

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

STORIES

IN AGRICULTURE AND LIFE SCIENCES | FALL 2009

Impact: Green



STUDENT'S SPIRIT OF SERVICE
FUELED BY SCIENCE



FROM WIND ENERGY TO CLIMATE MODELING,
PROF FOCUSES ON THE PLANET



ALUM GREENS UP DENVER
FROM THE TOP DOWN

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IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences



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WE WERE GREEN WHEN GREEN WASN'T COOL.

Green has entered our lexicon in a whole new way. Now the definition in Merriam-Webster's Collegiate Dictionary includes "...tending to preserve environmental quality (as by being recyclable, biodegradable, or nonpolluting)..." The term was recently joined by entries of "carbon footprint" and "locavore" in the well-known desktop reference. As Nate Looker, one of this issue's contributors puts it, "After half a century of environmental advocacy, much of U.S. society recognizes the sensibility of sustainability."

With society's growing interest in living green, we wanted to highlight some examples of efforts in the college. However it's important to note, living green is something the College of Agriculture and Life Sciences does by nature (forgive the pun). Our research, education and extension programs have promoted environmental stewardship and sustainability for decades while striving for balance — finding practices both profitable and environmentally sustainable.

Three of Nate's peers join him in offering their opinions on what it means to be green on page 22. I think you'll be impressed with their articulate global outlook. Our impact briefs show examples of our efforts in recycling, environmental awareness and protection, biorenewable education and energy conservation. And many of our alumni and faculty profiles include people who are working towards sustainability in their disciplines. So many Iowa Staters are involved that ISU could be called "a nursery" for living green — a phrase coined by alum Joni (McGuire) Stepanov ('02 agricultural business and international agriculture) in an e-mail recommending her twin sister Jen Boussetot for an alumni feature (see page 24).

In addition to these highlights, this issue includes our annual Almanac section ticking off some recent stats about the college. This issue announces our highest enrollment in 30 years! If you'd like to learn more about your alma mater, I encourage you to visit our Web site at www.ag.iastate.edu/stories. And you can learn about our printer's green printing practices on page 33.

I hope this issue introduces you to some work you didn't know we were doing at the College of Agriculture and Life Sciences and reminds you that here, green is a way of life.

Kind regards,

Melea Reicks Licht

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IOWA STATE IS ONE OF THE UNIVERSITIES FEATURED in Princeton Review's The Best 371 Colleges: 2010 Edition. The edition reflects the opinions of more than 122,000 students at about 2,000 colleges and universities who were surveyed by Princeton Review, a test preparation company.

What I especially enjoyed reading in the 2010 edition were these comments about Iowa State:

- "Iowa State holds true to its initial mission of providing affordable, practical education with a special focus on agriculture . . ."
- "Today the school remains a great agriculture school . . ."

We have wonderful students who would express themselves like this to a national audience. This fall the College of Agriculture and Life Sciences has more than usual — the highest enrollment we've seen in 30 years.

Our undergraduate enrollment stands at 3,082 students. The last time we were over 3,000 was the fall of 1980. Our record enrollment was 3,623, which came in 1977.

We now offer just shy of 30 majors. New this year are majors in global resource systems, culinary science and diet and exercise — all exciting areas to explore. If you look at the 10 majors with the highest numbers of students this fall, it illustrates the breadth and diversity of our programs: animal science, agricultural business, animal ecology, agricultural studies, biology, agronomy, industrial technology, horticulture and agricultural and life sciences education.

ON THE COVER:

ISU launched a university-wide plan for sustainable practices in January. The "Live Green" initiative is led by alum Merry Rankin, Iowa State's first director of sustainability programs.



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IMPACT: GREEN

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- ISU BUILDINGS GREEN FROM INSIDE OUT
- NEW COMPOST FACILITY TURNS CAMPUS WASTE INTO AMENDED SOIL
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- IOWA STATE PRODUCE SERVED TO STUDENTS
- ISU LEADS IN UNDERGRADUATE BIORENEWABLE EDUCATION
- STUDENTS ANSWER – WHAT GREEN MEANS TO ME



Wendy Wintersteen, dean of agriculture and life sciences.

On the graduate student side, we also are seeing some of the highest numbers in years. This fall we have 706 graduate students studying in many disciplines or interdisciplinary programs.

Nearly 87 percent of our first-year students join learning communities, a proven way to make them feel at home, make new friends and study partners and keep their grades up.

The participation in learning communities is heartening, and reminds me how times have changed. In September, on the steps of Curtiss Hall, Neil Harl and his wife Darlene announced a major gift to the college (see page 31). In his remarks, Dr. Harl told a story about his arrival as a freshman on campus in 1951, and how lonely and dejected he felt. Dr. Harl is a remarkable individual; he vowed then and there to persevere. And he did, growing into a career as one of the world's most influential agricultural economists.

I believe the seed of greatness is in many of these 3,082 undergraduates. Iowa and the world needs them. I know they will be tomorrow's leaders for innovations and solutions.

Wendy Wintersteen
Endowed Dean of Agriculture and Life Sciences

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- Plant and Insect Diagnostic Clinic



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- Harl gift ensures space for student success
- Walter gift paves the way for ag pavilion
- Campaign Update

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ALUMNI
Jennifer Boussetot
Joe Steffes
Ted Axland
Michael Dosmann

FSC logo goes here. Printer will strip it in. Black version of the logo.

CALS ENROLLMENT AT 30 YEAR HIGH

3,082 undergraduates,
706 graduate students

“There are new opportunities emerging for the college’s students that are complementing our traditional and continuing strengths in production agriculture — the bioeconomy, plant and animal genomics, environmental stewardship, food and nutrition and pre-health options, which are all grounded in the basic life sciences.”

— Tom Polito, director of student services since 1978.



The college’s enrollment has **increased 237 students** since last fall. Enrollment in the college in **1980 was 3,126**, and the college’s undergraduate enrollment peaked in **1977 at 3,623**.

In **1967**, there were only **42 women** in the college, which represented **1.8 percent** of the undergraduate enrollment. In **2008**, there were **1,303 women** or **42 percent** of total enrollment.



Photo: Barbara McBrean

OUR GRADS GET JOBS

Ninety-eight percent of graduates from the fall of 2007 through summer of 2008 were either employed or pursuing graduate degrees within six months of graduation. ISU continues to hold the largest agriculture career fair in the nation each fall. The event was moved from its traditional venue in the Memorial Union to the Lied Recreation Center this fall. Plans are underway for a spring 2010 career fair.

MAJORS

The college offers the majors listed below as well as secondary majors in **Environmental Studies, International Agriculture** and **Seed Science**. Preprofessional programs are available for **Premedicine, Prelaw** and **Preveterinary Medicine**.

- Agricultural Biochemistry
- Agricultural Business
- Agricultural and Life Sciences Education
- Agriculture and Life Sciences Exploration (Undeclared Agriculture)
- Agricultural Studies
- Agricultural Systems Technology
- Agronomy
- Animal Ecology
- Animal Science
- Biology
- Culinary Science
- Dairy Science

- Dietetics
- Diet and Exercise
- Environmental Science
- Food Science
- Forestry
- Genetics
- Global Resource Systems
- Horticulture
- Industrial Technology
- Insect Science
- Microbiology
- Nutritional Science
- Public Service and Administration in Agriculture

SCHOLARSHIPS TOTAL

\$1.4 MILLION

The College of Agriculture and Life Sciences continues to offer more than \$1.4 million in scholarships annually at the college and departmental levels.

PROGRAMS RANK HIGH IN NATION

Undergraduate and graduate programs in the **Department of Agricultural and Biosystems Engineering** ranked in the top three for 2010 by *U.S. News & World Report*. Iowa State’s **Department of Agricultural Education and Studies** was found to be one of the most distinguished programs in ag education in the nation in a study of the top 10 ag education programs by Ohio State University.

STUDY ABROAD OFFERS OPPORTUNITIES TO LEARN AND SERVE

CALS courses abroad during the 2009 – 2010 academic year include 13 ISU courses taught in 11 countries by faculty in nine different departments. Shelley Taylor, assistant director of Global Agriculture Programs and director of Ag Study Abroad, says students understand the necessity of preparing themselves for the global marketplace and the college’s professors have developed tremendous learning opportunities outside U.S. borders. “This year our students will analyze soils in Ghana, inventory wildlife in Costa Rica, explore agricultural technology adoption in Brazil, debate animal welfare issues in the United Kingdom, work with the United Nations Food and Agriculture Organization in Rome, teach agriculture, nutrition and science to elementary school children in rural Uganda and much more,” she says. “In addition to ISU courses abroad, students will enroll at international universities, and conduct internships, research and service learning. We plan to send more than 200 CALS students abroad this year to expand their academic expertise, build their professional competencies and help them add a global dimension to their student experience.”



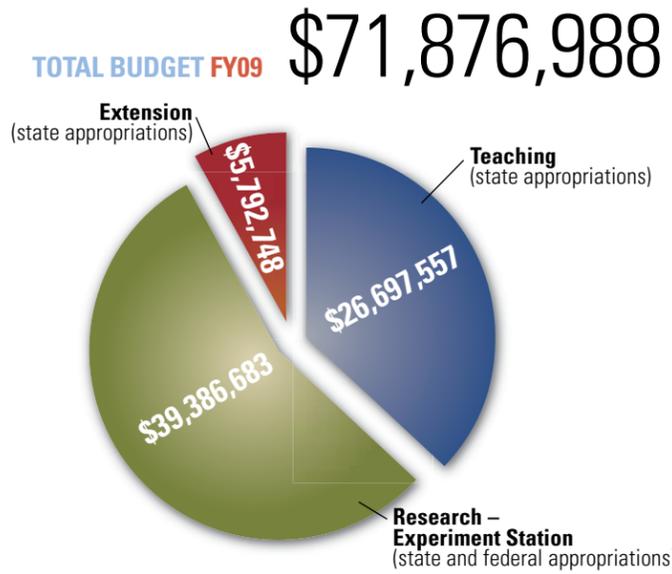
contributed photo

Leah Riesselman, senior in horticulture at the time of this photo, works with an elementary school student in Uganda.

IOWA STATE UNIVERSITY

College of Agriculture and Life Sciences

PUBLIC SUPPORT FOR CALS*



*The figures reflect a 1.5% midyear state budget reversion.

FUNDRAISING

In fiscal year 2009, more than 2,000 donors expressed their generosity with close to **\$18 million**.

Fundraising highlights for the college include:

- **\$10.1 million** in program support
- **\$3.6 million** in student support
- **\$3.1 million** to support facilities
- **\$1.2 million** for faculty support
- **\$627,213** received from phone, direct mail and e-philanthropy solicitations – an increase of 81 percent since 2006

2009 EXTENSION SERVICE TO IOWANS

• **156,861** Iowans participated in Extension's noncredit workshops, conferences, field meetings and home study programs to increase their understanding and skills related to agricultural enterprise management, natural resource protection and economic development.

• **146,120** Iowans called Extension hotlines or received individual consultations.

• **24,685** commercial and private pesticide applicators and **3,611** manure applicators are trained annually. These educational programs enable participants to become eligible for certification.

• **5,000** attorneys, certified public accountants, tax preparers, agricultural producers and policy makers attended seminars and training offered through the Center for Agricultural Law and Taxation.

• **2,560** landlords and tenants attended 58 farmland leasing meetings held throughout Iowa.

• **800** beef producers and agribusiness representatives attended the Corn Belt Cow-Calf Conference held in Ottumwa.



Photo: Melenia Reicks Licht

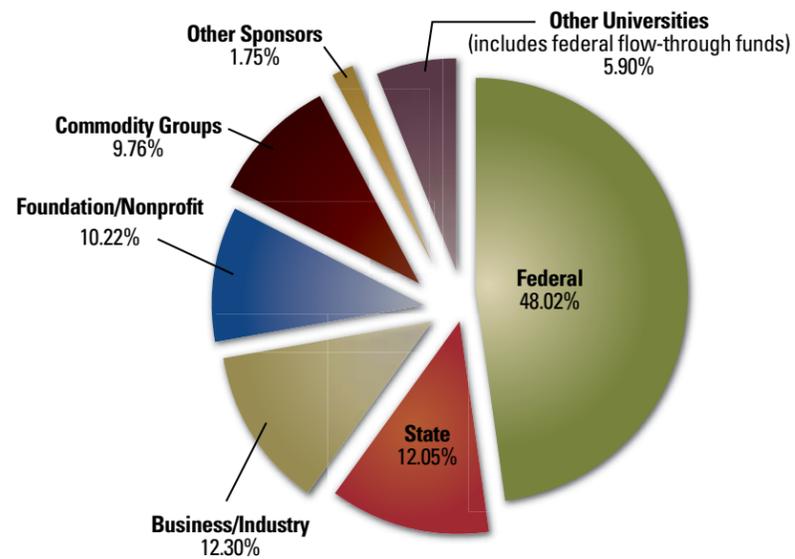
SPONSORED FUNDING

Sponsored Funding FY09*

\$49,862,523
research awards received

797
total research awards

Sponsored Funding by Source



* This number reflects grants administered only by CALS. Not included are totals from other campus units administering grants on behalf of CALS faculty and staff.



