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Professor Don Jarvis has received awards, been selected for speeches, and started companies related to his biologics research – and credits the values instilled in him by his hardworking, blue-collar parents.

SEE STORY PAGE 16

UNIVERSITY OF WYOMING COLLEGE OF AGRICULTURE AND NATURAL RESOURCES



Dean Frank Galey

C The university belongs to the people of the state. It will justify its existence only as it serves the people. ??

> Liberty Hyde Bailey 1907



Dear friends and colleagues,

This year is the 150th anniversary of the land-grant college system. In 1862, Congress passed a bill sponsored by Representative Justin Morrill of Vermont that established colleges of agriculture and mechanical arts and forever changed higher education and applied research in America.

The original act creating the land-grant system of colleges, and the subsequent Morrill Act of 1890, provided each participating state 30,000 acres of land for each member of Congress. The proceeds were to be used for

"the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

This charge remains unchanged today (US Code, Title 7, sect. 304).

A listing of colleges and universities with roots in the land-grant university Morrill Act is a who's who of major public universities. Their existence has allowed many citizens, young and old, to further their educational goals. The Morrill Act also set the stage for discoveries that have changed America and the world. Discoveries and technological innovations produced in land-grant institutions include the first binary computer, disease-resistant and high-yield wheat, pima cotton, and the world's first measurable amount of deuterium, a hydrogen isotope found in "heavy water." Heavy water allows certain nuclear reactors to operate with uranium as their fuel.

The land-grant tripartite mission of teaching, research, and public service serves as a model for the world.

To appreciate this legislation's monumental impact, reflect on what post-secondary educational options were available to most Americans in 1865. Post-secondary education was something beyond the reach of most people. Most colleges and universities were private. Attendance was expensive, and their courses focused primarily on the classics, law, philosophy, medicine, and theology.

The Morrill Act and the institutions born from this legislation expanded college curricula to include practical subjects such as agriculture, mechanical arts (engineering), and other subjects. These new public colleges were charged with providing a broad intellectual education to all individuals and later, through the subsequent Hatch Act in 1887, provided applied research about practical problems while the Smith-Lever Act (established cooperative extension service) in 1914 focused on the dissemination of useful information to the citizens of the state. Its philosophy of integrating study of both applied and classical subjects together with engagement with the citizens of the state was a concept that has helped shape American education and America.

The need for well-trained people remains. Forecasts for college graduate employment opportunities for 2010-15 predict 5 percent more college graduates with expertise in agricultural and food systems, renewable energy, and the environment will be needed than in 2005-10.

Today, public and land-grant institutions enroll 3.5 million undergraduates and 1.1 million graduate students in every field of study and conduct nearly two-thirds of all federally funded academic research, totaling more than \$34 billion annually.

Founded in 1887, the University of Wyoming and the College of Agriculture and Natural Resources are proud to be part of this heritage. I hope you will join with us in celebrating Justin Morrill and the sesquicentennial.

Fruk

Dean Frank Galey College of Agriculture and Natural Resources

FIRST CUTTING



From left, Associate Professor Steve Herbert, Levi Lowder, and mentor John Dick from the Wyoming Technology Business Center hold the very large check.

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES TEAM WINS UW ENTREPRENEURSHIP COMPETITION

A business plan that targets the emerging algal biomass industry and presented by a team in the College of Agriculture and Natural Resources was judged top proposal in the John P. Ellbogen \$30K Entrepreneurship Competition at the University of Wyoming College of Business.

Levi Lowder, a molecular biology doctoral candidate from Durango, Colorado, and his PlanktOMICS team won \$12,500 and one year of free rent to further develop the company at the Wyoming Technology Business Center (WTBC).

Lowder, team leader and head bioengineer, said PlanktOMICS seeks to be an innovative leader in providing biotechnological services and products for an emerging algal biomass industry. The company provides advanced phenotype analysis and screening services, custom algal vector design and construction, algal transformation, and gene-expression analysis.

His partners are Stephen Herbert, algal phenotyping specialist and head of the Department of Plant Sciences and senior adviser; Jacob Miller, laboratory service and business specialist; and staff consultant Min-Hyung Ryu, a genetic engineering and molecular biology consultant and a molecular biology doctoral candidate.



Assistant Professor Andrew Kniss

KNISS RECEIVES EARLY CAREER AWARD

Assistant Professor Andrew Kniss received the Outstanding Weed Scientist: Early Career Award from the Western Society of Weed Science.

Kniss, in the Department of Plant Sciences, received the honor during the society's March meeting in Reno, Nevada. He specializes in weed biology and ecology.

Kniss received his bachelor's degree in agroecology from the University of Wyoming in 2001, a master's degree in agronomy from the University of Nebraska – Lincoln in 2003, and his Ph.D. in agronomy from UW in 2006.

His research program focuses on developing sustainable weed management programs in agronomic crops, especially sugarbeets, winter wheat, corn, and dry beans.

FIRST CUTTING

ENTOMOLOGY PH.D. STUDENT EARNS UW'S GRADUATE STUDENT INTERNATIONALIZATION HONOR

Bits of coincidence here and there prompted a computer science master's student to switch paths and instead work toward a Ph.D. in entomology.

The output?

Miranda Bryant is UW's U.S. Graduate Student Award for Excellence in Internationalization recipient for 2012.

"I'm very honored," says the secondyear doctoral student, who is advised by Professor Scott Shaw in the Department of Ecosystem Science and Management. Bryant is Shaw's second graduate student to receive the honor.

UW's International Board of Advisers selects recipients.

"Everyone on the board's awards committee was impressed with what you have accomplished for the university, and we encourage you to keep up the excellent work," wrote Professor Anne Alexander, director of International Programs.

TEACHES, CONDUCTS RESEARCH

Bryant teaches insect biology classes and conducts research of parasitoid wasps and their host caterpillars, specifically, those whose home is the bamboo (hollow) grass. On-the-ground research is at the Yanayacu Biological Station and Center for Creative Studies in the cloud forest of northeastern Ecuador (www.yanayacu.org/).

Coincidences combined to bring her to UW. Bryant received undergraduate and master's degrees at Western Florida. Hurricane Ivan swept through in 2004, "leveling the college," says the Atlanta, Georgia-native. From a military family, her father was reactivated following 9-11 and was stationed in Denver. The family wanted to retire in the West and liked the Laramie area.



Miranda Bryant with an image of an as-yet unnamed parasitoid wasp.

SWITCHES FROM COMPUTERS TO INSECTS

The computer science major was looking to attend graduate school and met UW zoology Professor Carlos Martinez del Rio. That meeting led her to switch majors.

Insects and plants replaced circuit boards and processors.

"His passion for the blending of biological sciences with about every field that can be imagined showed me a new path," she recalls. "I could use the toolset of skills I learned as a computer scientist and apply it to the world. Everywhere and everything was my laboratory – he would quote great authors and refer to food and wine and poems and songs as we walked through the forest."

She left his office looking at the world differently.

"Although I work with Scott, and he is another extraordinary champion of the world as a research project, Carlos was the person who opened the door to that shift in the way I view everything in life, and it made all the difference to me. I am not confined to a lab or a computer – the world is my research project."

