names. The degree formerly known as **ENTOMOLOGY** is now **INSECT SCIENCE** and **AGRICULTURAL EDUCATION** is now **AGRICULTURAL AND LIFE SCIENCES EDUCATION**. The changes will help to attract potential students and align with programs at peer institutions.



NEW COLLEGE MAJORS, MINOR, CERTIFICATE OFFER NEW OPPORTUNITIES

The Board of Regents, State of Iowa, approved two new interdisciplinary bachelor of science programs to be administered by the College of Agriculture and Life Sciences.



The **GLOBAL RESOURCE SYSTEMS** program emphasizes global and cross-cultural engagement while equipping students with strong technical competency in a resource area of their choosing. The major allows students to develop a core set of technical competencies in a resource area selected from among the 21 minors in the college. Students choose a world region in which to specialize, develop competency in a language, participate in a significant cross-cultural living and working immersion experience in their chosen region and carry out a senior project related to their specialization within the context of their chosen region.

The **CULINARY SCIENCE** program combines a strong food science foundation with basic culinary skills development. Students study fundamental sciences, including chemistry, organic chemistry, biology, microbiology and biochemistry and take courses in quantity food production, fine dining management and food safety and sanitation. Two internships are required of students - one in food science and the other in the culinary industry. A minor in meat science and undergraduate certificate in occupational safety also are new to the college's offerings.



FUNDRAISING

In 2007-2008, nearly 4,000 donors expressed their generosity with close to \$24 million, resulting in a 350 percent increase in annual gifting since 2003.

Fundraising highlights for the college include:

- \$6.4 million in program support
- \$2.0 million in student support
- \$3.4 million to support facilities
- \$10.6 million for faculty support
- \$458,490 received from phone, direct mail and e-philanthropy solicitations, an increase of 32 percent over last year and 123 percent since 2003

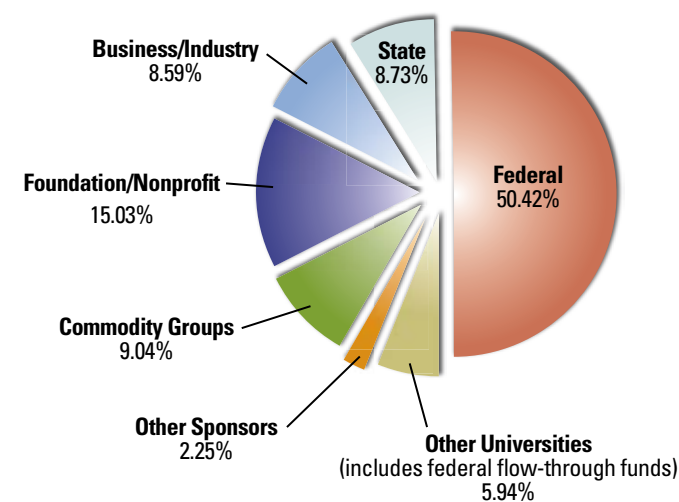
SPONSORED FUNDING

Sponsored Funding FY08
\$93.8 MILLION research awards received
\$24.5 MILLION non-research awards received

20.7%

Sponsored funding generated by the College of Agriculture and Life Sciences, the Experiment Station and Agriculture and Natural Resources Extension accounts for 20.7 percent of Iowa State's FY08 sponsored funding.

Sponsored Funding by Source



COLLEGE OFFERS MORE THAN \$1 MILLION IN SCHOLARSHIPS



ONE STUDENT'S STORY: A HISTORY LESSON IN A SCHOLARSHIP

When Andy Pringnitz of Spirit Lake, Iowa, sent in a scholarship application to the College of Agriculture and Life Sciences, he had no idea he was about to embark on an adventure in family history. When he was awarded the Kline Family Scholarship, his mom thought she recognized the Kline name. She checked with her mother, Margaret Hill Northey. Allan B. Kline, in whose memory the scholarship is named, was a longtime friend and colleague of Andy's great-grandfather, E. Howard Hill. Allan Kline and Howard Hill served together as president and vice president of the Iowa Farm Bureau. Later, Kline was president of the American Farm Bureau while Hill was the president of the Iowa Farm Bureau. Pringnitz is now a freshman in agricultural business.

STORIES online extra: Read more about Pringnitz's scholarship at www.ag.iastate.edu/stories.

COLLEGE REACHES HIGHEST UNDERGRAD ENROLLMENT IN MORE THAN A DECADE

The college has 2,845 undergraduates in fall 2008, the highest number since the fall of 1999. Notably, 150 students joined the college in biology over the last four years. The major, new to the college in 2005, is now the seventh largest among college majors.

	GRADUATE	UNDERGRAD
2007	677	2,697
2008	675	2,845

98%

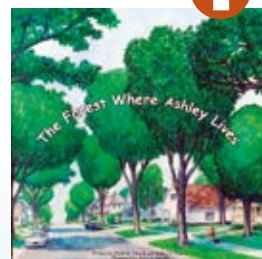
98% PLACEMENT RATE — COLLEGE OF AGRICULTURE AND LIFE SCIENCES

98 percent of bachelor's graduates were on the job or studying for advanced degrees shortly after graduation. **71 percent** of bachelor's graduates took their **FIRST JOBS IN IOWA**. For students who earned master's graduates, **96.8 percent** were working or studying further. For those who earned doctorates, **98.2 percent** were employed or engaged in **FURTHER EDUCATION**.



During the 2007-2008 academic year, **280 College of Agriculture and Life Sciences students** traveled to **24 countries** in **40 study abroad programs**. Anna Webb, senior in horticulture, took this photo of the Pyramid of the Magician at Uxmal, Yucatan, Mexico. Webb participated in the agronomy program "Food, Fiber, Folklore and Flamingos." Her photo won the college's annual study abroad photo contest. Faculty involvement in international programs was high as well: **164 college faculty and staff reported traveling to 47 countries**, 39 of whom served as leaders of study abroad.

CALS Bookshelf



1

ISU EXTENSION BOOK RECEIVES ARBOR DAY FOUNDATION AWARD

"The Forest Where Ashley Lives," a children's book published by Iowa State University Extension about a child's view of urban trees, received a 2008 Education Award from the Arbor Day Foundation.

ANIMAL SCIENCE GRADUATE STUDENT MIXES WRITING AND STUDIES

2

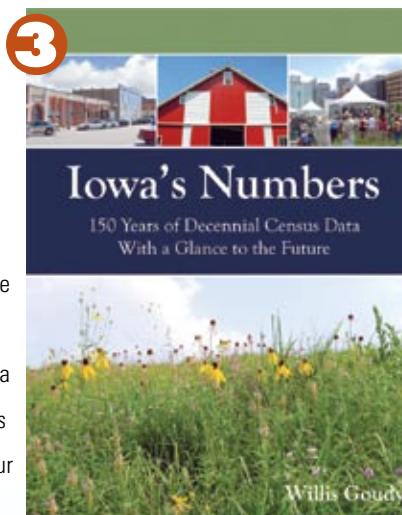
Armitra Jackson, a graduate student working on a Ph.D. in meat science, has written the first of what she plans will be 10 books for children on the importance of food safety. "The Birthday to Remember Forever" features main characters Ace and Mace, who learn the importance of safe food handling in preparation for Ace's birthday party.



150 YEARS OF CENSUS DATA OFFERS GLIMPSE OF FUTURE

3

Willis Goudy, emeritus University Professor of sociology, explores Iowa's ever-changing population in his book "Iowa's Numbers: 150 Years of Decennial Census Data with a Glance to the Future." The new volume provides a data-based review of Iowa across 150 years of decennial census data with a glimpse of what may occur during the next few decades.



STORIES online extra: For more information about how to purchase these books and others by ISU faculty and staff visit www.ag.iastate.edu/stories.

80% LEARNING COMMUNITY PARTICIPATION

The College of Agriculture and Life Sciences has the **highest participation** rate for first-year students at Iowa State in **learning communities** at **80 percent**.

80%

“COOL” STATISTICS MAKES SENSE OF

DIETARY DATA

By Susan Thompson

ALICIA CARRIQUIRY HAS BEEN A MEMBER OF THE Department of Statistics faculty since 1990, and has earned an international reputation for her work.

She also has a secret you won't find on her resume. The one undergraduate course she flunked...statistics.

Carriquiry (MS '86 statistics, PhD '89, DMJ '89 animal science) was born and raised in Uruguay. As an undergraduate, she majored in ag engineering, which in Uruguay is a five-year degree that includes agronomy and animal science.

She completed her master's degree in animal breeding and genetics at the University of Illinois and became interested in statistics after participating in a pig breeding conference at Iowa State in 1984. She completed her master's and doctorate at Iowa State, thanks to the encouragement of David Harville, who was on the statistics faculty at the time.

Much of Carriquiry's work has revolved around nutritional issues. In the early 1990s, the U.S. Department of Agriculture contacted Iowa State's Center for Agricultural and Rural Development (CARD) to see whether a new approach to analyzing dietary intake data could be developed. Carriquiry and colleagues from the statistics department began working with CARD on the issue in a collaboration that continues today.

"Nutrition researchers and policymakers are interested in estimating, for example, the proportion of individuals in a group whose intake of some nutrient does not meet their requirements," Carriquiry says. "To do this, it's necessary to know the distribution of habitual or usual intakes of the nutrient in the group."

ISU METHOD TAKES NUTRITIONAL SURVEYS TO THE NEXT LEVEL

Alicia Carriquiry teamed up with Sarah Nusser, professor of statistics, Wayne Fuller, emeritus distinguished professor of statistics, and former graduate student Kevin Todd, now at the National Cancer Institute to develop the "ISU Method." "The method consists of a series of steps that permit estimating the distribution of usual intakes of a nutrient in a group when all we can observe is daily intake over a small number of days for each person in the group," Carriquiry says. It has been widely accepted in the United States, the European Union and other countries.



Statistician Alicia Carriquiry and colleagues developed a new approach to analyzing dietary intake data that has been implemented worldwide.

Since it's not practical to observe the daily intake of a nutrient over many days for each person, most surveys simply collect information for one or two days. Carriquiry and colleagues developed what became known as the "ISU Method" – a way to estimate the distribution of usual nutrient intake in a group based on daily intake over a small number of days.

Carriquiry has been invited to participate in many international projects with nutrition as the focus. In the past few years, she has collaborated with officials in Canada, New Zealand, Colombia, Philippines, the Netherlands and Bangladesh. She's currently working with policymakers and researchers in Uganda, Chile and Palestine on the design, implementation and analysis of food intake surveys.

About 65 percent of Carriquiry's salary comes from the Iowa Agriculture and Home Economics Experiment Station and her ties to agriculture are strong.

"I do a lot of work related to agriculture," she says. "Currently I am a co-investigator on a grant from the USDA to look at the influence of ethanol on corn prices in Iowa and how that has affected the land-use choices farmers make and the consequent environmental impacts."

Carriquiry says statistics isn't just for academics or scientists, although she knows the general public doesn't share her opinion.

"The comment I get most often from 'normal' folk when they learn I am a statistician is 'icky pooh.' Statistics is critical! It lurks everywhere – from the news about financial markets, to who will win the elections in November, to how many servings of fruit we need to maintain health," she says. "It's too bad such an interesting, challenging, fun and important profession has such a poor reputation. We need to make statistics cool." 📊

NATION'S FIRST EXTENSION CLIMATOLOGIST GIVES VOICE TO WEATHER

By Ed Adcock

AS WELL-KNOWN AS ELWYNN TAYLOR IS, HE MAINTAINS his father, Sterling Taylor, is still better known in agronomy circles.

The younger Taylor, whose name also is Sterling, started using his middle name, Elwynn, to avoid confusion with his father, a professor of soil physics at Utah State and head of the Department of Soils and BioMeteorology. But the editor of the Agronomy Journal "corrected" the authorship of a paper Elwynn submitted in 1965. "My first publication came out as one of my father's," he says.

He and his father had planned to work on projects together, but his father died before Elwynn finished graduate school, more than 40 years ago. After earning his doctorate, Taylor served in the Army for three years as a meteorologist, then worked for the National Weather Service for six years based at Auburn University.

Taylor joined the agronomy department at Iowa State in 1979 as the first extension climatologist in the nation, and probably the world, he says. The federal government, which had provided each state with a meteorologist, eliminated the positions in the early '70s because of budget cuts. That left a gap in weather information that Iowa State filled when it hired Taylor. Other states followed.