"Trip to Omaha with the Ag Biz Club. Make a wish!"

CALS STUDENT CAPTURES FRESHMAN YEAR IN PHOTOGRAPHS

Jennifer Cunningham, a sophomore majoring in ag business, political science and economics, contributed this photograph and nine others to the exhibit, "Fresh Fotos: My First Year Experience," organized by the ISU Student Activities Center. Members of the Agricultural Business Club, William Underwood and Katy Darrah, throw coins into a fountain in Omaha in this shot taken during the club's Fall Industry Tour. The exhibit contains 55 photographs from 11

Iowa State freshmen and was displayed in the Gallery of the Memorial Union. Photos are available online — for a link visit www.ag.iastate.edu/stories.

PREDICTING THE REGION'S CLIMATE

By Barbara McBreen

GENE TAKLE IS A CHAMPION FOR THE PLANET. Just look at the Wheaties box featuring his photo and the framed image of Mount Rushmore including his profile. The two "awards" sit beside other, more conventional honors he's received for promoting the atmospheric sciences.

Takle, a professor of agronomy and geological and atmospheric sciences, takes Iowa State University's land grant mission seriously.

"I'm employed by the people of Iowa," Takle says. "And as a scientist it's my job to gather and share information, so we can all understand the big picture."

Takle began studying weather as a physics student at Iowa State. The Clean Air Act of 1971 attracted atmospheric scientists away from academics to industry and created a shortage at universities. That's when Takle, who had just graduated from Iowa State with his doctorate, began teaching boundary layer meteorology.

"The boundary layer is the lowest mile of atmosphere. It's where we fly our airplanes, raise our crops and put our pollutants," Takle says.

Takle studied the cost of wind energy during the 1970s energy crisis. In 1978, he estimated that it would take 59,000 windmills to supply Iowa's energy needs, but at 10 cents per kilowatt-hour it was three times the cost of energy at the time.

"Today's wind turbines generate about 10 times as much power, but our consumption has grown. If the turbines delivered the equivalent of full power one-third of the time we would need on average about 14,000 turbines to power the state," Takle says.

During the past 15 years, Takle says Iowa State has taken the lead in developing regional climate models to help farmers and communities plan for the future. The modeling breaks weather patterns down to the county level and is part of a collaborative project with six other scientific groups and supported by the Environmental Protection Agency, National Science Foundation, U.S. Department of Energy and the National Oceanic and Atmospheric Administration. The goal is to provide climate projections for North America from 2040 to 2070.

"It's extremely complicated," Takle says. An equation, such as figuring the time it takes an air mass traveling at a set speed from Ames to Chicago is simple. It gets complicated when you factor in the entire continent and variables such as moisture, wind speed and temperature.

"The model uses billions and billions of equations and it takes months and months to run the computations," Takle

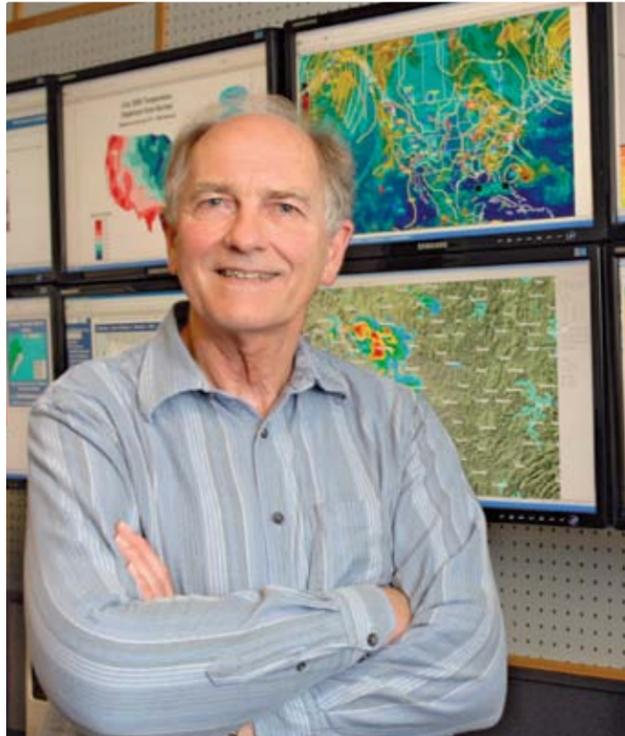


Photo: Bob Elbert

Gene Takle started studying weather on the roof of the Physics Building as an ISU graduate student. Now a well-known expert in climate modeling, Takle uses software to forecast weather patterns.

says. "Also, it doesn't mean we will know the temperature on July 4, 2050, but it will tell us what the typical July may be like in 2050."

The models, which should be ready in 2010, will be available to the public to predict crop yields, flooding, drought and other weather-related issues. Takle says the results are based on future weather patterns and will help experts ranging from engineers constructing bridges and drainage tile, to crop specialists who need to anticipate changes in disease patterns and invasive species.

Takle also is the director of the Iowa State University Climate Science Initiative, which is an interdisciplinary group of more than 90 experts at Iowa State. Its goal is to provide information for short- and long-term decision-making. Understanding future climate conditions, Takle says, helps him serve others as a scientist and helps Iowa State fulfill its mission as a land grant university. ⑤

PROF FIGHTS NASTY MICROBES WITH HANDWASHING, VACCINES

By Ed Adcock

WHEN JOAN CUNNICK URGES PROPER HAND-WASHING, her message carries the weight of a microbiologist — and a mother.

For years she has been advising people, including her two children, to wash their hands for as long as it takes to sing "Happy Birthday" to themselves. She has hosted grade school children using "glitterbug lotion" and a black light, to determine how clean their hands truly were after washing.

In these days of pandemic flu threats, her message is even more relevant.

Cunnick became professor-in-charge of the microbiology program in 2003. Her home department is animal science, which co-manages the program with plant pathology.

Students in the microbiology program are served by faculty in several departments. "The interdepartmental nature helps strengthen the program," she says. "We can draw on a lot of different expertise."

About 28 faculty members from many departments and colleges teach classes and help with the active Microbiology Club as well as present workshops. There are several faculty in animal science and plant pathology, but they extend to veterinary pathology; food science and human nutrition; and veterinary microbiology and preventive medicine departments.

Each year 80 to 100 undergraduate students major in microbiology. Many students in other majors such as animal science and food science find microbiology relevant to their coursework and sign up for minors.

It also makes them strong candidates for jobs in university labs as students and after they graduate, she says.

"We've had 100 percent employment in our program for as long as they've been keeping track. About half of our students go out to get jobs when they complete their bachelor's degree. The other 50 percent want to go to medical school or graduate school or veterinary school, and they've been very successful applying to those programs," Cunnick says.

The daughter of medical professionals, she earned a doctorate in microbiology and immunology from Kansas State University and joined Iowa State's faculty 18 years ago. Her animal science appointment is appropriate.

"I tell people that I like to work with animals with the fur on," she says. "I study the immune system in live animals as responses are activated and develop, so animal science is a good fit for me."

Her research work focuses on developing edible vaccines. She's been studying immune responses in mice to different proteins placed in corn at the Plant Transformation Facility on campus. "The hope is to develop a vaccine that is stable and more easily delivered to people in developing countries.

We're targeting the immune systems at mucous membrane sites where many organisms attack from food or water contamination," she says.

The diversity of her position appeals to Cunnick, and she likes interacting with students especially through laboratory experiences. She enjoys working with the Microbiology Club, and planning outreach activities to make young children and high school students aware of microbes and to consider studying them in college.

And to keep them safe from microbes by washing their hands. ⑤



Photo: Bob Elbert

Joan Cunnick holds a stuffed example of her favorite microbe — a yeast cell. The Microbiology Club sells several kinds of giant microbes as a fundraiser. Cunnick's colorful lab coat, covered with microbial and scientific symbols, is popular with schoolchildren.

CUNNICK'S HANDWASHING TIPS

1. Use soap (doesn't need to be antibacterial)
2. Add water to create lather or bubbles
3. Scrub for 15-30 seconds to work up a good covering of soap bubbles
4. Rinse hands only after bubbles cover front and back of hands and between fingers
5. Dry your hands (microbes need moisture to grow)
6. Hand sanitizer is good at killing surface "germs" if soap and water are not available

GOING THE DISTANCE

By Laura Miller

FOR LOCAL FOOD, FARMERS

WITH MORE ATTENTION given to our carbon footprint, it's hard to overlook this oft-quoted tidbit: food travels, on average, 1,500 miles from farm to plate.

Rich Pirog, with the Leopold Center of Sustainable Agriculture, is the source of the sound bite.

His 1,500 "food mile" number has been cited in books, journal articles and by news organizations from the *New York Times* and Reuters to Oprah. The reports continue to be some of the most popular items on the Leopold Center Web site, and are required reading in more than two dozen college courses throughout the United States.

Pirog will be the first to tell you that this fact requires some context. The figure comes from small studies in 2001 and 2003 that looked at fresh produce from across the United States arriving at several locations in the Upper Midwest. He is quick to note the findings cannot be generalized beyond that.

"This number has taken on a life of its own with the media, writers, chefs and food nonprofit organizations, and it has helped create a greater awareness of and interest in local foods," he says. "I've always said that food miles are not a good indicator of the environmental impact of our food system; to do that we need to conduct Life Cycle Assessments, or LCAs, across the entire food supply chain."

Pirog sees his work on food systems directly connected with his roots in suburban New Jersey, where his father operated a small dairy.

"Food always was an important part of my community, we had a very diverse food culture," he says. "I've been fortunate that as the sustainable agriculture movement evolved and food systems became part of the agenda, I've been able to pursue my passion."



Photo: Laura Miller

Rich Pirog talks with Japanese journalists during a visit to an Ames grocery store. His research on how far foods travels has made him a popular source for news media. In 2008 he handled an average of 75-100 media calls, many about the 1,500 "food miles" number.

Pirog is a long-time staff member at the Leopold Center, now serving as associate director and as leader of the Center's Marketing and Food Systems Initiative. He directs the Value Chain Partnerships project, an Iowa-based network for food and agriculture working groups. Overseeing competitive grants that supported more than 100 food system projects since 1996, as well as numerous in-house research activities, Pirog has put the Leopold Center and Iowa State on the local foods map.

His research includes several nationwide surveys on consumer attitudes toward ecolabels, local food and food safety; Iowa's place-based and traditional foods; a report that provided the background for Iowa's emerging grape industry; and a directory of climate change terms. He has written chapters for two books, several articles

in peer-reviewed journals and an article for World Book's *Science Yearbook*.

His newest work includes a survey of prices for local produce, meat and eggs and their conventionally sourced counterparts in four Iowa cities. Pirog also has been collaborating with a researcher at Canada's Dalhousie University and others to conduct LCAs of various beef and pork production systems in Iowa.

Does he consider himself a "locavore?" Pirog does most of his family's food shopping and some of the cooking. During the summer he gets produce from his garden and a Community Supported Agriculture (CSA) farmer, and he buys milk and eggs locally.

"I try to eat local. But I don't go overboard," he says. **S**

REPELLENTS WITH THE RIGHT STUFF

By Barbara McBreen

WHEN JOEL COATS WASHED HIS DOG WITH AN orange-based shampoo, he was amazed when fleas jumped off and expired. He immediately wanted to know why.

That was 20 years ago. Since that moment, Coats, an entomology professor, and several graduate students have studied the natural repellents found in oranges, catnip and hedge apples. Following a trail based in folklore, Coats says they have investigated more than 50 essential oils produced by plants as repellents.

Five patents later, Coats says he's on the cusp of investigating the molecular basis for these natural repellents and insecticides.

"I've been waiting to get the right people and the funding and it's finally coming together," Coats says.

What's coming together is a microscopic view at the molecular make-up of certain compounds called terpenes. Molecular-level research is easier than it would have been 20 years ago, but it's still an intricate investigation. Molecules of the terpenes are so small that more than 6 sextillion (6 with 21 zeros after it) could fit inside a pea.

prescriptions. Coats is searching for the mechanism of action — how compounds affect insects.

Several of the insecticidal compounds he's studying overstimulate the central nervous systems of insects, which literally stops them in their tracks. Coats says bugs that are sprayed with this compound, freeze within five seconds and one minute later they're history.

"Green chemistry is definitely the future in insect control," Coats says.

An advantage of using natural compounds is that there is no residue. Since the product is plant-based, it readily decomposes and disappears. Currently, there are a handful of companies marketing the essential oils, but few are researching the molecular structure of the compounds.

Looking for the right stuff means comparing the essential oils of several plants. Gretchen Paluch, a graduate student in entomology, is using molecular modeling to isolate the most potent repellents and predicting the effectiveness of the next ones to pursue.