YANAYACU PLATFORM FOR RESEARCH

Bryant traveled with the honors course group to the Yanayacu station last year and will serve as mentor to the same this year.

She had never been out of the U.S. prior to the trips.

"I would say what is so meaningful about the research, what Scott has been able to do and the ability to get students there, is that I have a connection now," Bryant notes. "It's not just an insect in a museum. I was there, looking at insects. I touched the grasses. I talked to people at the station. I know the station manager, and I know the local village. It made such a deep impression. It was definitely a life-changing opportunity."

The internationalization award also honors her teaching efforts. More comfortable now in the classroom, she's learned more about how students learn.

"This has led me to create lectures/labs that draw on many types of learning so each type of student can take something from the experience," says Bryant.

She uses a hands-on approach.

"I believe no matter what I teach, I have to focus on what the students need to learn the subject so I can change and adapt to evolve the course as the students reveal their learning styles throughout the semester," Bryant notes.

> Professor Pete Stahl receives faculty award for internationalization, see page 25.





Professor Don Jarvis, left, in the Department of Molecular Biology receives the Outstanding Research Award from Bret Hess, director of the Agricultural Experiment Station.



Bret Hess, left presents Assistant Professor Jeff Beck of the Department of Ecosystem Science and Management the Early Career Research Achievement Award.

TWO UW SCIENTISTS RECEIVE OUTSTANDING RESEARCH HONORS

A worldwide research reputation in the use of genetically engineered insect cells and assessing and restoring wildlife habitats earned molecular biology Professor Don Jarvis and Assistant Professor Jeff Beck in the Department of Ecosystem Science and Management outstanding research awards from the Agricultural Experiment Station (AES).

Jarvis was presented the Outstanding Research Award, and Beck received the Early Career Research Achievement Award in February.

The outstanding research award recognizes accomplishments of established scientists in the College of Agriculture and Natural Resources.

"Professor Jarvis exemplifies the spirit of this award," says Bret Hess, director of AES and associate dean of research for the college. "In addition to being a wellrespected and very accomplished scientist, he has taken discoveries of his basic research program to the next level. His multiple license agreements demonstrate his research has practical implications." See more about Jarvis on page 16.

Jarvis joined UW as an associate professor in 1998 and became a professor in 2000. His laboratory studies the use of genetically engineered insect cells for manufacturing vaccines, diagnostics or therapeutics for use in human and veterinary medicine.

He has five active National Institutes of Health grants totaling \$3.8 million with five proposals under review and has more than 30 previous grants. Jarvis also holds eight patents based on his research and has filed 10 patent applications and invention disclosures. He has participated in two startup biotechnology companies.

The Early Career Achievement Award recognizes achievements by junior scientists in the college.

"Jeff's accomplishments are remarkable for a scientist at this stage in his career," notes Hess. "He is on a trajectory to become a leading expert on wildlife populations and habitat conditions in disturbed landscapes."

Beck began at UW as a post-doctoral scientist in 2006 and joined the department faculty in 2007 as an assistant professor. His research focuses on assessing and restoring wildlife habitats. A particular emphasis studies restoration efforts relative to species inhabiting sagebrush steppe ecosystems.

He has received grants totaling more than \$3.5 million in his four years as an assistant professor at UW.

PLANT SCIENCES PROFESSOR, DIRECTOR OF SAREC RESEARCH

CUTTIN

A University of Wyoming career that began in 1976 - but with roots stretching back to childhood - ended this spring for a Montana native and plant sciences professor. Jim Krall, director of research at the James C. Hageman Sustainable Agriculture Research and Extension Center near Lingle, retired in April. An emphasis of his research has been development of viable crop/livestock production systems for the central plains using annual legumes capable of reestablishment from the soil seed bank, as with the Australian ley system.

FIRST

Krall says he has had health concerns but is better now. "However, at the first of the year, I decided to leave UW," he says. "I turned 62, so it's a good time to turn the page."

Working with Krall as a collaborator on multiple projects has been a privilege, says Bret Hess, associate dean of research in the college and director of the Wyoming Agricultural Experiment Station.

"Jim was always a great colleague," says Hess. "I found him to be an honest, fair, and generous collaborator, and as a result, I enjoyed working with him. I wish him and his family the very best."

BEGAN AS RESEARCH AGRONOMIST

Krall was a research agronomist with Holly Sugar in 1975-76, a UW research associate 1976-79, had a stint at the University of Nevada as an assistant professor,



Professor Jim Krall joined the University of Wyoming in 1976.

and then returned to UW in 1984. He became a professor in 1997.

"Jim has combined an uncanny ability to focus both on the ground and on the horizon, even over the horizon," says Robin Groose, an associate professor of genetics in the Department of Plant Sciences.

Krall has conducted research with immediate and applied significance for Wyoming agricultural producers, says Groose.

"Jim is also a visionary," he says. "With his eyes and mind looking over the horizon into the future, he has conducted exploratory research with long-term implications for the future of agriculture on the Central Great Plains." Krall's father was a professor of agronomy for Montana State University. "So, during my formative years, I grew up around ag research on research centers in Montana," he says.

FOLLOWED IN FATHER'S FOOTSTEPS

His family lived at the Central Agricultural Research Center at Moccasin, then, when he was 9, moved to the Southern Agricultural Research Center on the Huntley Project near Billings.

Housing was provided at the centers.

"I grew up admiring what my dad did," he says. Krall earned his bachelor's degree in crop science at MSU, his master's degree in crop ecology from Kansas State University, and his Ph.D. in crop

physiology from UW.

He left UW for an assistant professor position at the University of Nevada in 1980 but returned in 1984.

"Because of my background, I had an affinity for working at a research center," he says, "and I admired the people who I had come to know at UW. I held people such as Professor Ron Delaney in high regard, so it was easy for me to return to UW. The 30-percent bump in salary also helped."

> Krall presents results of lupin research in this year's Reflections magazine.



RETIRES

DEVELOPS LEY FORAGE SPECIES

Krall heard about ley farming at western regional research committee meetings and says he was fascinated with how sustainable, low input, and integrated a system ley farming appeared. He traveled to Australia in 1993 in the first of several visits to learn more. His research led to the release of the first ley forage species suitable for the Central High Plains. "Robin has been most instrumental in helping make this happen," says Krall.

Laramie burr clover (medic) is a winter annual pasture forage adapted to the Central High Plains that fixes nitrogen and reseeds itself from the seed bank. "These are traits important to forage ley crops that are rotated with cereal grains," he notes. "This system makes it possible to fully integrate crops and livestock production utilizing the benefits of crop rotation while boosting soil nitrogen."

A spin-off from his Australian visits is release of the Forager pea variety.

"It's a multi-purpose pea," he says. "I first learned about peas that can be used as a hay forage or harvested for grain on my first visit to Australia. I brought back some peas as well as medic for testing in 1993."

He also arranged collaborative research on sweet lupins. "The grain from these plants contain the highest percentage of grain protein of any of the legume crops," he notes. "It's a work in progress, but, who knows? Maybe someday, like in Australia, grain lupins may find a place on the Central High Plains."