Growing up in the small Utah town of River Heights City, Taylor spent a great deal of time outdoors. He recalled being fascinated by the power of the weather.

"That was my main interest from childhood: How does weather affect plants and animals? The influence of the weather on biological beings has always been my interest," he says.

That interest also helps explain Taylor's popularity. During Iowa's drought year of 1988, his name was on the front page of The Des Moines Register more times than the governor's.

"Everyone's interested in the weather and how it affects their plans and affects their lives," Taylor says. "There's a great monetary value, we think, to the rural people and an emotional and educational value to everyone."

With the reorganization that led to the development of the Iowa Public Radio network, a Friday noontime call-in show featuring Taylor on WOI Radio ended. After more than 25 years on the radio station, Taylor is philosophical. "I owe them (WOI) nothing but a great vote of thanks. Twenty-five years is a long time for a single program to exist on radio or television," he says.

Taylor's knowledge and distinctive delivery gained a loyal audience that extended beyond the farm. A well-developed memory – he says he can remember the 14 phone numbers

he's had since childhood – helps him recall weather data. He says he used to talk faster, but slowed down when he noticed international students could understand him better that way.

He acknowledges his voice is well-known, but doesn't consider himself a celebrity. However, the public may disagree. Requests for speeches keep him on the road many nights of the week – mostly in Iowa, but also in several states and foreign countries. "Typically, I work a 10-hour day and give talks to the public at night. Maybe five or six nights of the week I'm giving talks," Taylor says.

He also has time for research, studying how weather moves plant disease, such as soybean rust, around the planet and affects disease development. He also teaches three graduate-level courses.

When asked about the weather, he mentions a constant amid the daily variations. "Weather changes. Climate always has changed. Climate always will change. When I was a graduate student, the question was how fast is it changing, how much is it changing. That's still the question." 🌤️



Elwynn Taylor is well known for his educational and entertaining presentations, like this one at the 2008 Farm Progress Show.

WELL-BEING OF PIGS

By Susan Thompson

AT THE TOP OF HER LIST

DO A GOOGLE SEARCH FOR “FAVORITE ANIMALS” and the Internet presents a list of more than 220 animals named by people responding to a survey. Panther tops the list. There are another 141 animals before “pig” appears.

Anna Johnson sees it differently – for her, “it’s the pig,” says Johnson, assistant professor of animal science. “I think they’re fascinating animals. Whenever I think I’ve got them figured out, they manage to confuse me.”

Johnson, an expert in animal behavior, arrived at Iowa State in spring 2005. Originally from England, she did her undergraduate work in animal science at the University of Reading.

“I was in my last semester and didn’t know what I wanted to do. I had taken all the basic classes, but nothing sparked any passion,” she says. “Then I took an elective class in farm animal behavior and well-being. I found the topic fascinating.”

She earned a master’s in applied animal behavior and animal welfare at the University of Edinburgh in Scotland, and a doctorate in animal science at Texas Tech University with a focus on sow and piglet behavior and welfare.

Johnson spent three years as director of animal welfare for the National Pork Board, where she was instrumental in the development of a program to help producers benchmark and track welfare on their farms.



Anna Johnson researches animal behavior, especially in pigs. “People are asking more questions about how farm animals are raised, transported and processed,” she says. “We all need to be ready with the answers.”

The opportunity to teach was one of the reasons she made the move to Ames. “I want to help establish Iowa State as a place for training students in the field of animal behavior,” she says. Each fall, she teaches an elective class for undergraduates on domestic animal behavior and well-being.

She also has an active research program. “It’s important for me to help producers by finding the answers to applied and practical questions,” she says.

Johnson has formed research collaborations with other scientists on campus. In one study, they considered the benefits of a commercial gel product given to nursery pigs prior to and following vaccinations. “We found the product helps get them eating and drinking and back to their baseline behavior much more quickly,” she says.

Another project involved developing a new loading chute design that was longer and wider, allowing two pigs to move up a ramp together.

“We know pigs like to have a buddy. We also added bumper docks so the chute sealed to both the barn and the truck, blocking wind and sunlight,” Johnson says. “We were able to significantly reduce slips, falls and piling up of pigs in the chute.”

Several research projects are ongoing. She and colleagues just finished one on pen design studying the behavior of nursery-age pigs around drinkers.

Johnson is in demand as a speaker at producer and scientific meetings. She serves on the Iowa Pork Producers Association animal well-being and health committee and the National Pork Board animal welfare committee.

Although Johnson didn’t grow up on a farm, she did live in a rural area. “In the spring, I would help with lambing on nearby farms,” she says. “My mother used to get upset with me because I would pick up lambs’ tails and leave them in a pocket of my coat.”

Johnson and her husband, Christopher Butters, are parents to a two-year-old daughter, Lauren, whom Johnson calls a “spitfire.” She might want to keep an eye on Lauren’s coat pockets. ⑤

STORIES ONLINE EXTRA:

Visit Johnson’s animal behavior lab online and see a video of her describing her research at: www.ag.iastate.edu/stories.

SECRETS TO A SUCESSFUL COLLEGE RECRUITMENT FORCE

By Barbara McBreen

THE SECRET TO SUCCESSFUL STUDENT RECRUITMENT – build relationships.

Andy Zehr, the first-ever marketing and recruitment director for the College of Agriculture and Life Sciences, says that commitment to listening and helping students was in place when he took the job.

“Regardless of how you communicate with students – by mail, email or in person – you have to listen and learn what each student is interested in,” Zehr says. “The strength in our college really lies in that student-service mentality. People in the college are excited about talking to prospective students and their parents.”



Andy Zehr believes good relationships are key to recruitment — including partnerships with such campus celebrities as Cy.

That personal communication is working. Enrollment in the fall of 2008 is more than 2,800 and the college is on track to reach a goal of 3,000 students by 2010. (See more enrollment figures on page 2.)

When Zehr’s not strategizing for the future, he’s helping departments, faculty, advisers and alums find and use the tools and technologies to promote the college.

“The departments and advisers do a good job of interacting with prospective students,” Zehr says. “I provide help with the tools, such as the brochures, folders and advertisements. I also work with them on how to communicate the great things about our 25 majors.”

Zehr stepped into his new position, which is partially funded with the help of donors, in March 2007. With a background that included a fellowship at NASA and strategic communications work at an advertising agency, Zehr brings practical experience to the position. He has a bachelor’s and master’s degree from Iowa State in journalism and mass communications.

Tom Polito, student services director, says the college began getting serious about student recruiting in the mid-1980s during the farm crisis when the number of undergraduates dropped dramatically.

“We started doing a better job of telling our story and recruiting more women and urban students as well as farm kids. Then we saw the number of students increase,” Polito says. “But recently, as the numbers of high school students in Iowa have begun to decline, we knew we had to get even more sophisticated about recruiting. We needed someone to be the leader for marketing strategy and research as it relates to student recruitment.”

Zehr leads monthly recruitment committee meetings, which includes advisers, faculty and students from the college’s 15 departments. Zehr introduces new recruiting ideas and helps coordinate events and campus visits. This year the group coordinated the Iowa FFA conference displays in April, the Science in Ag Day in March and Experience Iowa State days held throughout the year.

“To meet our goals, we need to continue to emphasize that personal interaction with students,” Zehr says. “We also need to brag. We want prospective students to understand all the wide-ranging opportunities found in the agriculture and life sciences areas.” ⑤



Andy Zehr works with departments to develop recruiting ideas and help coordinate events and campus visits. He and LeQuetia Ancar, an adviser in the Department of Agricultural and Biosystems Engineering, discuss layouts for a new brochure.

STORIES ONLINE EXTRA:

To see how you can help the college recruit: www.ag.iastate.edu/stories.

NO ROCKING CHAIR FOR WILLHAM

By Susan Thompson

Among his many significant contributions to animal science, Richard Willham, a Charles F. Curtiss Distinguished Professor in Agriculture and Life Sciences, is well-known for teaching a livestock heritage course using “animal-inspired” art, music and poetry. Behind him are his own original works of art.



IF YOU ASK WHAT RICHARD WILLHAM’S BEEN DOING SINCE he retired from the animal science department 11 years ago, make sure you’ve got time for the answer. Because he’s been busy.

Supposedly, Willham retired in July 1997. But that fall and for three more falls, he taught a course on livestock heritage at Colorado State University. It was a course he had been teaching at Iowa State since 1972. “We started with the cave paintings and ended with today,” Willham says. “I used animal-inspired music, art and poetry in class.”

In 2000, he taught an undergraduate animal breeding class at Colorado State and developed and taught a College for Seniors course.

In 2001, Willham helped to produce a video and essay on the Saddle and Sirloin Club of Louisville, Ky., which is recognized as the livestock industry’s hall of fame. The project was completed in time for the club’s centennial celebration in 2003.

A year later, Willham’s portrait was added to the Saddle and Sirloin gallery that contains nearly 350 oil paintings of the world’s most famous agricultural leaders. “I was amazed to be chosen,” he says.

In 2005, Willham began work on a video and coffee table book for the American Society of Animal Science’s centennial meeting. The video was featured at the opening session in July 2008 in Indianapolis and attendees received copies of the book. Willham was presented with the society’s Retiree Service Award in recognition of his support for the organization.

STORIES ONLINE EXTRA:

Watch a video Willham prepared for the American Society of Animal Science Centennial at www.ag.iastate.edu/stories.

Willham has a long history with the group. He attended his first ASAS meeting in 1946 at the age of 14. He accompanied his father, who earned a master’s in animal breeding at Iowa State under Henry Kildee and a doctorate under Jay Lush.

Willham earned a bachelor’s degree from Oklahoma State in 1954 and a master’s in animal breeding at Iowa State in 1955. After military service, he returned to Iowa State and completed his doctorate in 1960. He went to Oklahoma State in 1963 and started a beef selection project.

In 1966, he returned to Iowa State where he developed the Computer Cowgame, a tool for teaching principles of selection using performance records.

In 1971, Willham helped coin the term expected progeny difference (EPD) to describe a genetic prediction for traits of economic importance. “You can’t talk to a livestock breeder in the United States or around the world who doesn’t know about EPDs,” Willham says.

Willham was named a Charles F. Curtiss Distinguished Professor in 1979. In 1990, he was guest curator of an exhibition at ISU’s Brunnier Art Museum titled “Art About Livestock.” In 1996, he wrote the 100-year history of Iowa State’s animal science department. He has written five books and 27 papers on livestock heritage, published 107 journal papers and served as adviser for 32 graduate students.

Willham and his wife, Esther, have two children and three grandchildren. They live at Green Hills Retirement Community in Ames and are active in the Collegiate Presbyterian Church. As an emeritus professor, Willham often can be found in his Kildee Hall office.

When asked for his favorite memories in a long career filled with achievement, Willham doesn’t hesitate. “Having the chance to share the excitement of discovery with students,” he says. “I never went to work a day in my life – I could hardly wait to get there.” ☺

FACULTY NEWS & SERVICE



Richard Schultz

PROFESSORS HONORED NATIONALLY FOR TEACHING EXCELLENCE

Natural resource ecology and management professor **Richard Schultz** (’65 forestry, MS ’68, PHD ’70) was honored by the U.S. Department of Agriculture Food and Agriculture Sciences Excellence in Teaching Award with one of six regional awards.

❖ Economics professor **James Kliebenstein** received the 2008 Distinguished Teaching Award from the American Agricultural Economics Association. ❖ **Steven Lonergan** (’88 animal science, ’91 MS), professor of animal science, received the Distinguished Teaching Award from the American Meat Science Association.

MISRA HONORED BY ISU, NAMED TO DEAN’S CHAIR FOR DISTINCTION

Manjit Misra received the Order of the Knoll Faculty/Staff Award at the university’s 2008 Distinguished Awards Ceremony. Misra



is a professor of agricultural and biosystems engineering and director of the Seed Science Center and the Biosafety Institute for Genetically Modified Agricultural Products. Dean Wendy Wintersteen also named Misra to a new position as the Dean’s Chair for Distinction in the College of Agriculture and Life Sciences.