To test the molecular reactions for toxicity to the insects, another graduate student grinds up flies' heads and extracts

"GREEN CHEMISTRY IS DEFINITELY THE FUTURE IN INSECT CONTROL."



Photo: Bob Elbert

Joel Coats investigates the molecular basis for natural repellents and insecticides like those in Vietnamese pemou wood and hedge apples.



contributed photo

Terpie's first flea shampoo inspired Coats to investigate natural insect repellents.

Building on data from scientists throughout the world and using computers makes it easier to study the molecular characteristics today. The software can analyze more than 100 characteristics, such as topography, shape, polarity and solubility.

"It's very arduous to separate and do testing at the molecular level," Coats says. "We've separated the individual terpenes out of the oils that are the best repellents and best insecticides and now we are looking at the molecular structures and those relationships and how the structure is related to potency."

It's the same type of research pharmaceutical companies use to determine the best analgesics for pain relief or other

gamma amino butyric acid (GABA) in a centrifuge. GABA is the mechanism that controls part of the nervous system in flies. The GABA overstimulation is the key to freezing insects in their tracks.

Coats says they are just beginning to understand the molecular structures that have protected plants for eons. From Vietnamese pemou wood to hedge apples, the molecular clues are there, it just takes time and minute detective work to discover the answers.

Coats' dog Terpie, which is short for Terthiophene, a chemical found in marigolds, died in 2004. She enjoyed a flea-free life. **S**

HENSLEY'S MATERNAL PRESENCE

By Melea Reicks Licht

WARMED LIVES OF STUDENTS

FOR MORE THAN 40 YEARS, NORMA HENSLEY OFFERED motherly reassurance and a warm smile to everyone from fresh-faced students to seasoned faculty in the College of Agriculture and Life Sciences.

"She adopted a maternal attitude towards both students and young faculty that reduced their anxiety about being at a large institution or starting out in their careers," says Eric Hoiberg, associate dean emeritus. "From hourly employees all the way up to the dean, she fostered and cultivated relationships in addition to providing unbelievably good technical administrative support."

Hensley joined the college as a secretary in 1960, when Associate Dean Louis Thompson gave her a "temporary" position. Over the years that followed she handled schedules and correspondence for the associate deans, set up faculty committees, assisted student organizations and performed other secretarial duties. But Hoiberg says the college's scholarship program was her "baby" and her efforts were critical to its success.

"I organized all the student applications and prepared them for the scholarship committee's review," Hensley says. "My office was also the headquarters for the Ag Council. I helped them organize events and coordinate their activities. We offered continuity for the group and a place for students to gather. I loved working with students. They just seemed to gravitate to our office."

Students were drawn to the office largely because of Hensley, according to Scott Lee ('93 agricultural business), who worked for her in the '90s. He and his family farm near Inwood and operate Lee Seed Co., manufacturing soy nuts and soy wax candles.

"She has really been an influence on generations of Iowa State students. She was a mother figure to many of us," Lee says. "She looked at us as interns for the college, not just student workers. She made our positions learning and growing experiences for us. She is a wonderful teacher. I learned as much from Norma as I did from my advisers and professors."

Hensley has many fond memories of students like Lee. She is loved and respected by generations of students, and she says she'll never forget how they showed her.

"One year, the president of Ag Council showed up in my office early on Secretary's Day. He gave me one rose in a huge vase. I thought it was sweet, and chuckled that he had

Share your memories of Norma Hensley, leave her a message or honor her by contributing to the Hensley scholarship at www.ag.iastate.edu/stories.



After taking a "temporary" position with the college in 1960, Norma Hensley served the college and its students with kindness for more than four decades.

used such a large vase for only one rose," Hensley says. "Well, by the end of the day 23 members of Ag Council had stopped in to deliver a rose to me filling up the vase. It was one of the most special things anyone has done for me."

Since retiring in 2001, Hensley continues to support students through a scholarship she created for Ag Council presidents.

"My son suggested the scholarship, and I liked the idea. I originally put the scholarship in my beneficiaries, but I'm so glad I was able to provide it sooner," she says. "I've been able to meet most of the recipients. I wanted it to be for the Ag Council president since they do a real service to the college."

The current generation of students continues to show their gratitude. Last winter the two most recent recipients delivered a poinsettia to Hensley in appreciation. ❄

FACULTY AWARDS AND SERVICE

FACULTY, STAFF HONORED BY NATIONAL ASSOCIATIONS

Maynard Hogberg, chair of animal science, was honored by the National Pedigreed Livestock Council with a distinguished service award for his contributions to the livestock industry.

The American Meat Science Association presented **Elisabeth Lonergan**, animal science, the 2009 Distinguished Research Award.

Susan Lamont, a Charles F. Curtiss Distinguished Professor of Agriculture and Life Sciences and professor of animal science,

received the Embrex Fundamental Science Award and was named a Fellow of the Poultry Science Association.

Max Rothschild, Charles F. Curtiss Distinguished Professor in Agriculture and Life Sciences and director of the Center for Integrated Animal Genomics, has been named the 2009 recipient of the Distinguished Service Award by the American Agricultural Editors' Association.

Agricultural and biosystems engineering faculty honored at the 2009 American Society of Agricultural

and Biological Engineers annual meeting in June include: **Matt Darr**, Gale A. Holloway Professional Development Award; **Matthew Helmers**, Nolan Mitchell Young Extension Worker Award; **Robert Burns**, G.B. Gunlogson Country-side Engineering Award; **Charles Schwab**, National Association of Mutual Insurance Companies Engineering Safety Award; **Hongwei Xin**, Presidential Citation for his contributions to the international livestock environmental symposium; and **Ramesh Kanwar**, John Deere Gold Medal for exceptional

and meritorious accomplishments in soil and water engineering.

The American Society of Animal Science presented awards to three ISU animal science professors at its 2009 annual conference: the Extension Award was awarded to animal science professor **Daryl Strohbehn**; **Doug Kenealy**, professor of animal science, was named the 2009 Fellow in the teaching category; and the Meats Research Award was presented to animal science professor **Steven Lonergan**.

FACULTY SERVICE TO THE COLLEGE, UNIVERSITY

Kevin Kimle, the Bruce Rastetter Endowed Chair in Agricultural Entrepreneurship in the Department of Economics, will serve as director of the college's Agricultural Entrepreneurship Initiative.

Steve Jungst, professor of natural resource ecology and management, became interim department chair July 1. His term will be for up to two years, while a search is conducted. He takes over for **Rick Hall**, who served as interim chair since 2008.

William Beavis, George F. Sprague Endowed Chair and professor of agronomy, was named interim director of the Plant Sciences Institute, effective Sept. 15. **Stephen Howell** stepped down

as director to become the director of the Division of Molecular and Cellular Biosciences at the National Science Foundation.

Wade Miller, agricultural education and studies professor, has been named interim chair of the department. His appointment began July 1 for a term of up to two years. Miller replaced **Robert Martin**, professor of agricultural education and studies, who served as chair for 12 years and returned to the faculty.

Jack Dekkers, animal science, and **Steve Whitham**, plant pathology, joined the Biotechnology Council July 1, joining **William Beavis**, agronomy, as college representatives. **James Reecy**, animal science, serves as council chair as director of the Office of Biotechnology.

IN MEMORIAM

Louis Thompson of Ames died on July 24 at Green Hills Retirement Center in Ames. He was 95. Thompson had a distinguished career as a professor of agronomy who earned bachelor's and master's degrees from Texas A&M University and a doctorate in agronomy from Iowa State in 1950. He served as head of farm operations in the 1950s and as the associate dean of the college's academic programs from 1958 until his retirement in 1983. Thompson was featured in the Fall 2007 issue of STORIES. For a link to that article and other information about his career, visit www.ag.iastate.edu/stories.

Distinguished professor emeritus **Lois Tiffany**, ecology, evolution and organismal biology, died Sept. 6. She was 85. A botanist, Tiffany was well-known for her expertise in fungi. She joined the ISU botany department in 1950 and retired in 2002. She earned bachelor's, master's and doctorate degrees in botany in 1945, 1947 and 1950.

ANEX NAMED EPA SCIENTIFIC COUNSELOR

Rob Anex, agricultural and biosystems engineering, has been named to the U.S. Environmental Protection Agency's Board of Scientific Counselors. He will serve a one-year term providing expertise on life-cycle analysis of biorenewable and biobased product systems, the conversion of biomass to energy, industrial ecology and other matters.



HEARTY HELLOS

Susan Carpenter, professor of animal science, virologist

James Bushnell, associate professor of economics, Cargill Chair in Energy Economics, and director of the Biobased Industry Center

Lance Baumgard, Norman Jacobson Endowed Professor, associate professor animal science, dairy nutritionist

Erin Hodgson, extension entomologist and assistant professor of entomology

FOND FAREWELL



Joyce Shiers retired after 48 years as an ISU employee — 28 as an administrative specialist in the College of Agriculture and Life Science's administrative offices. She served five deans (Kolmer, Topel, Ross, Woteki and Wintersteen). She began her ISU career in 1961 in the extension service administrative offices in Curtiss Hall, handling secretarial duties for area extension

directors, associate deans and the dean of University Extension. In 1981 she began working for college administration. In 2005, she received the Dean's Citation for Extraordinary Contributions to the college.

For a complete list of all new faculty and staff in the college from the past year visit www.ag.iastate.edu/stories.



POINSETTIAS HELP HORT CLUB BLOOM

By Barbara McBreen

Photo: Barbara McBreen

Evan Schnabel, a junior in horticulture, is part of a team that coordinates the care of more than 1,000 poinsettias for the Horticulture Club's annual holiday plant sale.

IF YOU WANT TO GROW POINSETTIAS BY THE HUNDREDS, Evan Schnabel can give you some tips.

Schnabel, a junior in horticulture, managed more than 700 poinsettias as part of a Science With Practice research project in 2008. Working with Richard Gladon, associate professor of horticulture, he evaluated plant size, blooming times and flower numbers for 29 varieties.

"We also evaluated the sturdiness of the plants," Schnabel says. "You don't want branches to break off when you're shipping plants to retail stores."

This fall he and Ben Matthews, a senior in horticulture, grew and monitored more than 1,100 poinsettias for the Horticulture Club's annual winter sale.

Coordinating the care of the poinsettias and organizing the winter sales is almost a full-time job. In July, Schnabel took time off from his summer job at a nursery near Adel to return to campus to plant 1,111 poinsettia cuttings. As soon as the fall semester began he and Matthews began coordinating schedules to oversee the greenhouse full of poinsettias.

Timing is critical, Schnabel says, because the plants need to bloom during the winter holiday season when consumers are interested in poinsettias. Along with caring for the plants the team also organized volunteers to

staff the four-day sale held in early December.

The plants are sold in high-traffic buildings across campus. Last year the club made \$3,400 from its poinsettia sales. Those profits, along with the Veishea spring plant sale profits, are used to fund trips, competitions, supplies and industry tours for the club.

"We also began planning next year's poinsettia project during the fall semester," Schnabel says. "We have to evaluate which varieties were popular, which ones grew well in the greenhouse and how many plants we can handle."

Students are required to take Gladon's greenhouse production and management class to manage the club's plants. Although working in a greenhouse full of poinsettias may sound pleasant, especially in the winter, Schnabel says it's a lot of work.

"It takes a lot of time. Plants don't grow overnight. There are a lot of tasks, such as watering and pruning," Schnabel says.

It's important for horticulture students to join the club, especially if they plan to go into greenhouse management or sales, Schnabel says. His experiences have helped him focus on greenhouse management, which is what he hopes to pursue after he graduates.

Schnabel is from Brookings, S.D. and visited Iowa State on the recommendation of a friend from church. Besides being active in his church, Schnabel is a member of Pi Alpha Xi, the Honor Society for horticulture. Only the top students in the junior and senior classes with a demonstrated interest in horticulture are invited to join. 

STORIES ONLINE EXTRA:

Schnabel offers some tips on poinsettia care at www.ag.iastate.edu/stories.

STUDENT'S SPIRIT OF SERVICE FUELED BY SCIENCE

By Barbara McBreen

SAMANTHA MCCONAUGHY, A JUNIOR IN GENETICS FROM Bourbonnais, Ill., understands giving.

This summer she cut her hair and donated her long tresses to Locks of Love, a nonprofit organization that provides hairpieces to children with medical problems.

"My family has taught me to help others and it's very fulfilling," McConaughy says. "I remember as a Girl Scout working at the animal shelter, we cleaned pens and played with puppies."

She's also served meals at the Salvation Army and traveled with her church youth group on two mission trips to American Indian reservations. Sam's desire to help people was evident in a science fair project she designed in the seventh grade.

"I didn't receive any awards, but I made a pop can opener for people who have arthritis," McConaughy says.

Her mission is to help others through science and she hopes to do that through her degree.

McConaughy has a simple way to explain genetics.

"It's a discipline of biology that deals with DNA and everything associated with it. Simply, it's why we are all different," McConaughy says.