RESEARCH SEEKS GENETIC SELECTION TOOL FOR FEED EFFICIENCY IN SHEEP

Research at the University of Wyoming to develop genetic selection tools to improve sheep efficiency could help sheep producer profitability.

A four-year, \$499,991 grant from the National Institute of Food and Agriculture will fund research into the differences in sheep rumen microbial populations.

"Producers need ways to improve profitability; one way to do this is to reduce feed costs," notes Kristi Cammack, an assistant professor in the Department of Animal Science. "Actual measurement of feed efficiency requires collection of individual feed intake data, which is both expensive and time consuming."

An alternative measure that can predict an individual's ability to efficiently use feed is needed, she says.

"It is thought that differences in feed efficiency among individual animals may be due to differences in the rumen microbial populations," she says. "We will explore this in our research."

Also involved are Professor Dan Rule, Associate Professor Bob Stobart, Assistant Professor Scott Lake, and research specialist Kathy Austin in the animal science department, and Assistant Professor John Ritten in the Department of Agricultural and Applied Economics.

The University of Missouri will oversee genomic analyses, and Montana State University will oversee development of the sheep production community of practice (CoP) with eXtension.

eXtension (www.extension.org) is an educational partnership of 74 uni-



Assistant Professor Kristi Cammack

versities in the United States and offers research-based information available to everyone.

"Incorporating such a CoP into the eXtension network will enable us to provide current information to various audiences, including sheep producers, industry personnel, and consumers," says Cammack.

> "It is thought that differences in feed efficiency among individual animals may be due to differences in the rumen microbial populations. We will explore this in our research."

GAMMA SIGMA DELTA HONORS TOP STUDENTS,

Top University of Wyoming agricultural students were honored by Gamma Sigma Delta, and state veterinarian Jim Logan received its Outstanding Agriculturalist Award.

FIRST

Receiving outstanding student awards and their departments are:

Outstanding Freshman Female – McKensie Harris, Laramie, animal and veterinary sciences (ANVS)

Outstanding Freshman Male – Shane Bell, Winnemucca, Nevada, ecosystem science and management (ESM)

Outstanding Sophomore – Amanda O'Donnell, Spring Creek, Nevada, ESM

Outstanding Junior – Erin Anders, Cheyenne, agroecology and anthropology

Outstanding Senior – Sara van Knapp Jennings, Burbank, California, ANVS

Outstanding Master's Student – Sarena Ann Olsen, Las Vegas, Nevada, ANVS

Outstanding Doctoral Student – Rebecca Cockrum, Chesterfield, Maryland, ANVS.

Receiving departmental honors were:

Agricultural and applied economics – WAEA Outstanding Senior Award, Kailey Barlow, Big Piney; Honor Book, Randa May, Pine Bluffs

Agricultural communications – Honor Book, Kaitlynn Glover, Casper, Megan Tanaka, Laramie, Kelsey Tramp, Lander

Animal science – Honor Book, Brice Mcintosh, Wheatland, Stephanie Schroeder, Douglas, Saralyn van Knapp Jennings, Tori Walsh, Green River

Family and consumer sciences – Honor Book, Kati Stoll, Casper

Microbiology – Honor Book, Lacey Favazzo, Rock Springs **Molecular biology** – Honor Book, Anna Justis, Eagle River, Alaska; Irene Rosenfeld Scientific Achievement Award, Ryan Griesbach, Laramie; Harold F. Eppson Scholarship, Madeleine Francis, Laramie

Plant sciences – Honor Book, Tessa Peters, Gillette, Bailey Hallwachs, Cheyenne

Ecosystem science and management – Honor Book, rangeland ecology and watershed management, Cara Noseworthy, Medford, New Jersey; Soil Science, Kristi Mingus, Powell; Entomology, Ariana Roe, Big Horn; Graduate Student, Kyle Lilly, Glenwood, Iowa

Animal and veterinary sciences – Honor Book, Julia Ransom, Bridgeville, Pennsylvania

New undergraduate members inducted are:

Keah Cross, Morrill, Nebraska, Lauren Schiermiester, Buffalo, Amanda Thomas, The Plains, Virginia, Tori Walsh, Green River, animal and veterinary sciences; Ryan Griesbach, Laramie, Anna Justis, Eagle River, Alaska, molecular biology; Louise Lorent, Chaumontel, France, plant sciences; Kelsey Tramp, Lander, agricultural communications.

New graduate student members inducted are:

Sherry Adrianos, Cheyenne, Lauren Millett, Laramie, molecular biology; Prakriti Bistaghimire, Chitwan, Nepal, Caleb Carter, Livingston, Montana, Carl Coburn, Cincinnati, Ohio, Andrea Garfinkel, Fort Collins, Colorado, Matthew Jolivet, Colorado Springs, Colorado, Gurpreet Kaur, Sirsa, India, Brekke Lane Peterson, Sheridan, plant sciences; Peter Burgess, Wyarno, Jordan Steele, Nisland, South Dakota, agricultural and applied economics; Wahid Hs Dakhel, Laramie, Jack Leonhardt, Laramie, Amy Williams, Bad Axe, Michigan, Anna Yedinak, Rock Springs, veterinary sciences; Kathleen Meyers, Hagerman, Idaho, entomology; Megan Wilson, Crystal Lake, Illinois, entomology and botany.

C U T Τ Ι Ν G



Outstanding Freshman Female McKensie Harris and Bill Stump, president of Gamma Sigma Delta



Outstanding Freshman Male Shane Bell with Bill Stump



OUTSTANDING AGRICULTURALIST



Outstanding Senior Award recipient Sara van Knapp Jennings with Bill Stump, left, and Doug Hixon.



From left, Assistant Professor Dannele Peck, Jim Logan, and former assistant state veterinarian Walt Cook, who is now a research scientist in the college.



Outstanding Junior Award recipient Sarena Olsen with her adviser, Meijun Zhu, and Bill Stump



Lauren Sinclair accepts the Outstanding Junior Award from Bill Stump for her mother, Erin Anders.



Outstanding doctoral student Rebecca Cockrum, right, with adviser Kristi Cammack and Bill Stump



Outstanding Sophomore Award recipient Amanda O'Donnell and Bill Stump

FIRST CUTTING

PROFESSORS, STAFF MEMBERS RECEIVE RECOGNITION

Tom Thurow in the Department of Ecosystem Science and Management and Karen Williams in the Department of Family and Consumer Sciences received Outstanding Educator Awards during the college's annual Faculty and Staff Recognition Program.

Each received \$2,500. The awards were presented at the end of the fall semester. An anonymous donor established the award to recognize classroom and extension educators in the college. Nominations are peerreviewed by a committee comprised of a dean's office representative, an academic department head, and a previous award recipient.

Other nominees were Dawn Sanchez, UW Extension educator in Uinta County, and Professor Dave Williams in the Department of Ecosystem Science and Management.

Two awards through the Office of Academic and Student Programs are presented by students. Naomi Ward, an assistant professor in the Department of Molecular Biology, received the Lawrence Meeboer Agricultural Classroom Teaching Award. Students also presented Urszula Norton, an assistant professor in the Department of Plant Sciences, the Outstanding Adviser Award. Ward and Norton each received \$500.