IOWA STATE UNIVERSITY AWARD WINNERS, FALL 2008

- Named Charles F. Curtiss Distinguished Professor of Agriculture and Life Sciences: **Joseph Sebranek**, University Professor, professor of animal science and food science and human nutrition
- Named University Professor: **Jack Girton**, professor of biochemistry, biophysics and molecular biology; and **Gail Nonnecke**, professor of horticulture
- ISU Award for Academic Advising Impact: **Ebby Luvaga**, senior lecturer, economics
- ISU Award for Early Achievement in Extension or Professional Practice: **Palle Pedersen**, assistant professor of agronomy
- ISU Award for Outstanding Achievement in Research: **Robert Jernigan**, professor of biochemistry, biophysics and molecular biology
- Louis Thompson Distinguished Undergraduate Teacher: **Steven Hoff**, professor of agricultural and biosystems engineering
- P&S Excellence Award: **Mark Shour**, extension program specialist, entomology
- P&S Outstanding New Professional Award: **Lara Moody**, extension program specialist, agricultural and biosystems engineering
- P&S Outstanding New Professional Award: **Stacey Noe**, program coordinator, Agricultural Entrepreneurship Initiative
- P&S Research Award: **Philip Gassman**, assistant scientist, Center for Agricultural and Rural Development
- Regents Award for Faculty Excellence: **James Russell**, professor of animal science

HEARTY HELLOS

These are just a few new faculty who joined the college in the past year.

For a complete list of new faculty and staff, visit www.ag.iastate.edu/stories.

- **Chad Hart**, assistant professor of economics and grain marketing economist. He will take over many of the former responsibilities of long-time economist Robert Wisner. Hart had been an agricultural economist with the Center for Agricultural and Rural Development.
- **Emily Heaton**, assistant professor of agronomy. Heaton will conduct research and extension programs in biomass crop production.
- **John Patience**, associate professor of animal science. His work will focus on nutritional issues for the swine and feed industry.
- **Alok Bhandari**, associate professor of agricultural and biosystems engineering. His research in water quality will include pesticide transport in soil and water and how pesticides interact with soil.

ISU ECONOMISTS NAMED TO NATIONAL COMMITTEES

Catherine Kling, professor of economics, has been appointed to two committees of the National Research Council of the National Academies. She will join the Committee on Health, Environmental and Other External Costs and Benefits of Energy Production and Consumption, and the Committee on Improving Principles and Guidelines for Water Resources Planning by the U.S. Army Corps of Engineers.

Helen Jensen, professor of economics, has been appointed to the Institute of Medicine’s Committee on Nutrition Standards for National School Lunch and Breakfast Programs, and the National Research Council’s Committee on Ranking FDA Product Categories Based on Health Consequences.

FOND FAREWELLS

George Brant, animal science professor, retired in August. Brant taught at ISU for 37 years teaching numerous courses including basic concepts of animal science, domestic animal physiology, companion animal systems management and agriculture travel courses. He also served as an adviser to several student clubs.

Jim Pease (’92 PHD animal ecology), extension wildlife specialist and associate professor of natural resource ecology and management, retired in June. Pease joined Iowa State as an extension 4-H and youth specialist in 1980. His research and extension efforts focused on human dimensions of resource management and interactions of people with natural resources.

Bob Wisner, University Professor and extension grain marketing specialist, retired last December. Wisner provided grain marketing information and advice to Iowa producers for nearly 41 years. He is well known as an innovator in market outlook and analysis of marketing and risk-management strategies. He was the first specialist to present probability-based grain price forecasts.

SOCCER SCHOLAR'S "GOOOOOOOAL" IS CAREER IN MEDICINE

By Barbara McBreen



Julie Chen, a sophomore in microbiology, is a midfielder on the ISU women's soccer team and a high achiever in the classroom.

KEEPING UP WITH JULIE CHEN IS A CHALLENGE, BOTH on and off the field.

Chen, a sophomore in microbiology, is a member of the ISU women's soccer team. She has a full schedule from August through October trying to fit soccer practice, games, travel, class and time to study into her daily schedule.

"I think I'm more disciplined during soccer season," Chen says. "It's very structured so you have to get things done."

Her performance indicates that she gets things done. She came to Iowa State from Appleton, Wis., on a soccer scholarship and received a George Washington Carver Scholarship, which provides tuition on a first-come basis to 100 minority students with a 3.5 grade point average and an ACT score of 24 or more.

As a midfielder, her job is to link the defense and the offense through ball control and passing. That same control helps her juggle her academic and athletic life successfully, which was evident when she made the dean's list during her freshman year.

"Missing so much class requires making it up on your own time. Fortunately, there are the long bus rides to get it done," Chen says. "It also gives you an excuse to get to know your professors. Most of them are more than accommodating and some even come out to watch our games."

Nancy Boury, the undergraduate microbiology adviser, says Chen is very disciplined. Chen is the first student-athlete that Boury has advised in her 10 years as an adviser in microbiology, which is administered by both the animal science and plant pathology departments.

"I don't know how she does it. We have students who are in the performing arts, but I think the athletic schedule takes even more time," Boury says.

Chen became interested in biology in high school and wanted to focus on a major that could take her into the medical field. She's majoring in microbiology because as an athlete, she wants to learn more about the human body.

"You study how things work in the body and how different diseases and viruses affect the body," Chen says. "This summer I'm hoping to get an internship that will give me more experience in research."

Chen's older brother, Peter, graduated from Iowa State in 2004 in chemical engineering. She knew this was the place for her after her family visited campus with him. She also attended soccer camps on campus and as a high school junior played in an Iowa showcase soccer tournament, where she was recruited to play for Iowa State.

College soccer is more competitive than high school, Chen says, and it's important to stay in shape during the off-season. So she runs daily and lifts weights to build muscle and increase speed.

"We train nine months to play three months," Chen says. "The team is like a family. Everyone on the team is your friend right away and that's helped me adapt to college life." ⑤

STORIES ONLINE EXTRA:

Read about Chen's experiences in the classroom and on the field at www.ag.iastate.edu/stories.

DON'T TOUCH THAT DIAL: CHET HOLLINGSHEAD'S ON THE AIR

By Barbara McBreen



Chet Hollingshead, a sophomore in agricultural education, started his farm broadcasting career at WHO Radio, just like his namesake and family friend Chet Randolph, a well-known broadcaster in the Midwest.

HE'S AN IOWA STATE STUDENT, A BEGINNING FARM broadcaster and a farmer. And at 20 years old, he's living his dream.

Chet Hollingshead says his inspiration came from Mark Pearson. Last year he asked Pearson, host of Iowa Public Television's Market to Market program, how to get into farm broadcasting. Hollingshead says Pearson told him to be a leader, be involved and voice his opinion.

Hollingshead, a sophomore in agricultural education, did just that. He got involved with the Iowa Pork Producers, published an editorial in The Des Moines Register supporting livestock producers, helps with student recruitment as a College of Agriculture and Life Sciences Ag Ambassador and is a member of the Farm Operations Club.

He also convinced WHO Radio's Steve Daece to devote one hour of his talk show to discuss issues related to farming. Daece, who said he couldn't understand why anyone would live on a farm, interviewed Hollingshead back in January 2008.

Listeners who called in not only praised Hollingshead's commitment to farming but suggested that WHO hire him. Four months later, Hollingshead had a summer internship at the station.

"I never applied. It was all because of that hour I spent with Steve Daece," Hollingshead says.

During the summer, Hollingshead learned how to write and produce radio stories. He also worked with Lee Kline, a retired WHO farm broadcaster and a 1951 Iowa State ag journalism graduate, on a story about a farmer who used a wire-trip corn planter to demonstrate farming methods from the past.

Hollingshead knew from an early age that he wanted to go into broadcasting. He was named after Chet Randolph, a family friend and well-known broadcaster in the Midwest, who started his career at WHO and co-founded the Market to Market show.

"I knew forever I wanted to farm and I wanted to be involved in agriculture. And I always loved to talk," Hollingshead says.

He and his two brothers realized there wasn't enough land on their farm near Ogden to support everyone in the family.

"So my brothers and I decided to feed pigs on contract and we opened a 4,800-head barn in September 2007," Hollingshead says.

Hollingshead says he decided to attend Iowa State because of Maynard Hogberg, department chair of animal science. Hollingshead met Hogberg in high school at the Governor's Cattle Show at the Iowa State Fair.

"We had an open house for our new hog barn. I invited Maynard out and he came," Hollingshead says. "I figured if he would take the time to come to our open house that said something to me. He's truly the reason I'm here."

This fall, Hollingshead is working at WOI Radio on campus and is an editorial writer and reporter for the ISU Daily. He's also written for Voices of Tomorrow, which features online editorials and articles written by 18- to 30-year-olds from around the world. After graduation, he plans to continue a career in farm broadcasting and stay involved with the family farm. ⑤



Hollingshead and his brothers, Alex (middle) and Ben (left), built and manage a 4,800-head hog barn near Ogden. Hollingshead says he couldn't have done a radio internship without the help of his brothers.

SCIENCE FAIR LEADS TO WORLD OF OPPORTUNITIES

By Barbara McBreen

IT STARTED WITH A HIGH SCHOOL SCIENCE FAIR PROJECT. “I researched transgenic corn’s susceptibility to fungal diseases,” says Emma Flemmig, a senior in agronomy and biology at Iowa State University. “I met two World Food Prize interns at science fairs and their experiences seemed to coincide with my interests in crop enhancement research, so I decided to apply.”

She was accepted. After graduating from high school, Flemmig spent the summer at the World Food Prize Youth Institute doing research with wheat varieties at the International Maize and Wheat Improvement Center in El Batan, Mexico. There she met Nobel Prize laureate and native Iowan Norman Borlaug and learned about food security issues throughout the world.

“I didn’t consider going into agriculture at all until I was awarded the World Food Prize Youth Institute internship and then I thought, I could make a career out of this,” Flemmig says.

It’s those experiences Flemmig values. Her campus job in molecular plant pathology with the College of Agriculture and Life Sciences’ Science With Practice program and research in diversified forage production through an agronomy professional development fellowship were examples of hands-on opportunities that complemented her classroom work.

WHAT I RETAINED IN THE CLASSROOM WAS BUILT ON MY EXPERIENCES OUTSIDE THE CLASSROOM. THAT ABILITY TO APPLY PRACTICAL INFORMATION IS AN INTEGRAL PART OF AGRICULTURE AS A SCIENCE.

“I’m an advocate of practical learning experiences,” Flemmig says. “What I retained in the classroom was built on my experiences outside the classroom. That ability to apply practical information is an integral part of agriculture as a science.”

Last summer Flemmig did undergraduate genetic research at Cornell University on tomato cuticles (tomato skin). There she studied alongside 15 undergraduates from around the United States in a plant genomics program funded by the National Science Foundation. She also shared her Midwest perspective with her classmates.

“In New York, agriculture is completely different,” Flemmig says. “They took me out to the research fields and it was all rock and clay. In spite of my soil class training, I still said, ‘You seriously grow crops in this?’”



Emma Flemmig, a senior in agronomy, participated in a semester-long study abroad program in Argentina. She is shown in Buenos Aires, before going to La Plata, where she worked on environmental projects.

In August, Flemmig returned from New York and stopped in Ames just long enough to pack her bags to go to Argentina for a semester-long internship.

“My first month was spent in an intensive Spanish language training class in Buenos Aires,” Flemmig says.

Flemmig chose the internship so she could work with the people who live in the country instead of being based out of a university.

“I worked for an environmental nongovernmental organization based in La Plata. It’s focused on community development with environmentally oriented projects. I developed a composting program in the poorer neighborhoods that lack public waste management services,” Flemmig says.

It also fits Flemmig’s long-term career goal. She graduates in December 2009 and hopes to get her master’s degree in an agricultural science and a doctorate degree in an area that will allow her to pursue a career in international agricultural policy or education. ⑤

SPENDING A SUMMER IN BORLAUG’S SHOES

By Laura Rosenbohm

YOU COULD SAY NATHAN UPAH PUT HIMSELF IN THE shoes of Norman Borlaug for the summer. Or at least put himself under the same roof.

Upah lived in Borlaug’s boyhood home in Cresco, Iowa, as part of the College of Agriculture and Life Sciences’ Borlaug Scholar Award and Internship.

Upah, the first participant in the program and a junior in animal science and agronomy, spent four weeks restoring the farm and promoting the 1970 Nobel Peace Prize laureate’s legacy.

Upah did a lot to clean up and maintain the Borlaug farm home. “I also worked with educators in the community to bring the younger generations to the farm and learn about Borlaug’s tremendous impact on the world,” says Upah, who will pass on the project to next year’s interns.