Her enthusiasm for genetics is evident as she describes research involving vision, stem cells and the central nervous system. As a sophomore she worked with Don Sakaguchi, a professor of genetics, development and cell biology.

She summarized her research project in a 30-page paper, after completing a yearlong research project involving retinal transplantations of neural progenitor cells into Brazilian opossums. The lab focuses on the use of cell transplantation to replace degenerating neurons with the hope of finding ways to effectively treat central nervous system injuries and diseases.

"The ultimate goal of Dr. Sakaguchi's lab is to cure degenerative diseases, specifically macular diseases," McConaughy says.

McConaughy also incorporates her desire to serve others into her club activities. She's the recruitment chair for the Student International Medical Aid Club, which gathers and distributes medical supplies to clinics in developing countries. The student club is in its fifth year and has sent supplies to several clinics in Bolivia,



*Sam McConaughy, has worked in two neurobiology labs, one at Iowa State and a second in Spain. **Below** McConaughy in Valencia, Spain.*

Belize, Peru and an orphanage in Russia. Last year they donated money to Engineers Without Borders for a water purification system.

"We are hoping to send medical supplies to Ghana this winter," McConaughy says.

Last summer McConaughy worked in a neurobiology lab in Valencia, Spain for seven weeks. She says it was a life-changing experience both scientifically and culturally.

"The working culture is very different," McConaughy says. "We would work in the morning, take long lunches and then work until 8 p.m. The people in Spain enjoy good conversations, so I developed some great relationships."

Researchers in Spain wanted her to return this summer, but McConaughy says she needs to pursue other options. She is preparing for graduate school and says her goals will always include helping others through science. 



contributed photo

STUDENT TECHNICIANS LEAD ULTRASOUND ROAD SHOW

By Sherry Hoyer

KYLE SCHULTE TAKES HIS DEGREE WORK ON THE ROAD. The animal science graduate student is a certified swine ultrasound technician who travels across Iowa, providing an inside look at the pigs in county and state livestock shows.

Schulte ('07 agricultural studies) grew up on a crop and livestock farm in Benton County. He started developing



Kyle Schulte is part of an ISU team that travels the state conducting ultrasounds at swine shows. The images provide a ranking of the pigs based solely on predicted carcass merit.

an interest in swine research when he became a research assistant for Tom Baas, professor of animal science, during his junior year at ISU. Baas is a swine specialist whose research focuses on swine breeding, pork quality and the use of real-time ultrasound for prediction of intramuscular fat in live pigs.

Now Schulte's research program and much of his summer work involve the use of ultrasound scanning.

"My graduate research project compares the accuracy of different ultrasound scanners and methods of scanning for the prediction of intramuscular fat percentage in the loin of live pigs," Schulte says. "Accurate prediction allows for geneticists and swine breeders to place selection emphasis

on specific pork quality traits, make faster improvements and enhance the consumer pork eating experience."

Judges of live swine shows visually analyze the pigs and rank them on their combination of characteristics like muscularity, skeletal width, structural soundness and eye appeal. Real time ultrasound images captured by ISU technicians at shows are used to provide a ranking of the pigs based solely on predicted carcass merit.

It's technical, but many people understand the concept.

"When most people think of ultrasound, they think of a developing baby. Ultrasound waves are high frequency sound waves. Visible images of structures inside a living human or animal are possible because ultrasound waves penetrate and reflect off different tissues such as muscle, fat and bone at different rates," Schulte says. "We use ultrasound to measure the potential carcass composition (percent fat free lean) of live market weight pigs."

As a member and current leader of ISU's scanning team, Schulte says he enjoys all aspects of providing this important service at an affordable price for dozens of Iowa counties.

"The number of certified ultrasound technicians in the state and even the nation is limited. The equipment is very expensive and I only know of a couple firms outside ISU that offer their services to county fairs," he says.

Schulte says he's lost track of how many pigs he's scanned over the past four years at ISU, but it's probably close to 4,000. During the summer of 2009 alone, ISU technicians scanned almost 50 different Iowa shows, including the Iowa State Fair 4-H Derby Swine Show.

"It's always a good time. There are usually people who are taken with what I am doing and I get lots of questions from them. I've even had some people exclaim, 'Look at the baby!'" Schulte says. "I enjoy answering the questions and would like to think they learn something."

Scanning is a large part of Schulte's life as a graduate student, but he also finds time for a variety of other swine industry-related ventures. He and his brother own a small show pig operation, he judges youth swine shows and swine showmanship competitions and he serves as ultrasound scanning instructor for some programs and companies. 

STORIES ONLINE EXTRA:

Check out a day in the life of ISU scanning team member Kyle Schulte at www.ag.iastate.edu/stories.

POSITIVE ATTITUDE OVERCOMES BELL'S PALSY

By Barbara McBreen

CORTNEY SCHMIDT UNFURLS THE TOP LEAVES OF A corn plant and explains to her dad how to estimate when the plant will tassel.

At a field day near Superior, Iowa, Schmidt, a junior in agricultural education and studies, shared tips with her dad and 20 other farmers about how to improve corn yields. Organizing the field day was part of her internship at the Green Plains Grain Cooperative in Everly, Iowa. She did everything from hoeing corn plots to promoting and hosting field day events.

Schmidt beams. She is comfortable presenting to the group, which she says comes from her experiences in theater, public speaking and Collegiate FFA.

She's come a long way since waking up Thanksgiving morning during her senior year in high school to find the left side of her face and her left arm paralyzed.

She had just finished performing a lead role in her high school play "Guys and Dolls." She was rushed to the hospital and diagnosed with Bell's palsy. The doctors said it would clear up in two weeks.

Two weeks went by. Then another two weeks. Then another.

Hers turned out to be an extreme case of Bell's palsy. It was a blow. For an 18 year-old making plans to attend her senior prom, it was depressing news.

But, her attitude changed when a severely handicapped boy at her high school smiled and opened the door for her. It changed her perception.

"I had such a bad attitude about my Bell's Palsy in the beginning. I was ready for it to be done with. This boy made me realize he was living with a situation he could never fix and he dealt with it in an awesome way. He was always smiling and happy," Schmidt says. "It made me realize I had to change my attitude."

She also learned to never give up. One of her dreams was to be elected the Northwest Iowa State FFA vice president. She was. After serving a one-year term she credited the boy in her high school for his role in opening more than just a door.

"His attitude changed my attitude about life," Schmidt says. "I realized that it's what's on the inside that really counts."

She still experiences symptoms of Bell's palsy. To avoid stress, which can be a factor, Schmidt organizes her schedule of classes and club projects so she can get plenty of rest.

Schmidt greets everyone with a smile, whether it's in her position as the Agricultural Education Club secretary, vice president of the Collegiate FFA Club or Learning Community peer mentor.



Cortney Schmidt offers tips on corn yields to Doug Schmidt, her dad. He attended a field day she organized during her summer internship. The junior in agricultural education and studies doesn't let her Bell's palsy keep her away from her ISU courses, club activities and service as a learning community peer mentor.

Awoke Dollisso, associate professor in agricultural education and studies, works with Schmidt to coordinate the department's learning community. He says her passion, personality and enthusiasm are invaluable.

"What really impressed me is that she really cares about the students," Dollisso says. "She goes above and beyond the requirements."

Schmidt plans to pursue a career in communications after she graduates in 2011, but for now she's keeping busy, staying organized and opening doors for others. 

STUDENT ACHIEVEMENTS



CALS STUDENT MAKES USA TODAY ALL-COLLEGE ACADEMIC TEAM

Recent college alum Clark Richardson received honorable mention in the 20th annual USA Today All-USA College Academic Team. Richardson graduated in May with a B.S. in agricultural business and international agriculture and a B.A. in political science and economics and a minor in Spanish. He is now teaching pre-kindergarten and kindergarten children in Maryland as part of the Teach for America program.



Elise Regen



Laura Christianson

TWO STUDENTS RECEIVE FULBRIGHT SCHOLARSHIPS

Two Iowa State students have been awarded Fulbright U.S. Student Scholarships for 2009-2010. Both Laura Christianson and Elise Regen are enrolled in the Graduate Program for Sustainable Agriculture.

AGRONOMY STUDENT ELECTED WORLD PRESIDENT OF STUDENT ASSOCIATION

Emma Flemmig, senior in agronomy, was elected world president of the International Association of



Students in Agricultural and Related Sciences at the organization's world congress in Mexico. Iowa State hosted the group's national summit in October.

STUDENTS ADVISE AGRICULTURE FUTURE OF AMERICA

College seniors Ryan Hrubes and Brittney Morris have been picked to serve on the Student Advisory Team by the Agriculture Future of America. AFA is a nonprofit organization created for tomorrow's leaders in agriculture and is dedicated to encouraging and supporting college students who are preparing for careers in agriculture. Hrubes is majoring in agricultural business and Morris is an animal science major.

STUDENT PARTICIPATES IN U.N. COMMISSION

Sam Bird, a sophomore majoring in global resource systems, participated in the United Nations Commission on Sustainable Development. To read more about his experience helping to develop a document for policy-making related sustainable development, visit www.ag.iastate.edu/stories.

CALS COUNCIL AWARDS

The Ag and Life Sciences Council presented awards to graduates at the May ceremony including: Correy Rahn, agricultural business, for academic achievement; Adam Ebert, agricultural business, for distinguished service; Josie Rudolph, agriculture and life sciences education, outstanding ambassador of agriculture; Jessica Shifflett, agriculture and life sciences education, leadership excellence; and Mary Irlbeck, animal science, outstanding senior.

CALS STUDENT TEAMS, CLUBS WIN NATIONAL HONORS

- Agribusiness Management Team** – Third place, North American Colleges and Teachers of Agriculture Judging Contest
- Agriculture and Biosystems Engineering Club** – First place student club award, Association of Equipment Manufacturers
- Dairy Judging Team** – First place, 79th Hoard's Dairyman Cow Judging
- Agricultural Business Club** – 2009 Outstanding Chapter of the Year Award and Creative Club

- Ag Systems Technology Club** – Second place student club award, Association of Equipment Manufacturers
- Crops Team** – Second place, North American Colleges and Teachers of Agriculture Judging Contest
- Food Science Human Nutrition College Bowl Team** – Second place, Institute of Food Technologists

- Food Science and Human Nutrition Product Development Team "FruitSoylicious@"** – Second place, Institute of Food Technologists
- National Agri-Marketing Association Student Chapter** – First place, National Agri-Marketing Association Marketing Competition
- Meat Judging Team** – Second and sixth place, 2009 South-eastern Intercollegiate Meat Judging Contest

"Dear CALS..."



Cliff Dolbear delivered the spring commencement speech written as a thank you letter to the college. He grew up on a farm near Pleasant Hill, Ill., and excelled at Iowa State. His grades put him in the highest 2 percent of his class. As a member of the Army ROTC, he ranked 14th out of about 4,000 cadets on the national order of merit list. Dolbear is serving on active duty in the Army as a 2nd Lieutenant Military Intelligence officer. Listen to his speech at www.ag.iastate.edu/stories.

ALUM EMBODIES **LIVING GREEN** ON CAMPUS

By Ed Adcock

MERRY RANKIN BECAME INTRIGUED BY THE IDEA of combining the rest of the world with the conservation-minded ethics she grew up with on her parents' farm near Attica, Iowa. As Iowa State's first director of sustainability programs, she coordinates environmental activities on the Iowa State campus.

She joined Iowa State in January 2009 to guide development of a university-wide plan for sustainable practices as

on a daily basis that supports our ongoing operations. And looking at how we are carrying this on into our daily lives and into the community," she says. "When students go on to their future careers it is our hope they will apply these skills and knowledge into their work and workplaces and the communities in which they live."

Rankin honed her skills on the Iowa State campus, earning a business degree in 1987. She got her start in the retail business then decided to go back to school at Iowa State.

She graduated with a master's in wildlife biology in 1998. Research projects took her Australia, Costa Rica and India while in school. After graduation, she received a Rotary Ambassadorial scholarship to complete post-graduate study in South Africa.

Fresh from a position with the Iowa Department of Natural Resources (DNR), she brought practical and strategic experience to ISU's efforts. At the DNR she had worked as an environmental specialist with the recycling technical assistance team, working in green building, green purchasing, electronics recycling and helping municipalities expand recycling efforts. Then she became director of volunteer programs, helping coordinate the approximately

100,000 volunteers assisting the department annually. "What this position allows me is really the opportunity to put everything together," Rankin says. "In any given day I may be talking about green building, green purchasing, maybe talking to professors about service learning that supports sustainability efforts, and even ... recruiting volunteers. So it really brings everything together."

She has found an enthusiastic response from students and staff, who are willing to participate in recycling efforts in the dorms or cleaning up College Creek. "I may be an office of one, but I feel I have a whole campus team supporting the effort," she says.

It will take the entire campus to make the initiative a success, she believes.

"This is our initiative," Rankin says. "This is for everyone at Iowa State University. I want to do everything I can to make folks feel like they know what's going on, they can make suggestions, they can be active and that the initiative is valuable for them." 