Other Meeboer nominees by departments were Associate Professors Ed Bradley and Alan Schroeder, agricultural and applied economics; Assistant Professor Scott Lake, Associate Professors Paul Ludden and Warrie Means, and lecturer Amy McLean, animal science; Thurow, ecosystem science and management; Ward and lecturer Rachel Watson, molecular biology; Urszula Nor-



Dean Frank Galey, right, presents Marce Vasquez of the Department of Veterinary Sciences an Outstanding Staff Award.

ton, plant sciences; and Brant Schumaker, veterinary sciences.

Other adviser nominees were Associate Professor Roger Coupal and Assistant Professor Dannele Peck, agricultural and applied economics; Professor Doug Hixon and Means, animal science; and Associate Professor Steve Herbert and Norton, plant sciences.

In other honors, BreAnna Bonner and Marce Vasquez, laboratory technicians in the Department of Veterinary Sciences, received Outstanding Staff Awards from Dean Frank Galey. Each received \$500.

Other nominees were Lorraine Harrison, Janet Marsh, agricultural and applied economics; Kelli DeCora, animal science; Tracy Bennett, Patricia Hyson, family and consumer sciences; Thoa Pham, plant sciences; Marie Hanson, UW Extension; Steve Mack, Ann Roberson, Wyoming 4-H Program Office; Rebecca Ashley, Tammy Jones, Rod Rogers, veterinary sciences.



Professor Tom Thurow, left, of the Department of Ecosystem Science and Management, receives an Outstanding Educator Award from Professor and department head John Tanaka.



Assistant Professor Urszula Norton, left, of the Department of Plant Sciences receives the Outstanding Adviser Award from student Sara Legg, who is vice president of Agricultural Community Resources for Everyday Sustainability. Norton is the organization's adviser.



BreAnna Bonner in the Department of Veterinary Sciences receives an Outstanding Staff Award from Dean Frank Galey.



Professor Karen Williams of the Department of Family and Consumer Sciences is presented an Outstanding Educator Award by Reed Scull, associate dean and division head of the Outreach Credit Programs.



LATCHININSKY AND TEAM EARN INTERNATIONAL IPM AWARD FOR EXCELLENCE

Extension entomologist and Associate Professor Alex Latchininsky and his team received the International Integrated Pest Management (IPM) Award for Excellence.

Latchininsky was recognized this spring during the 7th International IPM Symposium awards luncheon in Memphis, Tennessee. Members of the team, including assistant extension entomologist Scott Schell, also received certificates. The honor is for developing and delivering to stakeholders the Reduced Agent and Area Treatments (RAATS) grasshopper control strategy, which saves landowners money.

RAATs are a method of IPM for rangeland grasshoppers in which the rate of insecticide is reduced from levels recommended by the label and untreated swaths are alternated with treated swaths.

In addition to many entomology and IPM organizations, Latchininsky has served as an international consultant for the Food and Agriculture Organization of the United Nations.

Symposium sessions addressed IPM across disciplines, internationally, in the market place, agricultural, structural community settings, horticultural, and natural environments.



RESEARCH EYES FORAGE KOCHIA FOR FEED, RECLAMATION EFFORTS

Researchers in the Department of Plant Sciences are studying whether or not a drought-resistant plant unfazed by poor soils is an answer to reclaiming sites disturbed by oil and gas extraction.

FIRST

Forage kochia is a semi-evergreen, perennial shrub that can compete with cheatgrass, halogeton, and other annual weeds.

Forage kochia is well-adapted to arid areas, provides good nutrition in the fall and winter, and can be used in greenstrips to stop wildfire, says Anowar Islam, University of Wyoming Extension forage agroecologist and assistant professor in the Department of Plant Sciences.

Islam and master's student Matt Jolivet planted seeds in April at a plot west of Laramie.

The plant could benefit agriculture and energy companies.

"We want to look at it as both a forage and a tool for reclamation in the oil and gas industry," says Jolivet.

The plant could hold its own against weeds like cheatgrass, halogeton, and Russian thistle, which are often first to invade disturbed sites.

"Reclamationists have tried to reclaim topsoil year after year with little success," says Islam. "This might be an important species to grow on disturbed soil."

The plant is not to be confused with the annual kochia weed, they caution. The forage species is native to the arid areas of Kazakhstan and Central Asia. "It's a pasture plant like our sagebrush and has been called the alfalfa of the desert," says Jolivet.



Assistant Professor Anowar Islam talks with producers during a summer field day.

A new forage kochia variety, Snowstorm, was released in March and is superior to the only other variety that had been available – Immigrant, says Islam. It is taller and will catch and retain more snow, has better forage production, and larger seeds.

"There is significance in the name," notes Islam. "It is named for its ability to extend the grazing season into the fall and winter."

Islam said seeds are viable for only a year. Seed is broadcast on top of the snow or ground, and seeding is recommended December through February at 1 to 3 pounds per acre as a mix with grass or 3 to 6 pounds per acre as a monoculture. The plant is slow to mature, providing forage in the late fall and early winter. Jolivet said forage kochia establishes best in already disturbed soil.

Islam said there is some concern forage kochia may invade and suppress native plant communities. Recent reports have shown that forage kochia competes well with annuals but does not invade perennial plant populations, he says.

Conversely, he notes, research has shown that forage kochia is often the only alternative to cheatgrass and halogeton on severely degraded rangelands.

"Planted forage kochia can easily be killed by Roundup," Islam adds. "Further evaluation of forage kochia will determine its widespread utilization or recommendation."



COLLEGE FACULTY MEMBERS SELECTED TOP PROFS

Five members of the college were named Top Profs by members of the University of Wyoming Cap and Gown Chapter of Mortar Board.

They are Professors Peter Thorsness, Donal O'Toole, and Sonya Meyer, and Associate Professors Warrie Means and Chris Bastian.

Members of the senior honor society select professors who have made a positive impact on their lives at UW.

Professor Peter Thorsness



Professor Donal O'Toole



Professor Sonya Meyer



Big Horn - Melissa Hoyer, Peter Thorsness (molecular biology) Burbank, California - Saralyn van Knapp Jennings, Donal O'Toole (veterinary science)

Casper – Katie Stoll, Sonya Sue Meyer (family and consumer sciences) Chevenne – Callie Rulli, Warrie Means (animal science)

Pine Bluffs - Randa May, Chris Bastian (agricultural and applied economics)

Upperville, Virginia - Amanda Thomas, Warrie Means



Associate Professor Warrie Means



Associate Professor Chris Bastian

COLLEGE STAFF MEMBERS HONORED AT UW STAFF RECOGNITION DAY

College staff members received prestigious honors during Staff Recognition Day in April.

Cindy Wood, an accounting associate in the Department of Ecosystem Science and Management, received an E.G. Meyer Family Outstanding Staff Service Award.

Gail Lamb, an accounting associate in agricultural administration, received a UW Staff Incentive award.

Roger Siemion, a lab technician in the Wyoming State Vet Lab, received an UW Off-Campus Staff Award.