In addition, Upah’s internship included working two days each week at the ISU Northeast Research and Demonstration Farm near Nashua, assisting with water quality research.

“I liked the flexibility between the Borlaug farm and the research farm. My experiences in Cresco were quite simply amazing,” he says. “On the other hand, I was involved in a research study evaluating the difference in water quality in different methods of field tiling, which gave me more agronomy experience.”

Upah grew up on a livestock farm near Clutier, Iowa, and is the college’s student council vice president as well as an ambassador for the college and a member of the Dairy Science Club.

Maurice Kramer (’65 MS agricultural education), a member of the Borlaug Heritage Foundation in Cresco and Upah’s site supervisor, appreciated Upah’s initiative.

“He is a self-starter and that was important. He initiated several meaningful projects that enhanced the internship,” Kramer says. “He worked on marketing activities, followed up with Congress on designating the home a national historic site, charted soil types and contacted the Iowa Department of Transportation regarding road signs.”

In addition, Upah participated in community visits and was given the opportunity to meet Borlaug’s sister, Charlotte Culbert of Cresco, as well as other prominent figures.

“Because of Borlaug’s huge impact and the amount of money awarded, this is the most prestigious scholarship package in the college,” says David Acker, associate dean



Nathan Upah, junior in animal science and agronomy, worked to place Norman Borlaug’s home on the National Register of Historic Places as part of the college’s Borlaug Scholar Award and Internship.

for academic and global programs in the College of Agriculture and Life Sciences. “The ISU Agricultural Endowment wants the recipient to understand where he came from, and understand Borlaug was just like you and me.”

The scholarship is sponsored by the ISU Agricultural Endowment, founded in 1937, which provides opportunities for the college to support the people and infrastructure vital to the future of Iowa agriculture.

By supporting the Borlaug scholarship, the Agricultural Endowment hopes to catch the attention of young Borlaugs and help cultivate future leaders.

Students in their sophomore or junior year are eligible to apply and the recipient is chosen based on strong leadership involvement and work ethic, qualities attributed to Borlaug.

“We look for students who are mature and have proven to be self-starters,” Acker says. “We also want the student to come back to campus and share the experience with other students.” ⑤

STORIES ONLINE EXTRA:

Find a link to the Norman Borlaug Heritage Foundation at www.ag.iastate.edu/stories.

OUR STUDENT CLUBS ARE TOPS IN THE NATION



National Agri-Marketing Association (NAMA) – The National Agri-Marketing Association named the Iowa State NAMA Chapter the 2008 Outstanding Student Chapter in April for their strong chapter program and success throughout the year. The club also was the recipient of the association's inaugural \$3,000 John Deere Signature Award.



Agricultural Business Club – The American Agricultural Economics Association awarded the ISU Ag Business Club the 2008 National Outstanding Chapter and National Creative Club Awards in July. Since 1992, the club has received the National Outstanding Chapter Award nine times and has been awarded the National Creative Club Award six times since its creation in 2000.



Crops Judging Team – At the North American Colleges and Teachers of Agriculture contests in April, the ISU Crops Judging Team placed first in the Ag Computers Contest and second in the Crops Contest and Ag Knowledge Quiz Bowl. The team's combined efforts in the three contests resulted in a second place sweepstakes award.

DAIRY SCIENCE SENIORS RECEIVE NATIONAL HONORS

Dairy science seniors Jessica Tekippe and Matt Jaschen were first and second in the national Dairy Shrine Student Award competition. The national dairy honorary organization judges students on the breadth of their academic and extracurricular activities. Tekippe also was elected president of National American Dairy Science Association Student Affiliate and was selected as the 2008 ADSA Genevieve Christen national student award winner.

GRAD PRESENTED ROTC AWARD

Justin Wedel, who graduated in May with a bachelor's degree in agricultural systems technology, was presented the Reserve Officer Training Corps Governor's Cup Award. Iowa Gov. Chet Culver presents the awards annually for outstanding achievement to top students in ROTC programs at five universities. They honor the students for leadership, academics and military achievement. Wedel is a midshipman first class.

AG AND LIFE SCIENCES STUDENT COUNCIL HONORS GRADUATES

Allison Chwee, agricultural business and economics senior, presented the address to graduates and guests at the college's May convocation and received the outstanding senior award from the Ag and Life Sciences Student Council. The council also honored these students: Julie Collins, animal science and international agriculture, for academic achievement; Sherry Johnson, Spanish and animal science, for distinguished service; and Tyler Strom, agricultural business and economics, for leadership excellence. A new award, Outstanding Ambassador of Agriculture, was presented to Klaire O'Rourke, agricultural business senior, for her efforts to promote agriculture through participation in college clubs and internships.



IOWA STATE MINI TRACTOR TAKES THIRD PLACE

The Cyclone Power Pullers returned from the 2008 1/4 Scale Tractor Student Design Competition with a third-place finish, the team's best overall finish since 1998. The team is made up of students in the agricultural and biosystems engineering department. The annual 1/4 Scale Tractor Student Design Competition is sponsored by the American Society of Agricultural and Biological Engineers. The team is advised by Stuart Birrell, associate professor of agricultural and biosystems engineering, and Matthew Darr, assistant professor of agricultural and biosystems engineering.

PUTTING SCIENCE BEHIND BOTANICAL SUPPLEMENTS

By Diane Birt and Mark Widrlechner

The number of U.S. consumers who said they used botanical dietary supplements dramatically rose from 2.5 percent to 20 percent from 1990 to 2002. While this increase is evidence of Americans seeking to take more control of their health, there's little firm evidence showing that these supplements have clear health benefits.

That's why scientists from Iowa State University and the University of Iowa joined forces in 2002 to establish the Center for Research on Botanical Dietary Supplements (referred to as the Iowa Botanical Center). The center, funded by the National Institutes of Health, conducts research to understand the range of bioactivities and toxicities of medicinal herbs and to learn more about their positive or negative effects on human health.

Currently, the Iowa Botanical Center focuses on three plant genera, Echinacea, Hypericum (St. John's wort) and Prunella (self-heal). Previous research demonstrated the potential of these plants for important health applications, particularly related to infection, inflammation and pain receptivity. The center's objectives are to:

- Identify compounds in Echinacea, Hypericum and Prunella that contribute to their anti-viral, anti-inflammatory and pain-control effects, and those contributing to their toxicity.
- Assess the influence of plant species and population on the bioactive constituents.
- Understand the mechanisms of action of bioactive constituents; in particular the cellular signaling pathways and receptors that are critical for their bioactivity.
- Assess the bioavailability of key constituents of the supplements and the effects of their complex chemical profiles.

The U.S. Department of Agriculture-Agricultural Research Service's North Central Regional Plant Introduction Station on the ISU campus is a key resource for the center's success because of the station's extensive experience collecting and growing Echinacea, Hypericum and Prunella and because of its role in conserving these germplasm collections within the U.S. National Plant Germplasm System.

A key focus of our research has been on botanical supplements and infection. With the emergence of new infectious agents and increased resistance to conventional drug therapies, this issue takes on added importance.


Both Echinacea and Hypericum have been studied clinically for potential health benefits, and, in general, the studies have yielded mixed results, with some suggesting a health benefit but others reporting no measurable impact on the indicators of infectious disease. It is our Center's objective to identify chemical profiles and the key com-



Diane Birt is a Mary B. Welch Distinguished Professor in the Department of Food Science and Human Nutrition and director of the Iowa Botanical Center. Mark Widrlechner is a horticulturist with the U.S. Department of Agriculture-Agricultural Research Service's North Central Regional Plant Introduction Station on campus.

pounds that define their bioactivity, and to provide a context that can be used to reinterpret past studies and serve as a foundation for future research.

What's important for consumers to know right now:

- Botanical supplements with a particular herbal name are not all the same. They come from plants grown in different places and climates, and several different plant species may be used in products that carry the same name. Thus, the plant chemicals in a given supplement can vary considerably from bottle to bottle.
- Consumers should be aware that compounds in Echinacea, Hypericum and other botanical supplements can interfere with drugs. Echinacea and Hypericum, for example, interfere with the systems our bodies use to process and use drugs, such as those that treat high blood pressure and AIDS or even those to prevent pregnancy. Make sure to tell your physician and pharmacist about the supplements you take.
- Continued research on the effectiveness of herbal medicines is timely and important, given the trend toward increased consumer self-selection of complementary and alternative medicine, including dietary botanical supplements.
- Stay tuned. Once scientists better define the active chemicals in botanical supplements, recommendations will change and hopefully become more clear. The aim is to provide consumers with science-based recommendations to guide whether and how they supplement their diets to enhance their health. 

STORIES online extra: To learn more about Echinacea, Hypericum and Prunella and the efforts of the Iowa Botanical Center visit: www.ag.iastate.edu/stories.

SOYBEANS BRED FOR LOW LINOLENIC SOY OIL OFFER FULL TASTE, NO TRANS FATS

By Brian Meyer

ONE OF THE WORLD'S FOREMOST SOYBEAN BREEDERS rummages in his office wastepaper basket and finds a wrapper for a soy bar, a staple of many of his lunches.

Walter Fehr points out the first ingredient on the label: "non-GMO soy protein isolate." He's making a point about how the label is all about marketing. "At the end of the day, the goal of soybean breeding program is to develop soybean varieties with seed components that are positive for human health," he says.

For 41 years, what's mattered to Fehr, a Charles F. Curtiss Distinguished Professor of Agriculture and Life Sciences in Agronomy and director of the Office of Biotechnology, has



Walter Fehr has been breeding soybeans for better food and health traits for more than forty years. His collaboration with Earl Hammond resulted in low linolenic soybeans containing zero trans fat.

been breeding soybeans with novel seed traits primarily for food and health. "That," he says, "summarizes my professional life."

Fehr's tenacity in breeding soybeans for enhanced food and health qualities has gained national attention. Most recently, it's been about how ISU soybeans address trans fats.

Soybeans, which supply nearly 80 percent of all oil used for cooking and baking, have high levels of linolenic acid, which makes the oil spoil sooner. To stave off spoilage, processors use hydrogenation, a process that extends shelf life but creates trans fats, which can raise levels of bad cholesterol.

Over many years, Fehr collaborated with ISU food scientist Earl Hammond to develop soybeans with very low levels of linolenic acid, resulting in oil with longer shelf life, without hydrogenation. The low-lin oils have earned solid

reviews for performance and taste.

Fehr doesn't have exact numbers, but he believes companies contracted to grow about a million and a half acres of the low-lin varieties in 2008. "That's pretty remarkable, given the high prices for commodity soybeans, plus the extra management required to grow low-lin beans in order to preserve their identity."

The most encouraging news to Fehr is that more seed companies are committed to breeding aimed at healthier soybean oils.

Brian Anderson, a former student of Fehr's, focuses on breeding unique soybean varieties at Schillinger Seed, Inc. "Dr. Fehr's varieties are an important source of genetics for

many of the traits we focus on. He's given us a great place to start," he says.

Fehr keeps looking forward. He has collaborations with other faculty, including combining the low-lin trait with insect and herbicide resistance. Because soybean components are an important part of vitamin E dietary supplements, he's studying ways to modify fatty acid composition to enhance vitamin levels. (More dietary vitamin E may mean reduced prostate cancer and coronary heart disease.)

Fehr practices what he preaches. He regularly eats soy foods at work (the evidence is right there in his waste basket) and at home. "I enjoy eating soy, but given a choice between an Iowa pork chop and a tofu burger, I'll choose the chop." ⑤



James Reecy, associate professor of animal science, and colleagues are developing DNA markers to allow beef producers to identify animals that produce meat with enhanced nutrient levels.

IMPROVING THE NUTRITIONAL VALUE OF BEEF

SOMEDAY, THE OLD ADAGE "AN APPLE A DAY KEEPS THE doctor away," could be amended to include "and a nice cut of steak," if Iowa State University researchers have their way.

Funded by grants from Pfizer Animal Genetics and the National Beef Cattle Evaluation Consortium, the research brings together experts on molecular genetics, biochemistry, meat science and animal breeding to identify cattle genetics that lead to desired nutritional traits in beef.

"Our goal is to help improve human health through the beef people eat," says James Reecy, associate professor of animal science.

HIGH BETA-CAROTENE CORN COULD REDUCE MALNURITION IN AFRICA

IOWA STATE UNIVERSITY RESEARCHERS DEVELOPED CORN with enhanced levels of beta-carotene as a cost-effective, sustainable approach to alleviating vitamin A deficiency—one of the most serious causes of malnutrition in developing countries.