Merry Rankin, Iowa State's first director of sustainability programs, takes a break from working at the Live Green Initiative's clean-up day at College Creek in Ames.

Photo: Ed Adcock

part of President Gregory Geoffroy's Live Green initiative. Rankin says the initiative recognizes that sustainability efforts that support the university's mission have been going on for a number of years on campus.

I MAY BE AN OFFICE OF ONE, BUT I FEEL I HAVE A WHOLE CAMPUS TEAM SUPPORTING THE EFFORT

"The other part is ensuring that we not only are on the cutting edge of energy-conserving and sustainability efforts in our teaching and research, but also in everything we do

GREEN IS THE COLOR OF NEW ISU FACILITIES

By Ed Adcock

BUILDING BY BUILDING, A SPIRIT OF ENVIRONMENTAL stewardship is spreading across Iowa State. “The college will continue to find ways to reduce energy consumption, recycle materials and use green products in its existing and new buildings,” says Joe Colletti, senior associate dean. “We’re dedicated to sustaining the environment, the economy and our communities while seeking science-based solutions to the world’s growing food, feed, fiber and biofuel demand.”

BioCentury Research Farm

Larry Johnson, director of the college’s new BioCentury Research Farm, said it made perfect sense using green technologies to construct the farm’s bioprocessing facility.

“This is the country’s first facility that will promote sustainability by researching the production and processing of the next generation of biorenewable crops and products. It is consistent that the building leaves a small environmental footprint,” he says.



Photo: Bob Elbert

About 1,000 acres of cropland are devoted to the BioCentury Research Farm. The buildings include the biomass processing facility; a harvest, storage and transportation facility; a biomass drying, grinding and storage building; and an equipment storage building.

Mark Huss, who oversaw the facility’s design and construction for ISU, says recycled concrete, steel and other materials were used from floor coverings to ceiling tiles. Higher tech touches include geothermal heating and cooling, efficient pumps and equipment, energy recovery units and occupancy sensors and daylight sensors that automatically control artificial lighting.

Biorenewables Resource Laboratory

A similar vision went into designing the Biorenewables

Resource Laboratory, now under construction on campus. The new facility will be built with sustainable products and building materials, optimized energy performance, rainwater recovery and native plants in the landscape, including biomass crops like miscanthus and switchgrass.

“It will comply with guidelines adopted by the Leadership in Energy and Environmental Design (LEED®) and may earn a gold LEED® rating, the second highest among four ratings given by the U.S. Green Building Council,” says Jonathan Harvey, project manager. The gold rating is based on points awarded in site development, water savings, energy efficiency, materials and resource selection, indoor environmental quality and innovation in design.

Seed Science Center

The Seed Science Center addition, which was finished last year, included an exterior metal sunshade installed between the addition and the existing building to block direct sun in the summer months while allowing winter rays to enter the building. Designers also replaced air-cooled condenser units in its growth chambers with a much more efficient water-cooled system.

Paper Stone, a resinous, compressed, recycled paper product, was used for countertops, millwork trim and bench seats. A white roof membrane was installed to reflect solar radiation and reduce cooling loads on the mechanical system.

Dairy Farm

Some of the new Dairy Farm south of campus is sitting on 60,000 tons of crushed concrete recycled from the demolition of Knapp and Storms halls at the Towers Residence Association. Rubble from the old dormitories was used in the farm’s parking areas, drives and building foundations.

Other recycled material at the farm includes steel, floor coverings, ceiling tiles and furnishings. Geothermal heating and cooling in the milking center, heat recovery from the milk coolers, high efficient pumps and equipment and natural ventilation in animal buildings were some of the green innovations built into the farm.

Borlaug Learning Center

Soy-based foam insulation is one of the features of the new Borlaug Learning Center, which opened last September at the Northeast Research and Demonstration Farm near Nashua. Other green elements include a ground-source geothermal system, carpet tiles made from recycled materials, a rainwater collection system and the use of nontoxic and environmentally friendly paints and wood finishes. ⑤

NEW COMPOSTING FACILITY TURNS WASTE INTO WANT

By Susan Thompson

WASTE NOT, WANT NOT HAS TAKEN ON A NEW meaning with the opening of a composting facility at Iowa State University. Now waste generated across the university is turned into a valuable ‘want’ to be used in a variety of ways.

The facility, which can handle more than 10,000 tons of compost-ready wastes annually, was planned as part of the new ISU Dairy Farm to handle solid dairy manure in an environmentally responsible manner. While the majority of product comes from the nearby Dairy Farm, there are many other sources.

“Iowa State wants to be a leader in sustainability, and this compost facility contributes to that goal,” says Mark Honeyman, professor of animal science and coordinator of Iowa State’s research farms. “Composting is a great way to demonstrate an alternative use for manure and the end result is an organic, usable product on campus.”

The compost facility was constructed west of the Dairy Farm in late 2008 and was fully operational by fall 2009.

To reduce the risk of runoff and leaching, all operations occur inside seven large hoop barns. Products coming into the compost facility include manure and bedding from ISU farms, yard waste, greenhouse waste, biomass research waste and food waste from campus dining facilities.

The process begins when nitrogen-rich manure is mixed with carbon-rich campus yard waste, cornstalks or livestock bedding to make windrows. The proper mix balances carbon and nitrogen at the correct moisture and density to promote aerobic microbial decomposition, which reduces the volume of materials by about half over an eight-week period.

The windrows are turned and aerated periodically to promote composting and minimize odor. “A well-run composting facility should not generate odor,” Honeyman says. “This is an alternative to field application of manure and superior to stockpiling manure and other waste materials during times when field application isn’t possible because of weather conditions.”

The facility generates about 100 tons of compost each week. Finished compost is cured and stored until ready to be used. The compost is blended with sand and soil to create amended soil for landscaping around new construction projects, existing buildings and planting beds across campus, including Reiman Gardens.

Compost is available to researchers for amending soil structure in horticultural and agronomic plots. It also is being tested as bedding for ISU dairy cows.

The compost facility is a self-supporting service unit. All material brought to the facility is weighed on an electronic scale. Compost leaving the site is weighed and charged to the department using the material.

“We are working hard to make the project not only resource sustainable but also budget sustainable,” says Tim Goode, compost facility superintendent. “We have structured the fees to be advantageous for the departments supplying material, as well as those using the finished product.”

Only waste material generated by the university is used. The resulting compost is not available to the public.

“I think it is quintessential for an agriculture-focused, land-grant university to have this kind of project,” Honeyman says. “It serves as a learning center for students, extension staff, agriculture and engineering research projects — and it’s all right here on campus.” ⑤



Photo: Bob Elbert

Windrows in ISU’s new composting facility at the Dairy Farm are turned and aerated periodically to promote composting and minimize odor. The facility generates about 100 tons of compost each week.

COMFORT FOR ANIMALS, ENERGY SAVINGS FOR FARMS

By Susan Thompson

LIVESTOCK PRODUCERS KNOW THE FIRST FEW HOURS of an animal's life are important. Conditions need to be right to ensure a baby animal will grow into a productive part of the farm operation.

Using flame-based infrared heating to maintain a warm environment for young animals is a common practice. Usually the heaters are turned on full blast for a set period of time.

"As energy conservation measures become a top priority, methods are needed that provide the best conditions for young animals in enclosed housing at the lowest possible energy input," says Steven Hoff, professor of agricultural and biosystems engineering.

Hoff saw the need for a device that would sense the effective radiant temperature in an animal pen and turn heaters off and on.

To test prototype sensors, a simulated pen area was constructed with concrete floors and walls. Simulated pigs, dubbed "SimPigs," were created from rain gutter downspout sections.

Temperature sensors were installed inside each Sim-Pig, which then were filled with fiberglass insulation. The SimPigs were painted a flat-gray enamel, which Hoff says



Photo: Bob Elbert

Steve Hoff holds the SimPigs he created out of downspout gutters.

"provided absorptive and emissive characteristics representative of a pig's skin."

Ten SimPigs were used to sense the heating zone. Ambient air temperatures in the pen also were monitored. Temperature data from both sources was recorded at five-minute intervals, as sensor locations and heat levels varied.

"The SimPigs gave excellent feedback to changes in heater output," Hoff says. "This experiment confirmed it's possible to use a shielded sensor to control an infrared heater. While this experiment used simulated young pigs as the subject, the sensing system could be used for any young animal that needs a controlled microclimate. And it may help hold down costs critical to the bottom line."

The company funding the research, Raydot Inc. of Cokato, Minn. has developed a commercially available sensor based on Hoff's prototype. ⑤

IOWA STATE A LEADER IN BIORENEWABLES EDUCATION

By Susan Thompson

IOWA STATE ESTABLISHED THE FIRST GRADUATE PROGRAM in biorenewable resources nearly seven years ago. Now undergraduates can get in on the action.

In 2007, Tom Brumm, agricultural and biosystems engineering associate professor, and other faculty in the colleges of Agriculture and Life Sciences, Business and Engineering were awarded a USDA Higher Education Challenge Grant to create a 20-credit undergraduate certificate in biorenewables and entrepreneurship.

The certificate provides a way for students to receive formal recognition of focused study in this specialized area. It's less comprehensive than an undergraduate major, yet more than a minor — sort of a "super minor" awarded in addition to a degree.

One of the required classes, Biorenewable Systems, was taught for the first time in Fall 2008, and became a permanent offering this fall. It focuses on many aspects of converting biorenewable resources into bioenergy and bio-based products. The class is offered both on campus and at a distance to both Iowa State and non-Iowa State students.

Agricultural studies student Anthony Lackore felt the course gave him the basics of renewable resources. He



Photo: Bob Elbert

Tom Brumm makes biodiesel with a group of students.

will graduate in May 2010 and plans to become a row-crop producer.

"This course gave me insight into potential biorenewable resources, such as corn cobs. I wanted to have a better understanding of new technologies and practices," Lackore says. "I think that's critical to help a farming operation respond to change." ⑤

STORIES ONLINE EXTRA:

Learn more about ISU's graduate program in Biorenewable Resources and Technology at www.ag.iastate.edu/stories.

EXTENSION AIDS LIVESTOCK PRODUCERS WITH ENVIRONMENTAL EFFORTS

By Taylor Gerling Shore

HELPING LIVESTOCK PRODUCERS BECOME BETTER stewards of the land has been an important and long-time focus of Iowa State University Extension through programs and publications on manure management, air and water quality, preserving wildlife habitat and other green issues.

Some recent examples:

- A series of publications on manure management showed producers that "going green" can earn them more green. A collaborative effort of ISU Extension groups — the Iowa Pork Industry Center, the Iowa Beef Center, the Egg Industry Center and the ISU Dairy Team — produced five displays and a brochure highlighting the economic benefit of using manure nutrients on fields rather than chemical fertilizers. Thousands of producers were introduced to these materials at the 2008 Farm Progress Show and subsequent events.
- Field specialists with the Iowa Beef Center have provided cattle producers with the tools to manage wildlife habitat in grazing areas through a variety of summer pasture walks, on-farm demonstrations and a special session on



Photo: Colin Johnson, Iowa Pork Industry Center

Vegetative environmental buffer

the topic at a statewide conference, "Optimizing Grazing and Enhancing the Environment."

- James Russell, a professor of animal science affiliated with the Iowa Beef Center, has been conducting pasture water quality research since 2001. His work has given cattle producers practical advice on minimizing water pollution in pastures.
- The Iowa Pork Industry Center has worked with campus faculty and the Coalition to Support Iowa Farmers to provide information on establishing vegetative environmental buffers to pork producers. These buffers, consisting of trees and shrubs, are designed to provide windbreaks and wildlife habitats; improve soil, water and air quality; and conserve on-farm energy use. ⑤

STORIES ONLINE EXTRA:

To learn more about ISU's efforts with animal agriculture and the environment, visit www.ag.iastate.edu/stories.

STUDENTS REACH FOR ISU-GROWN PRODUCE IN CAMPUS DINING CENTERS

By Ed Adcock

ISU DINING CENTERS IN THE RESIDENCE HALLS ARE offering their customers local produce grown by fellow Iowa Staters at the Horticulture Station north of Ames.

The Horticulture Station began supplying apples to ISU Dining in 2004, and has since expanded to other produce. This year, the station began selling green peppers and tomatoes. Other produce includes grapes, strawberries, cucumbers, pears and melons.

The Chieftain variety of apple, which was developed at Iowa State, is a favorite, according to Nick Howell, superintendent at the farm. The apples are displayed in crates with the station's name on the side, which gets students' attention.

Station sales are helping provide more locally grown food on campus, a goal of ISU Dining's Farm to ISU program. Locally grown food travels fewer miles, thereby reducing energy consumption and pollution, which helps to reduce ISU's overall carbon footprint.

Students working at the station get experience with raising and preparing the crops, says Mark Honeyman, who coordinates the Research and Demonstration Farms. Much of the produce comes from research projects conducted at the farms.