Dozens of employees were honored



Cindy Wood

for their years of service and contributions to UW. Sponsored by UW Staff Senate, with support from the UW Office of the



Gail Lamb



President, Staff Recognition Day encourages and acknowledges the work of all UW staff members.

FIRST CUTTING

UW RANGE STUDENTS CLAIM TOP TEAM AT NATIONAL

The University of Wyoming received the Trail Boss Award for the top collegiate team during competition at the 65th Society for Range Management (SRM) meeting in Spokane.

In addition, two students claimed firsts and a professor received the top teaching award. This is the first year the Trail Boss Award was presented by SRM.

The UW team is comprised of rangeland ecology and watershed management students in the College of Agriculture and Natural Resources. UW teams also claimed seconds in the Undergraduate Range Management Exam (URME) against 24 other schools and in Rangeland Cup against 11 others.

Sage Askin of Douglas was first out of 203 competitors in URME. He was also a member of the second-place URME team. Ben Jones of Denton, North Carolina, won the undergraduate extemporaneous speaking contest in which there were 13 teams.

Megan Taylor of Swainsboro, Georgia, won the graduate student oral paper competition with "Rehabilitation seeding and soil dynamics associated with invasive species in a semi-desert sagebrush shrubland." There were 27 participants. She is advised



Members of the range team are, front, from left, Travis Decker, Craig, Colorado; Ben Jones, Denton, North Carolina; Amanda Van Pelt, Fernley, Nevada; Amanda O'Donnell, Spring Creek, Nevada; Sarah Kauer-Griffith, Durango, Colorado; Bailey Terry, Newcastle. Second, Blair Gauthier, Rozet; Allen Wellborn, Oakland, Oregon; John Wagner, Buckeye, Arizona; Kayla Bish, Longmont, Colorado; Hailey Lockwood, Big Piney; Katie Mattila, Plymouth, Minnesota; Cassidy Comer, Gillette; Wade LaCount, Rifle Colorado; Back, Rick Comer, Gillette; Tyrell Perry, Clearmont; Kellen Smith, Gillette; Wilson Rogers, Pinedale; Scott Meyers, Fruita, Colorado; Sage Askin, Douglas; Tate Smith, Rye, Colorado. Not pictured, Katie Schade, Fort Sumner, New Mexico, Evan Hathaway, Star Valley.

by Professor Ann Hild.

Travis Decker of Craig, Colorado, was elected vice-president of the SRM Student

Conclave (all university students). UW also claimed third place in the chapter display contest.

Members of the Rangeland Cup Team were Tate Smith, Rye, Colorado, Katie Schade, Fort Sumner, New Mexico, and Tyrell Perry, Clearmont. Members of the URME Team were Allen Wellborn, Oakland, Oregon, Amanda VanPelt, Fernley, Nevada, Bailey Terry, Newcastle, Ben Jones, Denton, North Carolina, Blair Gauthier, Rozet, Cassidy Comer, Gillette,



Sage Askin



Ben Jones



Travis Decker



COMPETITION

Evan Hathaway, Star Valley, Haley Lockwood, Big Piney, John Wagner, Buckeye, Arizona, Katie Matilla, Plymouth, Minnesota, Katie Schade, Kayla Bish, Longmont, Colorado, Kellen Smith, Gillette, Amanda O'Donnell, Spring Creek, Nevada, Rick Comer, Gillette, Sage Askin, Sarah Kauer-Griffith, Durango, Colorado, Scott Meyers, Fruita, Colorado, Tate Smith, Travis Decker, Craig, Colorado, Tyrell Perry, Wade LaCount, Rifle, Colorado, and Wilson Rogers, Pinedale.

Professor Tom Thurow in the Department of Ecosystem Science and Management received the Range Science Education Council's Undergraduate Teaching Award, the top teaching award in the profession.

Associate Professor Dan Rodgers is the Range Club adviser and coaches the Plant ID Team. The URME Team is coached by Assistant Professor Jeff Beck. Dean Houchen, a recent graduate in rangeland ecology and watershed management, was mentor for the Rangeland Cup Team. Associate Professor Jim Waggoner assists with the extemporaneous speaking contest, and Assistant Professor Brain Mealor and extension range specialist Rachel Mealor coordinate the Rangeland Cup competition for SRM.

SRM is the professional society dedicated to supporting persons who work with rangelands and have a commitment to their sustainable use.



KUIPERS, GEIGER MEMBERS OF PAPER'S TWENTY UNDER 40

University of Wyoming Extension educators Tara Kuipers and Milt Geiger were selected to the Casper Star-Tribune's Twenty Under 40 special section.

Through honoring the 20, the paper hopes to encourage other Wyomingites to pursue personal achievement and public service in Wyoming

"Although each has a unique story, they have at least two things in common: a record of achievement and the demonstrated potential to help lead Wyoming in the decades to come," notes the paper. "The list doesn't aim to identify Wyoming's 20 smartest young people, or the 20 most powerful, or the 20 most successful. Instead, with help from our readers, it simply recognizes 20 inspiring standouts among the many young people whose talents are hard work and helping to build Wyoming."

Kuipers is a community development educator in Park County. She began with extension in 2009 and specializes in organizational leadership, community development, and coalition building. She received a bachelor's degree in human development and family studies in 2000 from South Dakota State University, and a master's in education/counseling from UW in 2002.

Geiger began as energy coordinator also in 2009. The position is funded by extension and the UW School of Energy Resources. Geiger develops partnerships with the SER and the College of Engineering and Applied Science to coordinate extension and outreach activities among the three partners.

A Michigan native, Geiger received a bachelor's degree in environmental economics in 2003 from Colgate University in Hamilton, New York, and he accepted a position with USDA Rural Development in Casper and then Sheridan. He served as state rural energy coordinator from 2005-2007.

Geiger completed two master's degrees at UW in 2009 in agricultural and applied economics and environment and natural resources.

- To view Kuipers' story, go to http://bit.ly/KqEMRc
- To view Geiger's story, go to http://bit.ly/KuVwvd

Don Jarvis in his lab with postdoctoral research associates Ann Toth, left, from Tolland, Connecticut, and Hideaki Mabashi-Asazuma, from Tokyo, Japan.

BLUE-COLLAR ROOTS WHITE COLLAR SUCCESS

Don Jarvis' blue-collar parents ingrained in son education the way to a better life

Can you imagine Professor Don Jarvis as an accountant? He couldn't either.

The first few months of 2012 were invigorating for the Department of Molecular Biology professor. Jarvis was involved with two start-up companies related to his research, was recipient of the Wyoming Agricultural Experiment Station Researcher of the Year Award, and then was selected to give UW's 2012 President's Speaker Series talk.

"The last three months have been amazing," Jarvis says. "I've been here 14 years, and it's been pretty quiet. It was kind of nice to just deal with the lab group, teaching, writing papers, and getting funding. In the last three months, all the attention has been really great but maybe just a bit out of control." That started with national and international press interest in spider silk protein research – he's renowned much more for recombinant insect virus work – and continued with receiving the awards.

"The highest privilege of winning the President's Speaker Series is to sit back and think about what's happened since 1973 to bring me to this point in time," he notes.