Steve Rodermel, professor of genetics, development and cell biology; Wendy White, associate professor of human nutrition; and Kan Wang, professor of agronomy and director of the Center for Plant Transformation and Gene Expression of the Plant Sciences Institute collaborated on the project.

Rodermel and Wang used techniques of genetic engineering to enhance the levels of beta-carotene, the substance that human bodies convert into vitamin A. Deficiency of the vitamin can cause blindness, poor immune function and even premature death.

"Based on our studies, engineering of the pathway by which beta-carotene is produced seems to be a promising first step to boost kernel provitamin A content in corn," Rodermel says. "Coupled with classical breeding, the transgenic approach should be a powerful tool to combat vitamin A deficiency."

White's research group performed detailed analyses to de-

Reecy and colleagues plan to develop genomic tools, or DNA markers, that will allow beef producers to identify animals that produce meat with enhanced nutrient levels. The research team at Iowa State includes Don Beitz, Charles F. Curtiss Distinguished Professor in Agriculture and Life Sciences; Dorian Garrick, Jay Lush Endowed Chair in Animal Breeding and Genetics; and Rohan Fernando, professor of animal science. The team also includes collaborators from Oklahoma State University and the University of California-Davis.

Throughout the multiyear project, researchers will study observable traits (phenotypes) and genetic profiles (genotypes) in approximately 2,200 cattle to identify genetic and environmental interactions that may play a role in determining nutritional value.

"We want to create a product with a high nutrient content that doesn't sacrifice flavor or a positive eating experience," Reecy says. "The molecular markers we discover in this project can be used to select the parents of future generations so genetic progress can be made in these hard-to-measure traits."

Reecy says researchers hope to identify genetic markers associated with such things as enhanced fatty acid composition to make beef a more heart-healthy food source and enhanced iron content to supply a person's daily iron needs. Zinc intake has been linked to the ability of humans to resist respiratory diseases, so increased zinc concentrations is another target.

"We are working to improve the health of the consumer," Reecy says. "In doing so, we will increase demand for beef, and beef producers also will benefit." ⑤



Steve Rodermel, Wendy White (center) and Kan Wang developed corn with levels of vitamin A high enough to have a significant nutritional impact on people in developing countries.

termine vitamin A content and composition of kernels from individual corn lines.

The levels of vitamin A in the corn developed by Rodermel and Wang approach those estimated to have a significant impact on the nutritional status of people in developing countries.

The research was funded by the U.S. Agency for International Development as part of a larger global research initiative, HarvestPlus, to breed and disseminate crops that can fight malnutrition in developing nations. HarvestPlus was organized through the International Food Policy Research Institute and the International Center for Tropical Agriculture. ⑤

HUMAN VISION SEEN THROUGH MOLLUSK MODEL

By Brian Meyer

JEANNE SERB HAS NOTHING AGAINST VERTEBRATES, but she'll never work with them again.

"Invertebrates are much more complex and beautiful. And have such strange behaviors. Can I show you a movie?" Serb turns to her computer and plays a clip of scallops flitting back and forth in murky water. "Look how they clap their shells as they move. They remind me of those novelty wind-up teeth that walk. They really book. I love mollusks."

She used to love vertebrates. As a master's student at the University of Illinois, Serb studied turtles. She hoped to earn her Ph.D. with turtles. Turns out, few funding agencies love turtles.

"That's why I switched to mollusks," says Serb, an evolutionary biologist and assistant professor of ecology, evolution and organismal biology. Research funds are available because mollusks are great models for understanding human health issues like eye diseases. With mollusks, she earned her Ph.D. at the University of Alabama.

At Iowa State, Serb is funded by the National Science Foundation to study how complex traits like the eye evolved in scallops. What she learns may shed light, literally, on our understanding of the human eye.

"The scallop eye is a unique model to study eye formation and evolution," Serb says. "Scallops have an image-forming retina and two kinds of photoreceptors, the cells that change light into chemical reactions that inform the brain. If a scallop loses an eye, it regenerates it. That's an exciting prospect that could directly inform how we look at human vision problems."

But why do scallops even have eyes? Most bivalves don't, Serb says. But scallops have a hundred gorgeous peepers. An extreme closeup of the rim of a scallop shell looks like a Salvador Dali painting. The eyes look like a series of giant blue olives balanced on a mountain range.

It's mysteries like scallop eyes that drive Serb's research to go back to the genetic beginnings and parse out how complex traits were assembled and then began to differentiate among species.

"There are genetic mechanisms, like the eye, that up to a point are common across all animal species. I want to know where the point of differentiation begins that has led to a fly's compound eye, a scallop's 100 blue eyes, the camera-type eyes of a fish or our human pair," Serb says.

In a project supported by ISU's Center for Integrated Animal Genomics, Serb and colleagues in veterinary medicine and computer engineering are comparing the genomes of flies and mice to better understand photoreceptor cells.

When photoreceptor cells fail or die, serious vision diseases result. Retinal degenerative diseases, like macular degeneration, are a leading cause of blindness worldwide.



Jeanne Serb's research uses mollusks as models for understanding human health issues like macular degeneration, the leading cause of blindness worldwide.

As the U.S. population continues to age, it's estimated that macular degeneration will blind more people than all other retinal diseases combined.

"We're looking for similarities between genes in the fly and mouse genomes to see if we can fill in gaps in our knowledge," Serb says. "It'll help scientists begin thinking about creating or saving the receptors in people who are losing their vision." ⑤

EVOLUTION – NATURE'S EDITOR

Serb says evolution is like an editor working on drafts. Each subsequent draft leaves behind unneeded words, sentences and paragraphs. "If certain combinations of genes don't work, the editor gets out the red pencil and puts an 'X' through it. Over time, the DNA language that's spared the editor's severity makes up genetic conservation. For me, the eye is a good model to study genetic conservation and use that knowledge for the good of human health."

SOY ISOFLAVONES MAY OFFER HEALTH BENEFITS

IN THE PAST TWO DECADES, MORE RESEARCHERS HAVE turned their attention to foods that will do more than provide nutrition. They're looking at foods that could stave off disease.

Pat Murphy, University Professor of food science and human nutrition, is one of those researchers who looks for evidence the consumption of certain foods can benefit human health.

She has been studying isoflavones for more than 30 years, well before the compounds were recognized as health-promoting phytochemicals. Phytochemicals are nonnutrient chemicals found in plants.

"I started studying soy isoflavones because they were originally considered toxic constituents of plants," Murphy says. "Now they are considered health protective."

Isoflavones are found naturally in some plants, most notably soy. The only other sources eaten by humans are garbanzo beans and alfalfa sprouts. Soy nuts, edamame, soy milk tofu and many other soy protein foods contain isoflavones.

Three isoflavones in soy -- genistein, daidzein and glycitein -- act like natural estrogens. Nutritionists believe these compounds reduce the risk of cardiovascular disease, osteoporosis and age-related cancers of the breast, prostate and colon. But they don't yet entirely understand how or why.

"Isoflavones are one of many constituents of foods that provide health benefits beyond traditional vitamins, minerals, protein, carbohydrate and lipids," Murphy says. "Cumulatively, these compounds contribute to overall health. But more human studies are needed to confirm the potential health benefits."

Murphy was a leader in the development of a database of U.S. foods that contain isoflavones. She also developed a method to measure isoflavones in foods, has found a way to produce the compounds for research purposes and developed a soy protein processing system to maintain isoflavone content when designing food products.

Murphy received the Outstanding Achievement in Research award from the College of Agriculture and Life Sciences in 2006. ⑤



Pat Murphy, University Professor of food science and human nutrition, researches the human health benefits of isoflavones.

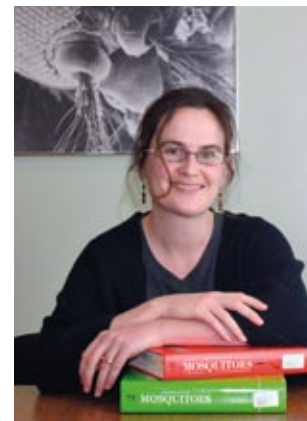
Find a link to the online database Murphy developed of foods containing isoflavones at www.ag.iastate.edu/stories

MONITORING MOSQUITO DISEASES

LYRIC BARTHOLOMAY MAY BE THE ONLY PERSON YOU know who likes mosquitoes.

The Iowa State University Medical Entomology Laboratory, which she manages, is the central location for monitoring disease-carrying mosquitoes in Iowa. Only a few species of Iowa mosquito carry diseases, but those diseases can be devastating to human and animal health.

During the summer mosquitoes are trapped, counted and sorted from locations across Iowa. The mosquitoes are then sent to the Iowa Department of Health and tested for diseases like West Nile virus. Heavy rains that hit the Midwest this spring provided ample habitat for Iowa mosquitoes. Bartholomay says that during June, mosquito traps in the Ames area brought in 20 times more mosquitoes than last year.



Lyric Bartholomay manages ISU's Medical Entomology Lab, which monitors disease-carrying species.

"We send reports to state health agencies and let them know how many nuisance or vector (disease carrying) species are out there, which gives them an idea of when to implement mosquito control measures, or to warn the public of West Nile virus activity in their areas," says Bartholomay, assistant professor of entomology.

Wayne Rowley, professor emeritus of entomology, began monitoring mosquitoes in Iowa in 1968 after a child in Wisconsin died of a mosquito-borne illness. The program has readily accommodated monitoring of other mosquito-borne threats, most recently West Nile virus. Over the years, countless ISU undergraduate and graduate students have contributed to sorting and identifying the 53 different species of Iowa mosquitoes.

During the off-season, Bartholomay turns the tables on disease-carrying mosquitoes and ticks – exposing them to various pathogens to see how their immune systems cope with infection. She also leads a class of undergraduate students through virtual world tours of disease-carrying insects, from sand flies infesting Baghdad to mosquito swarms in Africa. She hopes students take away the same enthusiasm she has for discovering and understanding the relationship between people, pathogens, insect pests and public health. ⑤



Is corn syrup making us fat?

Obesity is a multifaceted problem that can't be attributed to just one dietary component. Overweight/obesity is an imbalance of energy in (diet) versus energy out (physical activity). Corn syrup has been used in the food industry since the 1970s due to its versatility and low cost. It provides the same number of calories per gram as table or cane sugar. The increase in corn syrup intake has been mirrored by a decrease in cane sugar consumption. However, it is the increase in total sweetener intake over the past 30 years, not one specific kind, that has led to excessive calorie consumption and weight gain.

– Ruth Litchfield, assistant professor, extension nutrition specialist, food science and human nutrition

How can I protect my family from e-coli and salmonella?

First, prevent cross contamination by keeping raw animal products separate from ready-to-eat foods. This includes using hot soapy water to thoroughly clean anything that has come in contact with raw animal products – utensils, counters, cutting boards and your hands. Second, cook these foods to the proper internal temperature to kill the illness-causing bacteria (see table below). Third, keep hot food hot and cold food cold and get leftovers in the fridge as soon as possible.

Did you know e-coli and salmonella are not the leading cause of illness in this country? Norovirus, which comes from human fecal contamination of hands and subsequently foods, causes far more illness. How do we control norovirus spread? Simply washing hands is a great start. For more information see: www.iowafoodsafety.org

– Sam Beattie ('80 food technology), assistant professor, extension food safety specialist, food science and human nutrition

Beef, lamb, steaks	145°
Fish	145°
Ground beef, lamb, veal	160°
Egg dishes	160°
Pork	160°
Leftovers	165°
Poultry	165°
Ground poultry	165°

Does soy promote heart health?

Isoflavones in soy act like natural estrogens. Even though they're not sure how or why, nutritionists believe isoflavones reduce not only the risk of cardiovascular disease, but also osteoporosis and cancers of the breast, prostate and colon. The best way to get these beneficial compounds in your diet is through soy protein in foods such as edamame, tofu or soy milk. Learn more on page 21.

– Patricia Murphy, University Professor of Food Science and Human Nutrition

What does the new FDA rule about food irradiation mean?