Howell says ISU Dining is very supportive, buying station produce to fulfill some of its total needs. He estimates this



Photo: Bob Elbert

fall the station provided about half of ISU Dining's green peppers.

Karen Rodekamp, ISU Dining produce buyer, says the Hort Station is one of the few local growers that can provide the differing quantities of produce that it needs. And the quality is excellent, she says.

"We are also able to educate our students that ISU has its own farm and show our passion for sustainability," Rodekamp says. ⑤

STORIES ONLINE EXTRA:

Find out more about ISU's popular Chieftain apple and Spencer Beach, who developed it in 1917 at www.ag.iastate.edu/stories.

FOUR STUDENTS' VIEWS: 'WHAT GREEN MEANS TO ME'

Three essential steps to living green

By Emily Eggleston

Whether growing corn or buying bananas, the same overarching concepts of "living green" apply. As an agronomist and citizen of Iowa, the U.S. and Earth, I think there are three essential steps to green living:



Step 1: Be aware of every choice you make. When you buy a banana, you choose to eat fruit. You also choose between conventional or fair trade, disposable or reusable grocery bags, and composting the peel or throwing it away. Some produce sections do not offer fair trade fruit and almost every store will provide you with plastic bags but accept-

ing the most prolific option, whether in the grocery store or in agriculture, means that sometimes "greener" choices are implicitly rejected.

Step 2: Know the environmental impact of each choice. If you googled the implications of adding your banana peel to the garbage, you'd find that, according to the Environmental Protection Agency (EPA), the U.S. has produced more and more trash per person every year since 1960. The EPA also states that the majority of our garbage is organic (compostable) material and agriculturalists know that matter can be much more useful when it's not tied in a plastic bag and buried in a landfill. Composting a banana peel may seem like a small decision, but the logic rings true for the largest agricultural corporation, knowing the environmental impact of our choices keeps our world "greener."

Step 3: Decide which choice is best by using "land ethic" as a guide. Environmental philosopher Aldo Leopold wrote that society's ethical guidelines encourage us to cooperate with our human community but, he argued, by ecological necessity we must also live cooperatively with soils, water, plants and animals. Leopold coined the term "land ethic" to describe the new ethical boundaries for decision-making and I consider the ideal essential for making environmentally sound choices.

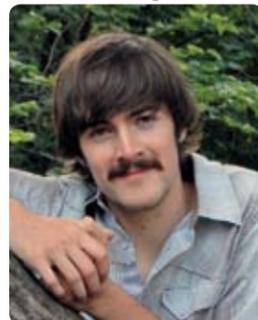
Emily Eggleston ('09 agronomy and environmental science) spent the summer co-managing an organic community supported agriculture (CSA) farm in Atlantic, Iowa.

Global collaboration key to achieving sustainability

By Nate Looker

By definition, efforts to be "green" aim to use our finite resources in a way that minimizes harm and allows for indefinite continuation into the future. After half a century of environmental advocacy, much of U.S. society recognizes the sensibility of sustainability.

In the Andean highlands of Peru, the villagers of Colpar have known since time immemorial to preserve what the earth has provided them. At 11,000 feet above sea level, life wouldn't be possible any other way. As a World Food Prize Borlaug-Ruan Intern there in 2008, I saw how the diversification of crops and varieties allows farmers to minimize losses to pests, while safeguarding genetic resources. To maintain soil fertility and moisture in communal fields, farmers rotate 118 varieties of potato with a six-year fallow.



Although this system has sustained Andean farmers for generations, hunger prevails. Changing economic models, population growth and climate

change all underscore the need for development, a word itself as nebulous as "green."

Last summer, I traveled to Kamuli, Uganda, through ISU's Service Learning Program. Partnering with Ugandan college students, we conducted a project in sustainable development. In Uganda, war and AIDS have disrupted the transfer of indigenous knowledge. To overcome this void, we drew primary school students' attention to local materials that can be fashioned into traditional beehives. Investing only time and energy, students can produce lucrative honey to sell for food and school fees.

Ultimately, nations' paths to development will be immensely complex, as will our way through the impending challenges climate change presents us. This complexity begs collaboration: while a technological transfer could increase food security for a farmer abroad, indigenous adaptation to the land could teach us a valuable lesson when devising green technologies that are appropriate for our population size and economic needs.

Nate Looker is a junior in agronomy and global resource systems. Focusing on agroecology and Latin America, he hopes to return to the region to further study diversified farming in the Andes.

Preservation of soil and water our biggest concerns

By Richard Kann

When most people think of the green movement they see hybrid vehicles, ethanol plants, solar panels and wind turbines. When I think of the green movement I see conserving our two most important natural resources; soil and water. Coming from a farm on the bluffs of the Mississippi, I have seen the soil scoured by both human and environmental actions, and the water polluted by the changing landscape. Through agronomy and agriculture systems technology courses at Iowa State, and my involvement in organizations such as Ducks Unlimited and the Soil and Water Conservation Society I have discovered the potential to conserve these vital resources. These two resources produce the food we eat and the fluids we drink. If we look at "green" from the standpoint of protecting our environment, I believe soil and water should be some of our biggest concerns.



There are many solutions I believe will come about in helping to preserve our soil and protect our water. Efficiently producing ethanol or electricity with the use of biomass will help protect our soil. And using biomass crops such as miscanthus or switchgrass allows us to farm

environmentally sensitive areas, improve soil quality and provide carbon sequestration.

Another way of going green to improve the quality of our soil is the use of precision farming technology. The Midwest is one of the most productive agricultural regions in the world, but it requires us to use commercial fertilizers in order to produce record yields. According to fertilizer.org, the production of commercial fertilizers accounts for just below two percent of the world's energy use. By taking soil samples, grid mapping and using variable rate technology we can apply nutrients at crop removal rates, allowing for more efficient, economic and environmentally friendly application of nutrients.

A final green solution to improving the quality of our water is using earth's natural filters. Wetlands are one of the most productive ecosystems in the world, and act like kidneys for the land. They harness the ability to filter out unwanted chemicals and nutrients before the water enters our lakes and streams. They can be cost effective, aesthetically pleasing and help protect our nutrient rich streams.

Richard Kann is a senior in agricultural systems technology with a minor in agronomy. He serves as president of the Soil & Water Conservation Club, student chair for the Iowa Soil & Water Conservation Society and treasurer of ISU Ducks Unlimited.

Conserving water, food a green way to meet human needs

By Danika Schaaf

Over the past summer, I spent two months in India for an internship. During my stay, I observed the effects of food scarcity on India's people and learned about India's problems with water shortages. As a result of my experiences, I feel that being "green" means conserving common resources, such as food and water, as wisely as possible and being aware of how one's actions affect others.



According to the New York Times, it is estimated that in America 27 percent of consumable food is thrown away annually. By contrast, "more than 25 million Americans . . . receive emergency food assistance each

year from the America's Second Harvest Network." Although this situation may seem to be a paradox, this problem is not unique to the U.S. On an individual and large-scale level, there are many ways one may prevent food from turning into waste. For example, one way an individual may reduce his food waste is by using leftovers before they spoil. On a larger scale, ISU is partnering with the ISU Research Farms to turn food scraps into compost (read more on page 19).

Next, the conservation of water resources is an important aspect of being green. According to the World Health Organization, water scarcity affects one in three people on each continent. One solution to this problem may lie in adopting a wider variety of methods for water conservation. As an example, households in India use roof-top rainwater harvesting to conserve water. To collect water, the roofs of houses are first covered with tin and drainage systems are installed so that when it rains water runs from the roof of the house and into storage tanks. Since India has wide-spread problems with water scarcity, roof-top rainwater harvesting helps ensure individuals have adequate supplies in times of drought.

Danika Schaaf is a freshman in global resource systems. She plans to focus her studies on Asia and learn about the ecotechnology systems there in hopes that she may work in China and India.



A MILE-HIGH VIEW OF GREEN ROOF TECHNOLOGY

Photo: Jean McGuire

Alumna Jennifer Boussetot conducts research on a green roof installed on the new Environmental Protection Agency (EPA) Region 8 Headquarters building in Denver. "A rooftop garden is built for beauty. A green roof is built for great utility and environmental benefits," she says.

By Brian Meyer

FROM HER MOTHER'S GARDEN AND FATHER'S CORNFIELDS near DeWitt, Iowa, Jennifer Boussetot has come up in the world. Literally.

High above downtown Denver, the ISU alum conducts research on a green roof installed on the new Environmental Protection Agency (EPA) Region 8 Headquarters building. Over the parapet wall, she can see the front range of the Rockies. "It's a view like none other," she says.

A doctoral candidate in horticulture at Colorado State University, Boussetot ('01 plant health and protection, '03 MS sustainable agriculture) is the "plant person" on the EPA grant-funded research team studying the green roof.

Sedums are the popular, common choice for green roofs. Boussetot's research injected some native diversity into the mix. She selected a handful of Colorado species she believed would take to the shallow, well-drained green roof, including nodding onion, small-leaf pussytoes and brittle pricklypear. "The big deal is whether they can overwinter. So far, all but one have done very well."

Because roofs are engineered for building requirements, not necessarily for nutrient-holding and water-holding capacity, she also studies how to improve growing media for plant performance. The project examines the effects of adding varying amounts of zeolite, a volcanic mineral with an affinity for hanging on to nutrients.

Sometimes Boussetot, who's worked for Colorado State Extension's Master Gardener program, has to provide science-based education for those who expect a lush paradise above their heads.

"A rooftop garden is built for beauty. A green roof is built for great utility and environmental benefits. The

benefits include managing stormwater to dial down the intensity of runoff. It moderates temperatures to address cities' heat island effect — buildings soaking up heat. And it protects the roof membrane, extending its useful life by two or three times."

From her research elevation, Boussetot is amazed by the acres of rooftops she sees. "There's a lot of dead space that could be turned into something useful. City people constantly talk about a disconnect with nature. Maybe there's space above them that could help them reconnect."

Everything she knows about the science of plants began at Iowa State. "I'm honest when I say people are always impressed by that. ISU has a phenomenal reputation." Every day the lessons she learned from ISU's Deb Muenchrath, an agronomy faculty member who died in 2006, come into play. "Deb focused me. She was an incredibly inspirational and influential mentor."

For Boussetot, "green" in the broader sense is about choice. "Green means trying to be truly sustainable, to be conscious of the choices and decisions you make. It's about people trying to be environmentally conscious."

Her own choices have lifted her. Up on the roof, it's peaceful as can be (as the song goes).

"It's surprisingly quiet. You just hear the wind," Boussetot says. "Kind of what you'd imagine standing over an Iowa cornfield." 📍

STORIES ONLINE EXTRA:

ISU installed its first green roof in 2009, on the Design Center. Take a look at www.ag.iastate.edu/stories and find a link to the green roof program in Boussetot's department at CSU.

ENTREPRENEURIAL SUCCESS IN SOY-FOAM

By Barbara McBreen

THE TENSE SCENE COULD HAVE been the setting of a reality show. Joe Steffes, owner of Iowa Foam Insulation, maneuvered a 24-foot installation truck, a drivable boom and a film crew around the construction site of the new chemistry building on the Iowa State campus.

Steffes ('01 agricultural business) had one hour to demonstrate the application of his company's soy-foam insulation for the crew from the Public Broadcasting System show *America's Heartland*. The site foreman had deadlines to meet, deliveries scheduled and a crane to set up.

Dressed in a white protective suit with an air mask in place, an Iowa Foam Insulation employee piloted the boom lift above the east entrance. He sprayed an off-white liquid into the metal frame above the doorway and within seconds it expanded into three inches of solid foam. The liquid foam penetrates cracks and crevices and seals out air.

Steffes says it's like "paint on steroids."

"You spray this thin liquid and it explodes into a solid foam wall of insulation," Steffes says.

The insulation is mixed with water and soy oils, heated to 135 degrees, pressurized and sprayed. The result is a rock-like, light, foam substance. The advantage, Steffes says, is that it's mixed with water and made with soybeans, which supports farmers and is a renewable resource in the Midwest.

The soy-foam insulation, manufactured in Arkansas, will last the life of a building because the material won't settle like other types of insulation. Moisture can't penetrate the foam, so it won't promote mold or provide nesting material for rodents or insects.

Three years ago while Steffes was working in sales for John Deere, he began researching ideas to start his own business. When he found out about soy-based foam insulation, he was sold. He saw the opportunity to lower his heating bills using a green Iowa product and he knew others would be interested.

"I knew it would be an easy sell to customers who were watching heating bills skyrocket," he says. "I thought others would support a green, soy-based product."



Photo: Barbara McBreen

Alum Joe Steffes (left) talks with Jason Shoultz, a reporter with *America's Heartland*, about the benefits of soybean foam insulation.

Since Steffes started his business, based in Nevada, Iowa, he has insulated several commercial buildings, offices, homes, sheds and a portion of the portable solar home built by ISU's Solar Decathlon Team for a competition in Washington, D.C. in October.