LEFT COLLEGE TO WORK

He wasn't sure what major to pursue as an incoming freshman but tried accounting. He struggled and quit college, moving to Oregon to drive a lumber truck for nine months, then returned to school.

Jarvis believes he has benefited strongly from a blue-collar upbringing that began with submarines in Connecticut and ended with the same in landlocked Idaho.

Jarvis was the first in his family to receive a high school degree.

"A good work ethic has always been a strength for me, and that's driven not only by other people but by a basic interest in doing science."

"My father dropped out of the eighth grade to help support the family and went to work for Electric Boat in Groton, Connecticut, where he learned to weld," says Jarvis. "He was very proud of the fact he worked on the Nautilus, the first atomic submarine. Somewhere, my mother's name, Nancy, is welded between bulkheads on the Nautilus."

While his father worked at Electric Boat, his mother labored at a factory putting toothpaste into tubes. The family was transferred to Idaho, where his father continued to work on submarines, and his mother took a job sorting potatoes in one of Idaho's many potato packing plants.

A BETTER LIFE

"My father made it very clear to me that I needed to stay in school because he didn't have a chance to do that," Jarvis says. "He knew that was the way to a better life. When I was an undergraduate student, I worked with my father in the construction trades, and he had a lot of friends who were first-generation Americans. Boy, they were hard on me. I remember many of those guys telling me, 'I better not see you here anytime but summertime or you'll have to deal with me.' They were making the point, too, about staying in school, getting an education, and having a better life than they had."

Jarvis knew what they meant after working those summers in hot and dirty conditions.

"The impact of having been raised that way was the lesson that education is the ticket to success," Jarvis says. "Besides, it's a lot easier life in a lot of ways than having to actually work for a living. Having been there and done that, I feel incredibly lucky to have the job I have today."

DEVELOPED MOLECULAR BIOLOGY INTEREST

As an undergraduate, Jarvis took a microbiology course and learned a little about viruses, then developed an interest in molecular biology. "That was a formative experience," he says. "And, I was lucky enough to have a number of key professors who helped to extend and solidify that experience."

Professors held vigorous and demanding classes, which helped further develop his career habits.

When he entered Baylor College of Medicine, "I felt I walked in ready and able to compete with anyone in that school, who were among the best in the country," he says. "I certainly was not in that peer group at the time. But, I had the work ethic developed by my family and undergrad and master's professors. A good work ethic has always been a strength for me, and that's driven not only by other people but by a basic interest in doing science. I was lucky to land in the world of virology. It really turned my crank. It was easy to spend 16 hours in a lab and look up at the clock and say, 'geez, it's 8 o'clock. I better go home now.' It wasn't hard."

ADVICE TO STUDENTS

That is also his advice to students: find out what you want to do, figure out what turns your crank, forget about trends, salaries, projections over one, two, five years.

"It doesn't matter," he says. "My friend and collaborator Mac Fraser at Notre Dame has this expression I really love to quote when students are complaining about how hard it is to be a scientist these days, which is that 'cream rises to the top,' by which I mean that if you really love what you are doing and if you are committed and willing and able to work hard, you are going to do just fine. It doesn't matter if it's a really difficult field or times are tough. If it is something you really want to do and you think it's fun, in most cases, you are going to do pretty well. I think the most important thing for students to remember is if you love it, it won't seem like hard work and you will do well."

License agreement allows commercialization of LARAMIE-BASED COMPANY WILL PRODUCE BIOLOGICS

A licensing agreement between the University of Wyoming and a new UW spinout will allow Department of Molecular Biology Professor Don Jarvis to commercialize certain aspects of his research, which involves the use of genetically engineered insect cells for manufacturing vaccines, diagnostics, or therapeutics for use in human and veterinary medicine.

Under the agreement, UW-owned technology will be used by Jarvis' new Laramie-based company, GlycoBac LLC, to create new genetically engineered insect cell lines optimized for this purpose. Those lines will then be broadly offered throughout the biotechnology community as a new biologics manufacturing platform.

Biologics are a class of protein-based drugs that include vaccines, diagnostic testing reagents, and therapeutics, such as highvalue cancer-fighting antibodies and proteins that can be used to treat genetic diseases, including diabetes and anemia.

"Most biologics are 'glycoproteins' (proteins with sugar molecules on them), and the structures of the sugar molecules dramatically impact their clinical efficacy," Jarvis says.

He and his colleagues have developed a laboratory process they term "glycoengineering," which involves genetically engineering insect cell sugar and protein production pathways. The process changes the structures of the sugars added to the proteins and enhances their clinical efficacy, or their ability to produce a desired effect.

In its research, Jarvis' team uses cells derived from the fall armyworm, which is an ordinary caterpillar. The cells are put in a nutrient solution, which allows them to grow and divide in the laboratory. A recom-



UW Board of Trustees President Jim Neiman, right, visits with Professor Don Jarvis, center, and Bill Gern, vice president of the UW Research and Economic Development Office, following Jarvis' President's Speaker Series presentation on the UW campus.

IT'S A TEAM EFFORT

binant virus is then added to the cells, which induces the cells to make the protein for subsequent purification, testing, and direct use as a biologic.

Being able to attach various sugars to protein is an essential part of GlycoBac's innovative research.

"Non-glycoengineered insect cells cannot produce biologics with the correct sugars. This has been a major impediment in their development as a biomanufacturing platform, despite their potential advantages as a faster and safer platform, as compared to mammalian cells," Jarvis says.

Unlike conventional drugs, biologics are produced using living cell systems, Jarvis says.

"Importantly, biologics with sugar molecules on them must have the correct constellation of sugars in order to persist in the human body and exert their therapeutic effects," he says.

Jarvis says most biologics are produced using mammalian cells, such as those from hamsters or mice. But manufacturing biologics with mammalian cells takes more time. In addition, the products can sometimes

> Don Jarvis has a team perspective about his almost 40year academic career, his grants received, and awards won.

"None of the awards are solely the result of what I've done," he says. "It's all been a team effort. I help to get us start-

Jarvis research

trigger an allergic reaction in humans, and mammalian cells can harbor undetected infectious agents, such as live viruses, that could infect human patients.

"Insect cells are emerging as an alternative production platform, which has none of these disadvantages," Jarvis says. "We are focused on improving the utility of insect cell systems as a biologics manufacturing platform. The past 25 years we have created new genetic engineering methods and approaches, and performed basic research on insect cell molecular biology to enable these improvements."

Jarvis said that federal grants supported this research and provided many jobs at UW the past 14 years. The next step will be to translate that effort to the private sector

Working with Jarvis in his UW laboratory are postdoctoral research associates Hideaki Mabashi-Asazuma, from Tokyo, Japan; Gagan Gahlay, New Delhi, India; Christoph Geisler, Heerlen, The Netherlands; Chi-Hung Lin, Taipei, Taiwan; and Ann Toth, Tolland, Conn.

Other former UW students and staff who made key contributions leading to the establishment of GlycoBac LLC were Jason Hollister, graduate student from Texas, and Jared Aumiller, research assistant from Rock Springs.

ed, I'm the glue that holds things together, and I push our team to a high standard of proficiency and accomplishment. I believe that once you start something you do your best to finish."