A recent Food and Drug Administration's ruling adding fresh spinach and iceberg lettuce to the list of approved foods to irradiate will encourage companies to irradiate the produce before it hits store shelves. Exposing food to safe levels of radiation, or irradiating, decreases the incidence of illness by killing harmful microorganisms without affecting taste or freshness. The FDA has allowed irradiation of poultry since 1990 and red meat since 1997. It is currently considering other types of produce such as tomatoes or peppers. Iowa State has a linear accelerator that uses electricity/electrons to irradiate food products for research and demonstration purposes.

– Dennis Olson, professor of animal science and director of ISU's Linear Accelerator Facility

What foods may reduce cancer risk?

The American Institute for Cancer Research has identified the following top 10 foods as helpful in reducing the risk of the main forms of cancer in the U.S. (breast, prostate and colon). They are rich in vitamins, minerals, fiber and many beneficial compounds that have a variety of positive effects on the body.

– Ruth MacDonald, professor and chair, food science and human nutrition

1. Citrus fruits, grapes and berries
2. Cruciferous vegetables (broccoli, cauliflower)
3. Dark green leafy vegetables (spinach, lettuce, kale)
4. Colorful vegetables (tomatoes, squash, pumpkin)
5. Beans
6. Whole grains
7. Fish and flaxseed
8. Dairy foods (yogurt, skim milk)
9. Nuts (walnuts, almonds)
10. Green and black tea

STORIES online extra:

Learn more about these topics and other ways food and nutrition impact health at www.ag.iastate.edu/stories.

AG BIOCHEM ALUM FIGHTS DISEASE AT UCLA

By Melea Reicks Licht



Carla Koehler researches the process by which proteins are imported into mitochondria. The information she uncovers may be used to fight disease and gain greater understanding of human aging.

THROUGH HER MICROSCOPE, CARLA KOEHLER IS ALWAYS zooming in for a closer look at cells in hopes of improving human health.

Koehler ('86 agricultural biochemistry, MS '89 biochemistry, PhD '95 biochemistry) specializes in research on how proteins are imported into mitochondria as an associate professor of chemistry and biochemistry at the University of California at Los Angeles.

"Mitochondria are complex protein structures that produce most of a cell's energy and perform various other vital functions. All cells contain several hundred mitochondria," Koehler says. "We are trying to understand the process by which these powerhouses are constructed within cells, and also how this process sometimes malfunctions to cause disease."

The information she uncovers can be applied to general medical problems like heart disease and may be used to develop therapies for diseases such as Barth syndrome, Parkinson's, Alzheimer's and cancer.

Koehler also hears from families with members who have a rare disease – deafness-dystonia syndrome – that is caused by a defect in mitochondrial assembly, which she specifically researches.

"This rare disease is difficult to diagnose and treat. Together with my clinical collaborator at the University of Denmark, we try to help these families. The protein import studies I started during my post-doctorate work in Switzerland identified the protein in yeast that showed the defect in mitochondria assembly which causes deafness-dystonia,"

OUTSIDE THE LABORATORY

Carla Koehler can often be found on her bike training for local, national and international cycling competitions. She's the former champion of the U.S. Cycling Federation's Masters Team Pursuit and has mentored junior cyclists. She also teaches science to third-graders in an inner-city school and is a mentor for young women interested in pursuing careers in science.

Koehler says. "Due to this information, doctors are more aware of the disease. It has led to better diagnosis and better treatment for patients."

Having grown up on a dairy farm in Wisconsin, Koehler's early interest in animals led her to consider a career in veterinary medicine.

After completing her bachelor's in agricultural biochemistry, she spent a year working on a degree in veterinary medicine before discovering her true calling in fundamental research. She began to study biochemistry under the guidance of Don Beitz, Charles F. Curtiss Distinguished Professor of Agriculture and Life Sciences in animal science and biochemistry, biophysics and molecular biology, and Alan Myers, professor of biochemistry, biophysics and molecular biology.


She earned several teaching excellence awards while working on her master's and Ph.D. Since joining the faculty at UCLA in 1999, Koehler has shared her expertise with undergraduates in the classroom.

"The excellent graduate training I received at Iowa State University laid the groundwork for me to develop my current research program," she says.

She conducts her research by studying other organisms that model mitochondrial function in human cells.

"Modeling processes in yeast allows us to investigate the biochemistry in great detail. We're also developing zebrafish as a new model system for mitochondrial diseases," Koehler says. "Working with fish isn't the easiest, but in terms of imaging and techniques, it is better. Using yeast, mice and zebrafish, we can examine mitochondrial diseases from the single molecule to the organism. We are currently using yeast to develop therapeutics and then will test their effectiveness in our animal models."

Koehler's research also may lead to greater understanding of human aging. "Mitochondria make energy for your cells and become less efficient as you age. So the eyes, ears, brain and heart, which have high energetic requirements, are all affected," she says.

Koehler says she enjoys pushing her science in new directions. She sees her work as one component to curing disease. "My research team wants to understand the molecular basis of mitochondrial diseases at a mechanistic level and then plug it into the big picture in human mitochondria," she says. 



GIVING BABIES A HEALTHY START

By Melea Reicks Licht

Deborah Diersen-Schade returned to the ISU campus this fall to present at a symposium in honor of Norman Jacobson, an emeritus Charles F. Curtiss Distinguished Professor of Agriculture and Life Sciences, who served as her major professor in animal science. She has made groundbreaking contributions to infant nutrition worldwide.

THE RESEARCH OF DEBORAH DIERSEN-SCHADE HAS made a significant impact on families and how they meet the health and nutritional needs of babies.

For the past 22 years, Diersen-Schade ('78 animal science, MS '81, PhD '84 nutritional physiology) has led Mead Johnson Nutritionals' research on lipid nutrition of infants. Her work has led to what some experts describe as the most significant innovation in infant formula in several decades and earned her the admiration and respect of nutritionists and scientists worldwide.

"My colleagues and I have a passion for giving infants and children the best possible start in life," she says. "We just feel so good about what we're doing."

The farm girl from Sac City, Iowa, says it was her early interest in horses that brought her to Iowa State. As she neared the end of her freshman undergraduate year, she realized she wasn't going to be a horse trainer, but was interested in learning more about animal nutrition.

"If not for the well-rounded education and mentoring of Dr. (Norman) Jacobson I received at Iowa State, this wonderful area of nutrition research would never have opened up for me the way it has," Diersen-Schade says. "It was my strong grounding in science that paid off in industry."

After receiving her advanced degrees from Iowa State in nutritional physiology and doing a postdoctoral fellowship at the Hormel Institute, Diersen-Schade joined Mead Johnson Nutritionals. She is now the director of global scientific affairs and holds the company's highest scientific distinction, that of research fellow, which is equivalent to distinguished professor in the academic world.

Diersen-Schade has applied the groundbreaking work on the impact of omega-3 fatty acids in brain and eye development by other leading nutrition scientists, including fellow Iowa State alumna Susan Carlson (PhD '75 nutrition) on infant nutrition and development.


The results have helped Mead Johnson, maker of Enfamil infant formulas, to become the first company to obtain Food and Drug Administration allowance to market infant formulas with added long-chain polyunsaturated acids (DHA and ARA). And, more importantly, provided advancements in infant nutrition that have worldwide benefit in improving infant health and development.

"The presence of these fatty acids improves pre-term and promotes normal term infant growth, vision and cognition with no adverse effects," Diersen-Schade says. "Today DHA and ARA-supplemented formulas represent the vast majority of the U.S. infant formula market and have been fed to millions of infants worldwide."

She continues her research using human breast milk as the "gold standard" for the infant diet. Mead Johnson is currently investigating new ways to improve nutrient intake in hopes of learning more about the impact of early nutrition on later growth, disease, obesity and possibly autism.

"There is a lot of recent focus on probiotics like those found in yogurts. We believe the best use is in specialty formulas for infants with allergies. There is also a lot of interest in fine-tuning other nutrients in formula such as carotenoids, vitamin D and cholesterol."

Diersen-Schade is co-inventor on five patent applications and has more than 50 peer-reviewed publications to her credit. She received the Distinguished Achievement Award from the ISU Alumni Association in 2006 in recognition of her outstanding professional achievements.

As a mom to two sons with the oldest, Andrew, now a college student, she finds herself concerned with the quality of dorm food as well as infant formula. She, her husband James and their youngest son Michael reside in Evansville, Ind. 

SOME BUSINESS, SOME SCIENCE, ALL ENTREPRENEUR

By Ed Adcock

WHEN TOM JURGENSEN ADVISES HIS ENTREPRENEUR clients, they can be sure it's from the heart. As the founder of the Catalyst law firm based in San Diego and a creator of three life sciences start-ups, he knows what they're going through.

"I tell them there will be times when you are talking to the ceiling all night long," he says. "But there are great times, too."

Jurgensen ('85 MS animal ecology) admits to being a risk taker (much to the chagrin of his wife, Kathy, a fellow ISU alum with a degree in physical education, who is more risk averse).

"I try to mitigate the risk or deal with the risk, but you have to accept it if you want to be an entrepreneur. There are some things you can try and account for, but there are some things you have zero control over," he says.

Entering the business world and legal profession through his love of science, Jurgensen has been able to successfully combine the three. He earned his law degree in 1989 from the University of Oregon, and formed his law firm in 2003, aptly named for the chemical agent that enhances a reaction but isn't used up in the process.

He and the firm's eight attorneys represent academic institutions, small start-ups and medium-sized companies dealing with a variety of legal matters from intellectual property to business incorporation and structuring to helping them grow by finding sources of capital.

Jurgensen has founded three biotech companies. The one he's most involved with is called Allylix, which works on discovering genes from plants that produce flavors, fragrances and insecticides but in quantities too small to extract from the plants. The company is working on the technology to insert the genes into yeast to develop commercially.

Allylix is working on a compound in grapefruit rinds used as a citrus flavoring in products such as soft drinks to develop a consistent, commercially viable supply.

The company licensed technology discovered by ISU entomologist Joel Coats that provides potential natural compounds for mosquito repellency. "He's got an extract we're looking at because the CDC (Centers for Disease Control) wants a natural replacement for DEET. It looks promising with repellency that's close to DEET, lasting three to four hours," Jurgensen says.




Alumnus Tom Jurgensen consults with Kelly Bagla, a lawyer at Catalyst, the law firm he founded. They specialize in intellectual property, business incorporation and helping businesses find sources of capital.

The Wisconsin native discovered he had the "bug" for business while working as a staff attorney at 3M's corporate headquarters. His career path appeared to be laid out in advance, with promotions every five years or so. That type of planned progression frustrated Jurgensen, who decided that he'd rather "go out and see what I can do on my own."

Although he was always intrigued by business, he loves science. After his degree in biology and chemistry at the University of Wisconsin-River Falls, he worked with Bill Franklin, then a professor in the Department of Animal Ecology at Iowa State, on research for the management of guanacos, a llama-like mammal. He also taught ornithology with Jim Dinsmore, another animal ecology professor.

Finding his place in the two fields wasn't a clear shot, but has led to the greatest enjoyment.

"Some people like to plan their careers perfectly. That's not me," he says. 

JURGENSEN ON FARMERS AS ENTREPRENEURS

"Farmers are the ultimate entrepreneurs. talk about going on faith and working in an environment where a lot of your risk is out of your control. You can't control the weather, the rainfall, the prices. I think what they share with other entrepreneurs is that it's their life and they control what they control and they're willing to live with that. I know that's how I feel sometimes."



TEACHING WITH A FAITH BORN NOT OF WORDS BUT OF DEEDS

By Melea Reicks Licht

Pleasantville ag teacher Monty Collins speaks to the freshman class about the FFA creed. The ISU alum has 25 of the school's 61 freshmen in the class and 65 students in the FFA chapter. "I have such incredible students, it's almost scary," he says.

AS A FRESHMAN AGRICULTURE STUDENT IN HIGH SCHOOL 29 years ago, he stood behind the angled piece of wood of the podium, mumbling his way through the FFA Creed.

Today, he's behind the same podium teaching the creed to a classroom of freshman in Pleasantville, Iowa, and there's not an empty seat in the room.

Monty Collins ('87 agricultural education) didn't expect to be behind that podium again.

"It is great to see the smiles when they get the creed down," he says. "They have such an amazing sense of accomplishment. Joining FFA is the best thing that has ever happened to me, and I wanted to help other students have that experience."

Collins says he had no plans to teach when he enrolled in agricultural education at Iowa State, but after a positive experience student teaching and the encouragement of ISU faculty, he decided to pursue teaching rather than a career in agribusiness.