Every year Steffes comes back as a guest lecturer for an ag studies class to share tips on how he started a business. He tells students that learning the basics about relating to people helped him in his business. He learned those basics at Iowa State.

"I want students to know that they can do anything," he says. "Look at me. I was a farm kid from Templeton, Iowa. Now I own my own business." 📍

The *America's Heartland* episode, number 521, featuring Joe Steffes will air nationally in late January on RFD-TV and various PBS affiliates.

ALUM PROMOTES AG IN PHOENIX AG CLUB

By Susan Thompson

TED AXLAND WAS BORN ON A GRAIN AND LIVESTOCK farm near Irwin, Iowa. Seventy-five years later the view from his Arizona backyard is much different, including an orange tree and the turfgrass on the nearby golf course.

After a long career in agriculture, Axland ('55 agronomy) continues to be interested in its future. As leader of the Phoenix Agricultural Club, he coordinates meetings for those interested in issues facing the industry today. He lines up tours and speakers including many ISU faculty and alumni.

In 2007 Dean Wendy Wintersteen spoke with the group and alum Ted Crosbie ('73 ag education, MS '76 agronomy, PHD '78 agronomy), Monsanto's vice president of global plant breeding, are among the Iowa Staters who have presented.

"I try to develop tours and programs that interest people who want to promote agriculture," Axland says. "As foreign countries become more affluent, they want to eat better. I believe agricultural exports will lead the U.S. economy upwards. But we must continually show and tell the benefits of the consistent agricultural products we have to offer."

Axland didn't grow up expecting to attend college. But on a trip through Ames he stopped at Iowa State and picked up a catalog. "I saw agronomy was one of the majors. That sounded like something I had experience in," he says.

He applied and was accepted. After two quarters on campus, he pledged the Farm House fraternity. "That changed my whole life," he declares. Axland became active in the fraternity and on campus. He joined Iowa State's Agronomy Club and served one year as national chair of the student section of the American Society of Agronomy.

After graduation, Axland spent two years in the Army, followed by a position with DeKalb Seed, where he met his future wife, Nancy. Next came time in the fertilizer and ag chemical division of Gulf Oil, working his way up to national sales manager.

When Chevron purchased Gulf Oil, agriculture wasn't as high on the company's priority list. "That's when I put my experience to work managing and selling farms in the Kansas City area for Farmers National Co.," he says.

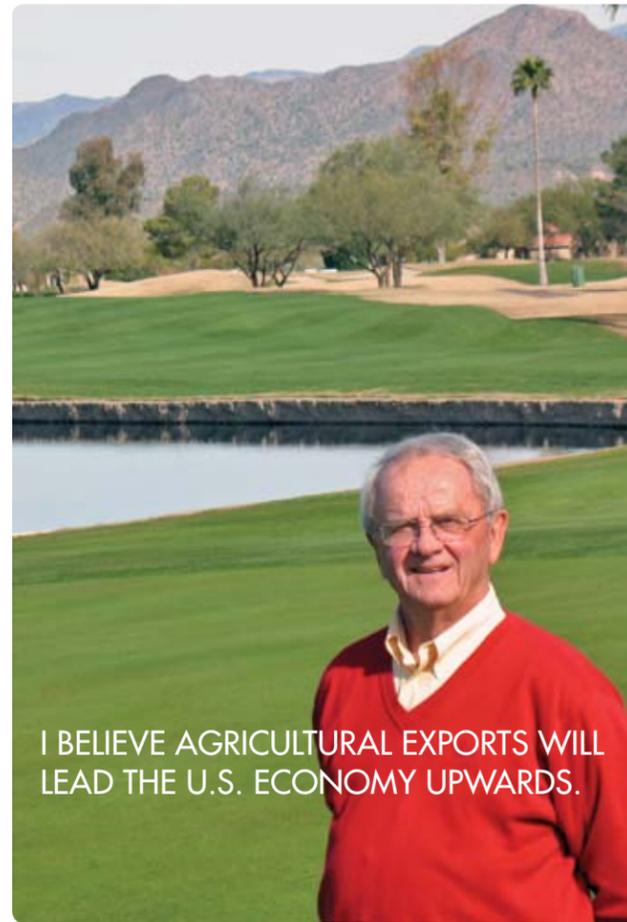
Axland retired in 1999 and moved to Rio Verde, Ariz. in 2003. One of his first projects was to form the Phoenix Agricultural Club. Many of the 150 members have Midwestern roots and worked in the agriculture industry. At least a half-dozen are Iowa State grads.

In 2007, Axland received an Outstanding Service Award from the Arizona State University Morrison School of Man-

agement and Agribusiness for his leadership of the Phoenix Ag Club.

With his house overlooking one of 36 golf holes at the Rio Verde Country Club, Axland plays at least three days a week. He also enjoys billiards, and serves on the club's marketing and communications committee.

Axland gives Iowa State credit for the quality of life he has experienced since graduation through his retirement years. "I'm convinced none of this would have been possible for me without Iowa State," he says. "That's where I began a life filled with interesting, productive, worthwhile activities. I became a student interested in self-improvement, and that has carried through to this day." 📍



Ted Axland is shown on one of the greens at the Rio Verde Country Club, where he has lived since 2003. Axland, an agronomy graduate from the class of 1955, leads the Phoenix Agricultural Club.

Photo: Susan Thompson

COLLECTING PLANTS AND STORIES FOR HARVARD'S ARBORETUM

By Melea Reicks Licht



Photo: Nancy Rose

Michael Dosmann examines the autumn blooms of *Franklinia alata-maha*, the Ben Franklin tree, a now-extinct plant in the tea family that grows at the Arnold Arboretum. As curator, Dosmann believes conservation is an important part of an arboretum's mission.

WHEN PEOPLE ASK HORTICULTURE ALUM MICHAEL Dosmann what it is he does, he usually starts out by telling them that he just tells stories about trees.

"To me, every plant has a story, or two, or 10 ... and nothing is more rewarding than uncovering these accounts and sharing them with others," he says.

Dosmann (MS '98 horticulture) shares his tree stories with audiences around the world as curator of living collections at the Arnold Arboretum of Harvard University. The arboretum sprawls over 265 acres in the Jamaica Plain section of Boston, Mass. and consists of more than 15,000 plants, with particular emphasis on woody species of North America and eastern Asia.

"In addition to providing curatorial oversight and leadership for North America's oldest public arboretum, I conduct research, teach and liaise with botanical and horticultural audiences around the world," he says. "Oh, and there are those administrative duties, as well!"

Dosmann knew he wanted to work in a botanic garden or arboretum by the time he reached his teens. He earned his bachelor's from Purdue University in public horticulture and worked with horticulture professor Jeff Iles at Iowa State to complete his master's.

"Each member of my graduate committee at Iowa State taught me something about the research process, about being a scientist, about following my interests. Also, the late Dave Cox (University Professor of statistics) became a formidable force, teaching me about experimental design and the philosophy of science. He also taught me how to appreciate a Guinness or two," Dosmann says.

After gaining experience through two fellowships, one in the United Kingdom and the other at Arnold Arboretum, Dosmann earned his doctorate from Cornell, working at the university's Urban Horticulture Institute.

His combined experiences give him a unique view on ensuring the sustainability and preservation of plant collections even while funds for public gardens continue to diminish.

"Gardens face innumerable challenges these days. They must often do more with less. They are drawn towards infotainment and other gate-driven activities just to keep the lights on. But if we do not adequately advocate for our living plant collections I fear they will only continue to lose their integrity and substance," he says.

Despite economically challenging times, Dosmann is hopeful outreach and public service efforts at private and public universities will continue to bring meaningful information to audiences around the world.

"Call it extension, call it outreach, call it cream-of-mushroom soup — the important thing is to take the outstanding work of the university and translate it in ways that impact and advance our lives," he says. "To some, extension may have lost its luster, but in my mind the original principles of the Smith-Lever Act are in even greater demand today. I challenge Iowa State to enhance and grow its extension program as a means to transform not just a farm family outside of Waterloo, but an urban child on the streets of Karachi. Luckily, ISU is expertly poised to accomplish this, due to its renowned and committed faculty, staff, current students and alumni, each of which can play a role." 📍

STORIES ONLINE EXTRA:

To read Dosmann's complete essay about his career and time at ISU or view a video of him talking about careers in public gardens on YouTube visit www.ag.iastate.edu/stories.

ALUMNI RECEIVE HIGHEST HONOR FROM ISU ALUMNI ASSOCIATION

Anwar M. Battikhi (PhD '77 soil physics) and **Murray R. Wise** ('73 plant pathology), were each presented the Distinguished Alumni Award, the highest honor given to alumni by Iowa State through the ISU Alumni Association. The award honors ISU alumni who are nationally and/or internationally recognized for preeminent contributions to their profession or life's work.



Battikhi is the secretary general, The Higher Council for Science & Technology in Amman, Jordan. He has served in almost all academic posts — from chair of an academic department to president of a state university in Jordan. In these positions, he has made contributions on both the national and international levels in educational leadership and policymaking. A recognized expert in several agricultural disciplines, Battikhi has published widely in soil moisture and conservation, crop modeling, soil water measurements, soil physical properties, and irrigated crops and water harvesting.



Wise is the chairman and CEO, Westchester Group Inc. He has owned and managed a personal farming operation, worked as a district sales manager with Allied Mills, a division of Continental Grain Co., and held the position of vice president of the Sandage Companies, where he was involved in all aspects of agricultural sales and property management. In 1985, Wise formed the Westchester Group, and is chairman and chief executive officer. He has authored two books on agriculture real estate and is considered the definitive guide to farmland investment strategies for pension fund investors.

STORIES ONLINE EXTRA:

Read more about award recipients, including Battikhi's acceptance remarks at www.ag.iastate.edu/stories.

BENDORF HONORED BY FORAGE AND GRASSLAND COUNCIL

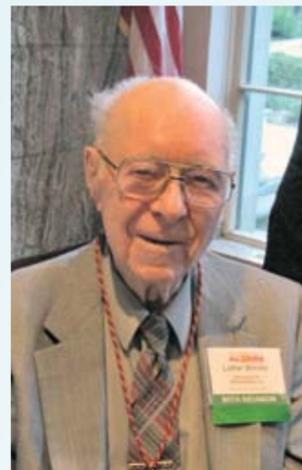
Hank Bendorf, president of Hank Bendorf Consulting in Shawnee, Kan., has received the highest honor from the American Forage and Grassland Council. Bendorf received the Medallion Award for his lifetime of achievements and service to forages, grasslands and the seed industry. Bendorf earned a bachelor's degree in agronomy in 1961.

**ALUMNI SHARE STORIES IN VEISHEA SLIDESHOW**

Craig Henry ('03 professional agriculture) and his wife, Jeanine, shared their memories of ISU at Vieshea last spring. Several alums shared their memories, which were incorporated into an audio slideshow reflecting Vieshea's theme: "Memories in the Making." For a link to the slideshow visit www.ag.iastate.edu/stories.

ALUM HONORED BY ANIMAL SCIENCE DEPARTMENT

Robert Kimm was honored in April with the Department of Animal Science's Hall of Fame Award, which is given to an individual who has made an outstanding contribution to animal agriculture in Iowa. Kimm earned a bachelor's degree in animal science in 1965 and a master's degree in agricultural education in 1969. Kimm was the beef and sheep specialist at Hawkeye Community College. During his 31 years in that position he promoted the sheep industry, especially the Suffolk breed, worked to improve the performance and carcass traits and led the seedstock industry.

**101-YEAR-OLD COLLEGE ALUM ATTENDS ALUMNI DAYS**

Luther Brindle, who earned a bachelor's degree in animal science in 1929, was the oldest alum in attendance at Iowa State's Alumni Days in May. The 101-year-old Marshalltown man was among 375 alumni on campus for Alumni Days. Brindle said he drove a Model T Roadster to class in the 1920s and remembers his fraternity brothers pulling "some rough pranks," including dumping him out in the country as part of his initiation. The college hosted a reception and tour for its alumni at the new Dairy Farm. Check out the photo album at www.ag.iastate.edu/stories.

AG JOURNALISM ALUM EARNS LIFETIME ACHIEVEMENT AWARD

Agricultural journalist Bill Fleming received the 2009 Lifetime Achievement Award from the American Agricultural Editors' Association. Fleming worked at National Hog Farmer and BEEF. He is known in the organization for his efforts with AAEP professional development. Fleming received a bachelor's degree in 1950 in agricultural journalism.

ISU RAISES A GLASS TO A GROWING IOWA INDUSTRY

By Susan Thompson

IN 2000, IOWA HAD 12 WINERIES. IN 2009, THAT NUMBER stood at 75.

Murli Dharmadhikari is playing a key role in this expanding industry as ISU Extension's enologist. He's studied enology, the science of winemaking, since he came to the United States from India in 1968. He earned a doctorate in grape nutrition from Ohio State, worked at a grape juice processing plant, helped establish new wineries and started a wine advisory service.

When the position was created at Iowa State in 2005, he was ready. "Since Iowa is a prime agricultural state, I thought it was a place I could have the most impact," says Dharmadhikari.