There are many others doing the experiments, washing the test tubes, he says, and in this team effort there are people who



Jarvis delivers President's Speaker Series talk

Don Jarvis gave the University of Wyoming's 2012 President's Speaker Series talk on "A Virologist Gone Buggy: A Journey from Tumor Viruses to Insect Cell Biotechnology."

Jarvis gave the talk in March at the UW Agriculture Auditorium and at the UW Outreach Center in Casper.

Jarvis discussed his progression through undergraduate and graduate work and the wishes of his parents to receive the highest education. He talked of the basic and applied aspects of his efforts to translate his research to the private sector by creating new biotechnology companies.

His graduate studies on polio viruses and human tumor viruses unexpectedly led to a career spent developing insect viruses, insect cells, and insects as biotechnological tools for many biomedical applications. His talk focused on a 25-year effort to create insect cell and insect-based platforms to produce vaccines, therapeutics, and diagnostic testing reagents.

A committee of the series' previous honorees nominates candidates, and the selected faculty member is asked to prepare a public presentation on a topic of national interest.

The criteria for selection include a long-term national recognition for research or creative activity and the ability to communicate with all members of the university community.

have made significant contributions and haven't gotten the recognition they deserve.

"I'm absolutely thrilled and honored to have gotten all this recognition on behalf of all those who have contributed to our overall lab effort. But, as my friend (Professor) David Fay says, I have a Depression Era mentality – always expecting trouble around the corner. So, my perspective is that all the recent recognition has been just great, but it's not all due to what I've done. There is always another challenge just around the corner, and I hope I'm lucky enough to hold the team together long enough to be able to overcome those challenges."



By UW Public Relations

G ary Franc, a professor of plant pathology and microbiologist, is one of a growing number of scientists who believe that living microbes – and not just dust – are responsible for producing the ice crystals in clouds that end up in precipitation.

Franc's research, along with other scientists' similar work around the nation, is profiled in *Discover Magazine's* April 2012 issue cover story, "Life at the Edge of Space: Do High-Flying Microbes Control Earth's Weather?"

"The amount of different types of microbial life present in the cloud droplets that make up a winter storm are amazing," Franc says in the article. "There's a whole ecosystem going on in the clouds that's largely undefined."

For years, conventional science said mineral and soil dust, and perhaps soot particles, swept by the wind miles up into the clouds, formed ice crystals. These crystals, in turn, are the first seeds for forming rain, snow, and hail.

BACTERIA THRIVE IN WILD BLUE YONDER

Now, Franc and other scientists are gaining attention for their research, some of which goes back decades. The research recognizes that bacteria and other microbes are thriving thousands, and even tens of

Today's forecast: Cloudy with

Discover Magazine features professor's research into bacteria as catalyst for producing ice crystals that eventually become precipitation

thousands, of feet up in the wild blue yonder. This realization that the atmosphere is more biologically diverse than once thought casts new light on how weather patterns occur and their potential effects on crop production and harvest, and groundwater recharge.

"You have this whole chain of downstream effects. That's why I think there is so much burgeoning interest in this," Franc says. "People are seeing linkages, that there are many potential ramifications of complicated bioprocesses. Bacteria have a profound influence on our lives that we are barely scratching the surface at understanding."

Franc's interest in this bacteria-in-theclouds theory goes back decades. Coincidentally, it was deeply influenced by UW researchers who came before him. In the mid-1960s, Gabor Vali, a Hungarian-born doctoral student and future UW professor, was studying physics at McGill University in Montreal. Vali devoted his research to learning what unknown particles in clouds allowed ice to be nucleated at warmer temperatures and create rain or snow, according to the Discover Magazine article. During his experiments, Vali froze drops of rainwater or snow, which froze at different temperatures, based on what kinds of microbes were inside the droplets.



Professor Gary Franc

LOWER FREEZE TEMPERATURES

At the time, most scientists were testing droplets in clean and sterile environments. According to the article, Vali decided to test muddy snow he collected from under his children's swing set. He soon learned contaminated snow froze at 23 degrees Fahrenheit much more often than his clean samples. When Vali added rotting leaves to his experiment, the snow froze at 28 degrees Fahrenheit – the warmest temperature at which he had seen drops freeze, according

chance of microbe and bacteria flurries

to the article. In 1972, UW graduate student Richard Fresh identified a bacterium *–Pseudomonas syringae* – in rotting leaves that triggered the ice.

"The science evolved, in my mind, from some of the early researchers – Gabor Vali and Leroy Maki at UW – who found that some bacteria could be found in some of the ice nuclei," Franc says. "It's a coincidence I ended up here (at UW)."

At the time of Vali's discovery, Franc was an undergraduate student at the University of Wisconsin-Madison, where doctoral student Steven Lindow – independent of Vali and Fresh – discovered *P. syringae's* ability to nucleate ice at warm temperatures.

During his college plant pathology course, Franc says one of Lindow's co-workers demonstrated ice-nucleating bacteria by triggering freezing.

"It really piqued my interest," Franc recalls. "I wondered, 'For what reason would bacteria cause ice to form?' What was the evolutionary pressure for that?"

STARTS WITH POTATOES

As a doctoral student at Colorado State University, Franc got an opportunity to learn more. There, he studied a potato pathogen called *Erwinia caratovora*.

"I found it (Erwinia) in irrigation water and traced it back to the ocean," Franc says. "I wondered if bacteria could be involved in weather and be transported in storm systems. I believe that is the case."

For his dissertation, Franc began stringing the clues together, starting with



irrigation water used to water potato fields in Colorado. Through samples, he traced the potato pathogen to a nearby river and then to headwaters in remote areas of the Rockies.

"If it (Erwinia) was in the headwaters, I figured it must be in the snowmelt," Franc says. "I found it in snow. Snowpack comes from storm systems that come from the ocean. I found it in the ocean and rain."

As a professor, Franc later collaborated with Paul DeMott, a senior research scientist in Colorado State University's Department of Atmospheric Science. The two have worked together on a National Science Foundation-funded project for the past three years that centers on research studying biogenic nuclei in the atmosphere and looking for bacteria in precipitation.

RESEARCH FEEDING FRENZY

"Paul and I thought about this for many years, and now it's becoming sexy for people to start thinking that microbes and biology can play a role in such a large process like storms and weather," Franc says. "The ice-nucleating part of the science is almost like a feeding frenzy. There is a lot to summarize and get out into the scientific community. We're gathering data faster than we can write."

There are a handful of different bacterial species capable of initiating ice formation, he continues. "Although they each may be potentially involved in atmospheric precipitation processes, we have not determined the extent to which they are involved and have not determined if one species is more important to atmospheric precipitation processes compared to another. The research needs to be carefully conducted."

Thurow receives prestigious Ellbogen teaching honor

Relating course work to real-life situations and dedication to students are only a few attributes that earned Professor Tom Thurow in the Department of Ecosystem Science and Management this year's John P. Ellbogen Meritorious Classroom Teaching Award.

"Tom Thurow is consistently rated by the highest proportion of students taking his courses as in the top 10 percent of instructors on campus," notes Professor John Tanaka, head of the department.