"Dr. Robert Martin and the ag ed department provided me the tools to teach and the confidence to do it well," he says. "And my FFA adviser set a great example."

Collins is only the fourth teacher to lead the agriculture program in Pleasantville since 1951; he's taught there for 20 years. He credits his thriving program to a supportive school administration, an engaged advisory committee and community support built by former advisers.

Collins tries to make all his lessons practical. He admits he is "not big on textbooks."

"Our advisory committee is our network and our connection to the community," he says. "They help plan and evaluate to make sure we're in touch with the real world and are serving these kids and our community."

To do that, Collins created a diverse program including farming over 20 acres of corn and soybeans, stewarding projects at

Lake Red Rock for the Iowa Department of Natural Resources, operating a landscaping program and raising tilapia.

Collins proudly points out plaques that have recently been added to his podium as a memorial gift. Thanks to such gifts and financial support from corporations, Pleasantville has a shop featuring the latest technology and a newly refurbished corn planter. There are plans to build a new greenhouse for the horticulture class.

While Collins is upbeat, he recognizes the shortage of agriculture teachers is a challenge in Iowa and the nation. He says school districts can attract new teachers by offering year-round contracts, giving teachers time to work on individual FFA projects and facilitating community support. Collins says teachers can do more to increase the number of students interested in agriculture.

"We lead by example and don't know it. If I'm excited and interested in what I do, students will be, too," he says. "If I'm down on the job and don't have my heart in it, they'll notice that, too."

Collins' own family has noticed. His wife Renee is a "cheerleader" for the FFA as a middle school teacher and last year he had all three of his children in his classroom. "It's the most I've ever seen my kids," he jokes. His oldest daughter is now a freshman at Iowa State and his younger two have a few more years to see their dad behind the podium before they head to Iowa State as well. ⑤

STORIES ONLINE EXTRA:

Read an essay by current Iowa State agricultural education student Joshua Day that he wrote with his former high school agriculture teacher about how teachers can inspire students to pursue their profession: www.ag.iastate.edu/stories.

WHATEVER THE NEXT ADVANCE FOR TURKEYS MOLINES WILL BE READY

By Melea Reicks Licht

NEXT TIME YOU BITE INTO A SUBWAY TURKEY SANDWICH west of the Mississippi River, there's a good chance you're enjoying turkey that started out on the Moline Brothers farm in northwest Iowa.

John Moline ('67 poultry science) says the basic principles of successful turkey production – feed efficiency and "liveability" – haven't changed since his family began raising turkeys in 1924 near Manson.

What has changed is the amount of labor needed to get the job done.

"Automation, like feeders, waters and skid loaders, has made a huge difference in the amount of labor required to raise turkeys," he says. "But the biggest change I've seen is that when we were kids, it took 36 weeks to grow a 36-pound turkey. Today we can turn out a 40-pound turkey in 20 weeks." He credits the increase in size to improved genetics and nutrition.

Moline is representative of an industry tuned in to their consumers. Moline lists the well-known Butterball turkey, which they raised for a time, and convenience foods including Norbest turkeys with pop-up timers, as ways their industry has met consumer demand.

"Our industry has been consumer-driven for years, at least since my ISU days," Moline says. Today close to 50 percent of all turkey is consumed in turkey sandwiches, including

birds from the Moline farm. Their product is packaged into precooked, presliced lunchmeat packs for use in Subways and for purchase in retail outlets.

Moline always knew he wanted to farm. He took over the family operation with his brother Tom in 1968. Today with John's sons Brad and Grant on board they turn out 28,000 birds every nine weeks.

Turkeys arrive at the Moline farm the same day they hatch from a facility in Minnesota. While in the care of the Molines, the turkeys grow from 4 ounces to 44 pounds in 21 weeks.

In addition, the Molines row crop 1,500 acres. They incorporate their corn into turkey feed pellets and use turkey manure as fertilizer for their crop acres. Moline says they also keep a handful of cattle on hand, "for the grandkids to play with and to fill the deep freeze."

Moline, a member of the College of Agriculture and Life Sciences advisory council and former president of the Iowa Turkey Federation, serves as a board member of the Iowa Turkey Growers Co-op and West Liberty Foods LLC turkey processing cooperative. The Molines are one of 42 independent turkey producers who are members of the cooperative. He proudly details the cooperative's state-of-the-art processing facilities and shares that while they've never needed a recall, they can track down every product within four hours if necessary.

He says advances in nutrition, like adding amino acids and animal fat to the feed, has given more energy to the birds, and advances in genetics may lead to 50-pound birds. That's something he didn't think was possible when he left home for Iowa State in 1965.

Moline laughs when he talks about his days at ISU. "I loved the entire experience," he says. "It was the best vacation I ever had."

In addition to the break from farm chores, he says he enjoyed meeting people at Iowa State, including a "little Chicago girl" who is now his wife, Gayle ('68 applied art). Their Iowa State brood includes sons, Jay ('96 mechanical engineering), David ('97 ag engineering), Grant ('98 ag business) and Brad ('02 dairy science and animal science), all of whom married fellow Iowa Staters. "The grandkids don't have a choice," says Moline with a smile. ⑤



John Moline (right) poses in a turkey finishing barn with sons and fellow ISU alums Grant (center) and Brad (left). The Moline family's successful 85-year-old operation could be credited to their devotion to quality and their adaptable nature. "The only thing constant is change, and you have to change to stay in the game," John says.

ALUMNI NEWS IN BRIEF

ALUMNI HONORED BY IOWA STATE UNIVERSITY ALUMNI ASSOCIATION

Iowa State University recognized three College of Agriculture and Life Sciences alumni at its Distinguished Awards Celebration on April 11, 2008.



Charles Manatt ('58 rural sociology), former ambassador to the Dominican Republic, received the Distinguished Alumni Award. The Distinguished Alumni Award is the highest honor given to alumni by Iowa State University through the Iowa State University Alumni Association presented to alumni who are nationally and internationally recognized for preeminent contributions to their profession.



Karen Kolschowsky was presented an Honorary Alumni Award for her commitment to Iowa State, the alma mater of her husband, Gerald ('62 agricultural business). The Honorary Alumni Award is the highest honor given by Iowa State through the ISU Alumni Association to individuals who are not graduates and who have made significant contributions to Iowa State's welfare, reputation, prestige and pursuit of excellence.



Alumnus **Owen Newlin** ('51, agronomy, MS '53) received the ISU True and Valiant Award for lifelong service, generosity and distinction that have helped transform Iowa State. "True and valiant like the bells of Iowa State" are words of "The Bells of Iowa State," which expresses the spirit of loyalty and commitment Iowa Staters have for their alma mater.

LATHAM CHAIRS USDA TECHNICAL ADVISORY COMMITTEE; ALSO LEADER OF CARET

Don Latham, who earned a bachelor's degree in agronomy in 1968, was elected chairman of the USDA's Agricultural Technical Advisory Committee for Trade in Grains, Feed and Oilseeds in March. The co-owner of Latham Seed Co. of Alexander has served on the committee since 2001. He also was elected vice chairman of the Council for Agricultural Research Extension and Teaching (CARET), a national grassroots organization that is part of the National Association of State Universities and Land-Grant Colleges.

AGRONOMY ALUM RECEIVES SOIL PHYSICS GOLD MEDAL

Donald Nielsen, who earned a doctorate in agronomy from Iowa State in 1958, has received the first Don and Betty Kirkham Soil Physics Gold Medal. The award was presented at the third Kirkham Conference named for former Iowa State agronomy professor Don Kirkham. Nielsen is an emeritus professor of soil and water science at the University of California-Davis. Nielsen's memories about Iowa State for its sesquicentennial includes information about Kirkham and his wife's accomplishments at: www.ag.iastate.edu/stories

PORK BOARD HIRES ALUM AS CEO

The National Pork Board has hired alumnus Chris Novak as chief executive officer. Novak has served as executive director of the Indiana Soybean Alliance and Indiana's corn organizations. He previously worked for the National Pork Producers Council in 1990 as public policy director and in 1992 became director of environmental services. Novak earned a bachelor's degree in public service and administration in agriculture from Iowa State in 1987.

LEISING HONORED WITH AGRICULTURAL EDUCATION AWARD

Jim Leising recently received the American Association for Agricultural Education Fellow Award. Leising is assistant director for international programs in agricultural and academic program support at Oklahoma State University College of Agricultural Sciences and Natural Resources. Leising earned his master's and doctorate degrees in agricultural education from Iowa State in 1973 and 1976.

ALUM TO HEAD ANIMAL SCIENCE AT GEORGIA

Keith Bertrand became the head of the animal and dairy science department at the University of Georgia Aug. 1. He earned his master's and doctorate degrees in animal science from Iowa State in 1981 and 1983.

ALUM INTERIM DEAN OF OREGON STATE'S COLLEGE OF AGRICULTURAL SCIENCES

Bill Boggess, executive associate dean of Oregon State University's College of Agricultural Sciences, has been named interim dean of the college and interim director of the Oregon Agricultural Experiment Station. Boggess came to OSU in 1995 as head of the agricultural and resource economics department. He served as executive associate dean since last year and associate dean since 2005. He earned a bachelor's degree in agricultural business in 1974 and a doctorate in agricultural economics in 1979 from Iowa State.

LEWIS TO HEAD ENTOMOLOGY

Entomology alumnus Les Lewis is serving as chair of the ISU entomology department for a two-year term. He retired Sept. 3 from his position as research leader and supervisory research entomologist with the U.S. Department of Agriculture-Agricultural Research Service in Ames. Lewis earned a doctorate in entomology in 1970 from Iowa State.

MEAT AND GREET: PARTNERSHIPS LINK TO QUALITY PROGRAMS

by Ann Marie Edwards

JOSEPH CORDRAY KNOWS THE VALUE OF GOOD RELATIONSHIPS. The partnerships he has made as an Iowa State University professor of animal science and extension meat specialist have been key to making the ISU Meat Science Extension Program internationally recognized.

Cordray ('71 animal science) began building relationships in the meat industry even before he stepped foot on campus. In 1967, when he was headed to college, Cordray realized he would need a job in Ames. As a senior in high school, he was cutting meat at a local grocery store in his hometown of Charles City, Iowa. His boss helped Cordray make a call to Robert Rust, who was the ISU Extension meat specialist. Rust helped Cordray get a job as a student employee at the Meats Laboratory.

After completing his advanced degrees at Auburn University, he worked as research director for A.C. Legg, a major seasonings company, for several years. During that time, he would occasionally return to ISU to help teach one of the processed meat short courses. When Rust retired in 1995, Cordray was hired on as extension meat specialist.

Since then, Cordray has given more than 100 invited presentations to meat processor groups or organizations and authored more than 250 meat industry trade magazine articles. He writes "Cordray's Corner" for the magazine Independent Provisioner. In the past 13 years, he has coordinated more than 250 programs for meat processors and helped secure several grants to support these activities.

"The meat processors of Iowa are able to carry on their businesses and comply with ever-changing government regulations largely through the educational programs held by ISU Extension meat science," says Marcia Richmann, executive director of the Iowa Meat Processors Association. "Joe Cordray serves on our board of directors and we are indeed very fortunate to be able to benefit from his expertise."

STORIES ONLINE EXTRA:

Learn more about meat science programs in ISU's Department of Animal Science: www.ag.iastate.edu/stories



At the Wurstfest held in conjunction with the 2008 Sausage and Processed Meat Short Course, Joe Cordray, right, presents an appreciation plaque to speaker Klaus Kreibitz from Hamburg, Germany.

ISU has one of the most extensive programs in the nation for helping meat industry personnel comply with new food safety regulations and learn about the latest technology and meat science information. In 2004, in the only ranking ever done on meat science extension programs, Meat and Poultry Magazine ranked Iowa State's program number one in the nation.

Often state-of-the-art equipment is shipped to the Meats Laboratory for use in a specific program. Each year, more than 400 attendees representing 35 different states and several different countries participate in an extension meat science short course or workshop.

"Our industry partnerships allow us to show cutting-edge technology and provide the very latest information to our attendees," says Cordray.

One of their best known courses, the annual Sausage and Processed Meat Short Course, celebrated its 30th year in July. The program attracts about 75 participants from around the world. The school's Basic Sausage Short Course and other similar courses focus on the technology of sausage production, including demonstrations and instructions about ingredient use, basic meat science, food safety, emulsions, casings, thermal processing and more.