Iowa State established its Midwest Grape and Wine Industry Institute in 2006. The institute, in the College of Agriculture and Life Sciences, focuses on research, teaching and outreach to support the industry. Dharmadhikari is the institute's director.

One of the Iowa wineries Dharmadhikari works closely with is Tassel Ridge near Leighton. Bob and Sharman Wersen, who are native Californians, started the venture in 2001. Bob is the president of Interpower Corp., a company he founded in California in 1975 and moved to Iowa in 1993.

"We saw an opportunity here," Bob says. "Iowans don't drink much wine, but education and the availability of good, locally produced wine can change that. Forty years ago, California wasn't a land of wine drinkers either."

The Wersens planted 57 acres of vineyards. A new building houses their wine production, storage, tasting and marketing. It opened in May 2006, and averages 40 visitors daily. Tassel Ridge won 15 medals in the 2009 Mid-American Wine Competition, and boasts more than 150 awards in wine competitions.

Three of Tassel Ridge's 20 employees are Iowa State graduates: Rhonda Taylor ('94 biology), winemaker; Jim Carmichael ('86 animal science), cellar technician; and Jonita Boyer ('94 agricultural education), cellar assistant.

"We're pioneers, working with local grape varieties, Iowa soils and microclimates, figuring out the best cultural practices in the vineyard, and the best production practices in the wine cellar," Wersen says.

When Wersen has questions, he calls Dharmadhikari. "Tassel Ridge is one of the modern, well-equipped wineries in the state," Dharmadhikari says. "They have a real vision. We don't want to do anything without industry support, so this joint relationship is great."

The Wersens both serve on the institute's advisory board. Sharman also was appointed to the Iowa Grape and Wine Development Commission in 2008, and now serves as the group's chair. The commission makes recommendations to the Iowa Department of Agriculture and Land Stewardship on how to spend state funds to enhance Iowa's grape and wine industry.



Bob and Sharman Wersen, owners of Tassel Ridge Winery, call on ISU Extension's Murli Dharmadhikari for answers to help their three-year-old business. The trio is shown in the winery's tasting room, which opened more than three years ago.

Iowa wineries can submit wine samples to a diagnostic lab at Iowa State for analysis. The institute offers educational workshops and short courses, and has worked with industry to develop quality standards. Iowa State scientists conduct harvest fruit analysis and evaluate cold-hardy grape cultivars.

Dharmadhikari sees new wine offerings on the horizon as new grape varieties are grown and processed in Iowa.

Bob agrees. "We're going to see a shift from sweet wines to drier wines," he says. "As the industry evolves, wine drinkers will want to keep trying Iowa wines." 

STORIES ONLINE EXTRA:

Visit the Midwest Grape and Wine Industry Institute and the Tassel Ridge Winery online. For links visit www.ag.iastate.edu/stories.

PLANT CLINIC NURTURES AND EDUCATES CLIENTS — ONE TEST AT A TIME

By Tamsyn Jones

For as long as Iowa State has been around, campus experts have been troubleshooting plant and pest problems. In the early days, diagnosis was more informal, with faculty consulting directly with farmers. Creation of the Cooperative Extension system in 1914 added another layer to diagnostic efforts through a network of field specialists.

But the success and expansion of that system into the present-day ISU Plant and Insect Diagnostic Clinic — a full-time, professionally-staffed facility based in Bessey Hall — owes much to a principle adhered to since the beginning: building partnerships with the public.

Ralph Conner wouldn't hesitate to agree. The master arborist with Perficut Lawn & Landscape, a tree care and landscaping

The clinic's ability to quickly diagnose a range of problems has often proved vital to Conner's work.

"There have been lots of cases where I've gone into a residential area with a lot of oak trees and wasn't sure about the diagnosis — particularly with oak wilt, which spreads through the root system and will kill a tree," he says. "Another vector for it is a flying beetle. I can send off a sample to the clinic and it makes a huge difference because if it's confirmed, we need to look at adjacent trees. What we find out from the lab will definitely dictate what we do next."

While oak wilt takes a few weeks to test, many problems can be answered within a week. "Lots of times, we can diagnose problems over the phone," Jesse says. "A big part of the job is



Laura Jesse co-manages the ISU Plant and Insect Clinic, a full-time facility that helps clients identify plant and pest problems.

Ralph Conner, master arborist with Perficut Lawn & Landscape in Ankeny, studies a burr oak branch from a tree in Des Moines.

company based in Ankeny, says he has been using the clinic since about 1985 — four years before it became an independent professional entity.

"It's a tremendous resource for the state," Conner says. "Homeowners can go through extension, but outside the clinic there's not a good resource for arborists to verify or identify insects or diseases from a lab standpoint."

In 2008, trees accounted for 27 percent of the clinic's samples. Insects made up another 28 percent. The clinic also analyzes soil samples, field crops, fruits, vegetables, turf grasses and ornamental plants; and identifies plant and insect species for clients.

"We call the clinic a one-stop shop," says Laura Jesse ('98 animal ecology, MS '01 entomology, PhD '06 ecology and evolutionary biology), an entomologist who co-manages the clinic with plant pathologist Fanny Iriarte.

Historically housed in plant pathology, the clinic became a joint effort of four departments in 2007 to better handle the cross-disciplinary nature of plant health assessment.

"We work with plant pathology, entomology, horticulture and agronomy, because if we get a sample and don't see the problem, we can go to the other faculty and ask their opinions," Jesse says.

trriage — where we look at the samples we have and decide what needs to be answered right away."

Timely replies are one way the clinic nurtures its client relationships. Its reputation for impartiality and its focus on educating, not just responding, builds trust — and repeat users.

"We help people evaluate whole plant health and try to educate on a pest's lifecycle and alternatives to pesticides," Jesse says. "This is the part of the job that makes me feel good. The more information you give someone, the more likely you are to solve the problem."

While some ailments elude an answer, Conner says the clinic's ability to rule out problems and the willingness of staff to help keep him coming back. "Sometimes they'll tell us what it isn't, which can be just as important. It's good to know that they're behind us." ☺

STORIES ONLINE EXTRA:

For more information on the clinic and how to submit samples, visit www.ag.iastate.edu/stories.



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WALTER GIFT PAVES WAY FOR AG PAVILION



A state-of-the-art agriculture pavilion for Iowa State University's College of Agriculture and Life Sciences has received a major gift from Marvin and Janice Walter of Ames. The Ames couple pledged \$1.5 million towards the construction of a new \$7 million facility.

The agriculture pavilion is scheduled to be built south of campus on land currently used by the department of animal science's equine program. It will include a 125-by-250-foot arena with seating for 1,000 people. The arena will be an ideal location for students to gain valuable experience through interactions with animals, agricultural judging and skills competitions. The all-weather heated pavilion, with its arena, classrooms and animal holding areas, will serve a broad array of multiple teaching and public events involving many different animal species.

Marvin ('62 animal science, MS '64) is the president and owner of Dayton Road Development Corp. and founded Carriage House Meat & Provision Co. Inc., WNG Marketing, Ames Processed Foods and Webster City Custom Meats. Janice spent a number of years working in the office of Dean Floyd Andre in the College of Agriculture. It was during this time that she and Marv met and were married. She is an active volunteer in many organizations in Ames.

STORIES ONLINE EXTRA:

View illustrations of the planned Ag Pavilion and Harl Commons at www.ag.iastate.edu/stories.



HARL GIFT ENSURES SPACE FOR STUDENT SUCCESS

Neil Harl, a long-time faculty member in Iowa State University's College of Agriculture and Life Sciences, and his wife Darlene have pledged \$1.5 million towards renovations of Curtiss Hall.

The Harls are shown above with Dean Wendy Wintersteen, center, ISU President Gregory Geoffroy, and ISU Foundation President Dan Saftig, right, at the gift announcement event. Harls' pledge will create the Harl Commons, a renovated space located on the ground floor of Curtiss Hall that will include an open area for informal gatherings, a café/deli and meeting rooms available to students to encourage teamwork and improve communications.

Harl, Charles F. Curtiss Distinguished Professor in Agriculture and Life Sciences, served for more than 40 years as a faculty member in the Department of Economics, retiring in 2004. A member of the Iowa State Bar Association, he is an internationally recognized expert in farm finance, taxation, estate planning, business planning and agricultural law. He earned a bachelor of science degree in agricultural education in 1955 and a doctorate in economics from Iowa State. His law degree was awarded from the University of Iowa. Darlene received her bachelor of science degree in sociology from Iowa State in 1981.



COLLEGE HONORS BORLAUG, DEDICATES NEW LEARNING CENTER

Iowa native Norman Borlaug died Sept. 12 at the age of 95 of complications of cancer. He was one of five people who won the Nobel Peace Prize, Presidential Medal of Freedom and Congressional Gold Medal, all for his work in combating world hunger. Visit www.ag.iastate.edu/stories to read tributes from the college and find other relevant links. The ISU Northeast Research Farm dedicated a new facility, the Borlaug Learning Center, in honor of Borlaug in September. The project is a partnership between ISU and the Northeast Iowa Agricultural Experimental Association, a group of farmers and agribusinesses that owns the research farm and works to promote ag research in northeast Iowa. It features a display of Borlaug's life plus original artwork by ISU students and staff.



UNLIKELY FAMILY NESTS ON ISU FARM WETLAND

A free-flying pair of trumpeter swans nested in a wetland on ISU's Kelley Farm this spring, and is raising six offspring there. The pair is reported to be one of the first two pairs to nest in central Iowa since as far back as the Civil War. The nesting of the trumpeter swans could be considered part of the impact from work by ISU to develop citizen watershed councils. Five years ago, the local council asked Lois Wright Morton, sociology, to work with the farm manager, Kent Berns, to enroll a corn-soybean field into the federal Conservation Reserve Program Farmable Wetlands Program. "Because of the actions of an engaged citizen group... we have the return of a bird that was once abundant in Iowa that almost became extinct," says Morton. The Kelley Farm is in Boone County. To read more about the swans visit www.ag.iastate.edu/stories.

MAKING ENERGY FROM MANURE

The Department of Agricultural and Biosystems Engineering coordinated a short course in conjunction with the World Dairy Expo in September in Madison, Wis., on how to produce energy from dairy manure using anaerobic digestion. The number of manure anaerobic digesters in the United States has been increasing, with the majority found on dairy farms. The short course is designed to provide the latest information and resources for producers, consultants, decision makers, system reviewers and information providers.



ISU WELCOMES WALLACE FAMILY

More than 80 relatives of Henry A. Wallace visited ISU in August. President Gregory Geoffroy and Dean Wendy Wintersteen greeted the group, which was assembled for an annual family reunion. The college provided a guided tour of Wallace landmarks on campus, a visit to the Farmhouse Museum and a field visit to research plots led by Matt Liebman, Henry A. Wallace Chair in Sustainable Agriculture, pictured above speaking to the group.

FOLLOW CALS ON TWITTER

Get updates about recent news and events from the College of Agriculture and Life Sciences by following its Twitter news feed online – "iastate_cals". Visit www.ag.iastate.edu/stories for more information.



FORESTRY CLASS DIGS COMMUNITY TREE PLANTINGS

An ISU urban forestry class planted 10 trees at Calhoun Park in Ames in September, marking the 15th year the class has helped with the tree plantings. Jan Thompson, professor of natural resource, ecology and management, helped collaborate the plantings with Ames Trees Forever and the City of Ames. Students who volunteered included Jeff Hartwig and Lucas Monson, forestry seniors from Boone; Travis Weigert, a forestry senior from New London; Carrie Tauscher, a senior in horticulture from Paluski, Wis.; and Amy Logan, a graduate student in community and regional planning.



GREEN PRINTING PRACTICES

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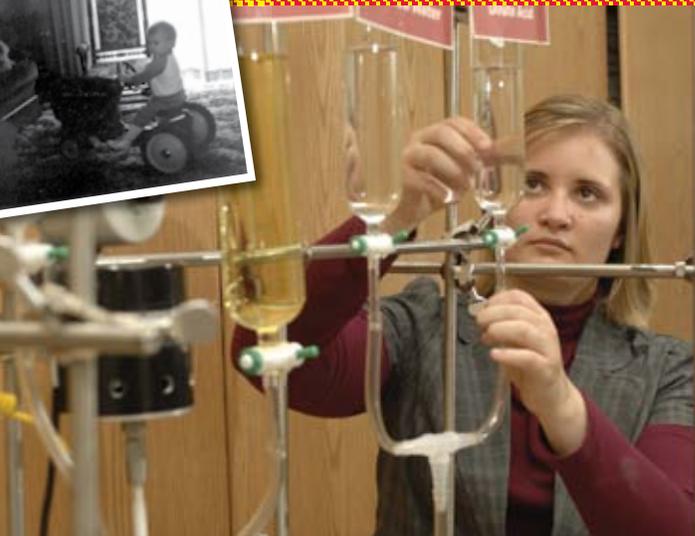
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