Since the inception of ISU's processed meat short courses in 1979, more than 10,000 participants have attended one of these programs. ⑤

FOREMAN SCHOLARSHIP HONORS STUDENTS WHO VOLUNTEER

By Melea Reicks Licht



Justin Saenz (left) meets with Dana and Martha Robes, who established the Fred Foreman Scholarship for Growth in Leadership Participation to encourage students to volunteer, especially in college recruitment. Saenz, a sophomore in animal science and preveterinary medicine, is one of the inaugural recipients of the award.

STUDENT LEADERS IN THE COLLEGE of Agriculture and Life Sciences don't get paid for their volunteer work recruiting for the college, leading student clubs or planning events. But their efforts are not going unnoticed. These students aren't looking for recognition; they gladly volunteer their free time to make the college its best. However, a new scholarship is rewarding their efforts.

A gift from Dana and Martha Robes of Round Pond, Maine, has established the Fred Foreman Scholarship for Growth in Leadership Participation to recognize the top volunteers and encourage new students to volunteer, particularly in college recruitment. They hope the program inspires students to volunteer to earn a place within the premier program.

The Robes also are honoring Foreman, an emeritus professor of dairy

science, who Dana Robes ('67 dairy science) had as a professor while at Iowa State. They hope this scholarship will help recruit and retain the most outstanding student leaders and volunteers not only from Iowa, but from other states as well.


One component of scholarship criteria will be participation in recruitment for the college, so students who serve as College of Agriculture and Life Sciences Ambassadors may have an edge. But the scholarship program isn't limited to just those in the student recruitment group.

As part of the Foreman program, the 20 student leaders who do the most to recruit on behalf of the college each year will receive scholarships. The top five students receive an award of \$5,000 each, and 15 other select student leaders and recruiters will receive \$1,000 each. These awards are renewable for up to two years if, after annual evalua-

tion, the students remain among the top leaders. The scholarship is available to students in their sophomore year and higher.

Justin Saenz, a sophomore in animal science and preveterinary medicine, from Kenedy, Texas, is a college ambassador and one of the five inaugural recipients of the highest Foreman award.

"I am very involved here at Iowa State, so between classwork and activities my time is spread very thin. I have given some thought to cutting back on my activities, but I couldn't make up my mind on which ones to give up," Saenz says. "The Foreman scholarship helped me decide to stay with Ag Ambassadors, but the biggest reason I'm still involved is the fact that I love serving my college."

Saenz plans to continue his education at the ISU College of Veterinary Medicine and pursue his dream of opening a clinic specializing in swine medicine. 



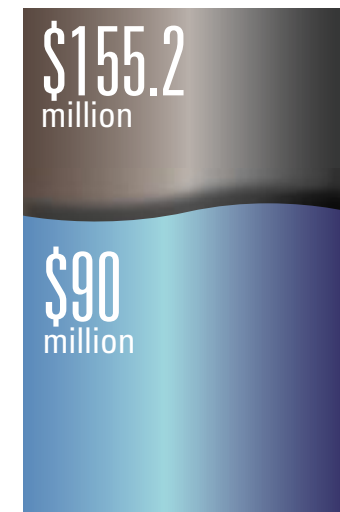
CAMPAIGN
IOWA STATE
WITH PRIDE AND PURPOSE

CAMPAIGN IOWA STATE UPDATE

campaign totals as of October 2008



IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences



DEGNER: CAMPAIGN HELPS COLLEGE MEET SOCIETY'S NEEDS

"I was honored to be asked to serve on the College of Agriculture and Life Sciences Campaign Committee because of the impact ISU has had on our lives. Rich and I are immersed in agriculture, and know the challenges ahead in feeding a growing population



while protecting the environment and providing safe, wholesome food for families. The campaign will help ISU continue to attract and educate the students we need to meet the growing needs of society. Giving to the campaign is our 'payback' for the exceptional opportunities we've had with our ISU educations!"

— **Nancy Degner** ('72 food science) is a member of the College of Agriculture and Life Sciences Campaign Committee and executive director of the Iowa Beef Industry Council. Her husband Rich ('72 agricultural education, '77 MS) is the executive director of the Iowa Pork Producers Association.



CAMPAIGN IOWA STATE EXECUTIVE CAMPAIGN COMMITTEE

Campaign Iowa State: With Pride and Purpose is led by a group of volunteers who work closely with Iowa State University President Gregory Geoffroy. The College of Agriculture and Life Sciences is proud to be home to four of the nine influential alumni leading the university's \$800 million campaign, including committee chair Roger Underwood (above). In addition to the executive campaign committee members listed below, nearly 100 alumni and friends serve on other committees.

- **Roger Underwood** ('80 agricultural business), campaign chair, Ames, Iowa
- **Steve Bergstrom** ('79 business), Montgomery, Texas
- **Jerry** ('62 agricultural business) and **Karen Kolschowsky**, Oak Brook, Ill.
- **Gene** ('49 veterinary medicine, '70 PhD) and **Linda Lloyd**, Ft. Meyers, Fla.
- **Chuck Manatt** ('58 rural sociology), Washington, D.C.
- **Jim** ('60 electrical engineering) and **Kathy Melsa**, Naperville, Ill.
- **Owen Newlin** ('51 agronomy, '53 MS), Des Moines, Iowa
- **Dick Stanley** ('55 electrical engineering and mechanical engineering), Muscatine, Iowa
- **Ellen Molleston Walvoord** ('61 home economics journalism), Harvard, Ill.

FOOTNOTES

SOY OFFERS GREENER MATERIALS FOR HOT WAX ART

Tong Wang, associate professor of food science and human nutrition, is working with Barb Walton, professor of art and design, to modify soy wax for use in encaustic, or hot wax, painting. Soy wax is safer, more affordable and environmentally friendly than petroleum-based microcrystalline wax or beeswax. The two researchers are comparing the functional properties of soy wax with microcrystalline wax and beeswax, the physical stability and the conceptual aspects of art made from them. “We modify partially hydrogenated soybean oil to improve the wax’s properties for use as an encaustic medium,” Wang says. “This brings out the scientist in me,” Walton says. “I’m very explorative, and I like using new materials.” Their collaboration is funded by a grant from the Center for Excellence in the Arts and Humanities at Iowa State.



THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES IS.... ON FACEBOOK

Ryan Foor ('02 ag education and studies), a Ph.D. candidate in agricultural education at Ohio State University, created an alumni group for the college on Facebook, an online social networking site. The group’s growing membership shares photos, exchanges notes and connects with fellow alumni. To join, visit www.ag.iastate.edu/stories for a link.

NATIVE PRAIRIE HONORS ANDERSON, DYAS

A three-acre remnant of native prairie located on the ISU Dairy Farm has been named the Anderson-Dyas Prairie. “The Anderson-Dyas name highlights both the historical/ecological values and the utilitarian values that these awesome rich and productive prairie soils have provided to humans,” says Wendy Wintersteen, dean of the College of Agriculture and Life Sciences. Marvin Anderson, emeritus professor of agronomy, served as dean of extension from 1966-74 in the College of Agriculture, and received all his degrees from the college ('39 agronomy, '49 MS soil management, '55 PHD agricultural economics and soil management). Robert (Bob) Dyas is an emeritus professor of landscape architecture and distinguished professor of design. He is also an ISU alum, having received his bachelor’s and master’s degrees in landscape architecture in 1950 and 1954, respectively.

CORN “MAIZE” YIELDS FOOD PANTRY DONATIONS

The ISU Allee Research and Demonstration Farm near Newell celebrated its 50th anniversary this fall, including hosting a CY Corn Maze, designed by Joseph Rossiter, 15-year-old son of farm superintendent Lyle Rossiter. Iowa Corn Growers worked with area FFA chapters to host local elementary children for a day of fun and learning about corn at the maze. Later in the fall, visitors were granted admission by donating a nonperishable food item. The maze brought in close to 350 items for local food pantries.



VEISHEA FAMILY OF THE YEAR CONNECTED TO COLLEGE

The family of animal science sophomore Ben Schmidt was chosen as the 2008 Veishea Family of the Year. His sister, Kate, a senior in English, nominated the Delmar, Iowa, family. Ten members of the Schmidt family attended Veishea activities, including being presented a plaque and riding in the parade. Craig Schmidt, who earned a bachelor’s degree in farm operations in 1980 and is director of development for the College of Agriculture and Life Sciences, is the brother of Brian Schmidt, Ben and Kate’s father, who earned a bachelor’s degree in farm operations in 1978.



Front row: Irene Schmidt; Ben Schmidt; Jane Schmidt; Kate Schmidt; and Denise Schmidt, ISU alum and assistant professor of curriculum and instruction. Back row: Craig Schmidt; Sam Schmidt, sophomore in agronomy and agricultural systems technology; Brian Schmidt; and Chaz Engelkes.

STORIES
IN AGRICULTURE AND LIFE SCIENCES

SPRING 2009

IMPACT: SOIL QUALITY



The next issue of STORIES will feature research about one of our greatest resources – **the soil beneath our feet**. Learn about the work of faculty in soil quality, conservation and remote sensing. Get the basics in **carbon 101**. Meet faculty and staff applying research to issues facing society and helping **students advance their careers**; alumni bringing people together and using their expertise to **benefit their communities**; and students taking the lead in research and in club activities.

A DREAM FULFILLED: THE SAGA OF GEORGE WASHINGTON CARVER

February 2, 2009, 7 p.m.

Great Hall, Memorial Union – Admission Free

The new opera delves into the life of the agricultural pioneer and Iowa hero, focusing on the key events that would shape the destiny of this great scientist. *A Dream Fulfilled* was commissioned by Des Moines Metro Opera, in cooperation with the Iowa State Historical Society. The event is sponsored by the College of Agriculture and Life Sciences and the CALS Diversity Committee.

AGRICULTURE AND LIFE SCIENCES ANNUAL LECTURE SERIES

Michael Boehlje, distinguished professor, Purdue University

February 19, 2009, 7:30 p.m.

Sun Room, Memorial Union – Admission Free

Michael Boehlje, distinguished professor in the Department of Agricultural Economics and the Center for Food and Agricultural Business at Purdue University, will speak on the importance of strategic planning and thinking. Boehlje earned his bachelor’s in agricultural business from Iowa State University in 1965.

BRINGING THE CLASSROOM
TO THE WORLD!

College of Agriculture and Life Sciences Distance Education at Iowa State

University gives you the opportunity to enhance your career through online learning. The online graduate courses and programs allow you to **remain at your present job** and location while continuing your education and advancing in your field. You learn within the environment of a premier university from some of the most respected professors in their fields through web-based interaction, streaming media or CD-ROM.

Available programs include:

- Master of Agriculture
- Master of Science in Agronomy
- Master of Science in Agricultural Education
- Master of Science Seed Technology and Business
- Community Development Master’s Program
- Food Safety and Defense Graduate Certificate Program
- Undergraduate Occupational Safety Certificate Program (coming soon)

Learn more:

<http://www.agde.iastate.edu>
agdecontact@iastate.edu

800-747-4478

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

026-1496

Ag Communications
304 Curtiss Hall



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 675 AMES, IOWA

POSTAGE WILL BE PAID BY ADDRESSEE

IOWA STATE UNIVERSITY

ISU MAIL CENTER
AMES IA 50010-9907



IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences
304 Curtiss Hall
Ames, Iowa 50011

NONPROFIT ORG.
U.S. POSTAGE PAID
AMES, IA
PERMIT NO. 200

At 15, Joe hated mowing the lawn. **At 20, he loved mowing the lawn.**



The summer of 2007 changed everything. That's when horticulture student Joe Bowser scored an internship grooming the grass tennis courts at Wimbledon. He landed it thanks to the College of Agriculture and Life Sciences at Iowa State University. Our resources help students gain invaluable real-life experience. And more importantly, discover a career they'll be passionate about their whole lives.

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences
515-294-2766 | www.agstudent.iastate.edu

Name

Degree information

New?

Address

E-mail address

Please send me more information on:

☐ Undergraduate Programs ☐ Graduate Programs ☐ Distance Education

☐ Investing in the College - Campaign Iowa State

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences



IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

**We want to
hear from you!**

Please e-mail us at ***stories@iastate.edu*** to share feedback and your current e-mail or mail address. Or, complete and return the attached card (left). By sharing your e-mail address you will be signed up to receive our **monthly e-mail update**, *College of Agriculture and Life Sciences Alumni Online*.