The award was established in 1977 by businessman John P. "Jack" Ellbogen, to "foster, encourage, and reward excellence in classroom teaching at UW."

Other recipients this year are Nicole Lamartine, assistant professor in the Department of Music, and Cameron Wright, associate professor in the Department of Electrical and Computer Engineering.

Thurow joined UW in 1999 as department head after five years as an associate professor at Texas A&M University. He returned to a non-administrative position in 2005 conducting research and annually teaching introduction to forest management, wildland watershed management, ecological applications for wildland management, and environment and natural resources problems and restoration.

"He epitomizes what each of us should be striving for in our courses," adds Tanaka.

He excels in challenging and inspiring students and demonstrates a genuine commitment to provide the best experience possible for students in range, says Professor Ann Hild, a colleague in the department.



His courses do not earn a student's love for being easy but for developing professionalism, she adds. "Tom helps students see the larger picture and their own fit into a broad array of natural resource professions. Then, he gives them the tools and critical thinking skills to become professionals," she says.

Peers have also been mentored.

Professor K.J. Reddy, who has received numerous awards for his teaching and research at UW, says he appreciated Thurow's mentoring as he was establishing his teaching and research program. "His advice was both practical and profound," he says.

He is a positive force in the life of any student, faculty member, or client who has the good fortune to interact with him in teaching, research, service, and administrative roles, Reddy adds.

"At the heart of what motivates this positive energy is his profound desire to be a force for good in improving people's "He has a unique ability to bring his personal experiences into the lessons and help fill the gap from class-based theory to real-world application." *Brandon Reynolds* former student

lives and helping to maintain a sustainable environment," says Reddy.

Thurow promotes long-term learning and understanding, says Melanie Matthews, a former graduate student of Thurow.

"He frequently explains concepts through real-life anecdotes facilitating recollection and comprehension," she says.

Other students talk about that.

"He has a unique ability to bring his personal experiences into the lessons and help fill the gap from class-based theory to real-world application," says former student Brandon Reynolds.

Adds Brian Sebade, former student and now a University of Wyoming Extension educator, "I found these real-world examples helped cement the ideas with students. It was apparent he cared greatly about each student's education and always pointed out why it was important students give their best effort and paid attention in class."

Wyoming agriculture fashioned state's international reputation

That famous bucking horse symbol without Wyoming would be like Paris without the Eiffel Tower.

The prairies, plains, and mountains and the people who labored here not only grew food and fiber but a Cowboy State image that became internationally known.

Only about 7 percent – or 34,000 out of about 500,000 people – now live on Wyoming farms and ranches, but the symbol and state phrase endures. The famous symbol is branded on coffee cups, football helmets, T-shirts, bumper stickers, billboards, and countless other items.

The entire state, including UW, counts on agriculture, especially ranching, to uphold the image used in many Wyoming marketing and branding campaigns, says Assistant Professor Dannele Peck.

"Wyoming's tourism campaigns would be much less convincing without the occasional momma beef cow and calf standing in the middle of a dirt road when tourists drive through," says Peck, in the Department of Agricultural and Applied Economics. "The power of Wyoming's image depends on having real cowboys and farmers out on the ground, getting their boots dirty, living by the code of the West – or the 'Cowboy Ethic.'"

Proud Wyoming National Guardsmen sported a bucking horse insignia on their uniforms while traversing World War I battlefields. In 1936, in an effort to stop license plate counterfeiting, the state copyrighted then slapped the bucking horse insignia on Wyoming vehicles.

People just don't think "Cowboy



College of Agriculture and Natural Resources student Ethan Oberst, front, of Findlay, Ohio, halters a horse.

State" or a cowboy guarding cattle on the lonesome prairie, notes Chris Bastian, an associate professor in the department.

"Our brand is associated with a large suite of characteristics and attributes that attract people to the state: rugged and hardworking individualism, a simpler way of life, wide-open spaces, cattle roundups and rodeos, camping, fishing, wildlife watching and mountains," he says.

There has to be consistent followthrough to maintain the power of that brand, he says. If not, prices charged for and quantity of tourist goods and services could fall, translating into lost revenues.

Wyoming's popular slogan differs from some other states and mottos. At one time,

Illinois' state motto was "The Sucker State" – its origins are still debated – before it became "The Land of Lincoln" in 1955. Its new moniker was fortunate for public relations experts.

There are other examples, although not so dramatic.

"A public relations company asked people what they thought of when they thought of Delaware," says Associate Professor Cindy Price in the Department of Communication and Journalism. "People either said they couldn't think of anything, or they said the state was small. When they think of Wyoming, it's a cowboy. Our state has an identity and that identity translates into economic benefit when people visit here."

Professor Stephen Ford Spring 2012 Faculty Series Speaker award recipient

Professor and Rochelle Chair Stephen Ford was the Spring 2012 Award Recipient of the Faculty Senate Speaker Series.

His presentation "You Are What Your Mothers Ate" was given at the UW/Casper College Center and on the UW campus in April.

Most people have heard the old adage, "You are what you eat."

Ford would alter that slightly to "You are what your mother or grandmother ate."

Ford drew from results of studies conducted with cattle and sheep at the Center for the Study of Fetal Programming for his presentation. According to test results, it doesn't appear to matter whether female sheep or cattle were underfed or overfed during pregnancy in order for the females to pass on serious postnatal health issues to their offspring.

These results on animals are similar to what medical researchers throughout the world have found in babies born to undernourished or overnourished mothers. These babies were more prone to health problems – including obesity, insulin resistance, type II diabetes, hypertension, and cardiovascular disease – later in life.

"I am very happy that the research, conducted over the last decade at the Center for the Study of Fetal Programming, is finally being highlighted to the university community," Ford says. "The goal of the center is to better understand the impacts of maternal malnutrition (over- and undernutrition) on fetal growth and development, as well as on postnatal health, growth efficiency, and body composition."



Ford gave credit to fellow UW faculty members and visiting scientists; post-doctoral, graduate and undergraduate students and technical staff with both agricultural and biomedical backgrounds; and an ongoing collaboration with Peter Nathanielsz, a professor at the University of Texas Health Science Center at San Antonio, Center for Pregnancy and Newborn Research.

Doug Hixon, head of the animal science department, says he nominated Ford for the award because of Ford's research on the potential human health impacts of maternal obesity during a woman's early pregnancy; specifically the subsequent development of diabetes (in the newborn) after the baby becomes an adult.

"There is a lot of interest now on the impact of early pregnancy (in humans) and what we end up realizing in later life," Hixon says. "I thought that this (subject) was something that would be extremely interesting across all majors and disciplines across campus."

"We have developed very relevant bovine models of maternal undernutrition and overnutrition/obesity, which has allowed us to obtain specific insights into the physiological mechanisms whereby maternal malnutrition leads to health problems of offspring in postnatal life," Ford says. "The research has implications both for improving the quality of livestock offspring and in the birth of normal, healthy babies."

Ford accepted his position after serving as a faculty member of the Department of Animal Science at Iowa State University for 23 years. Upon his arrival at UW in 2001, Ford established the Center for the Study of Fetal Programming. Ford is a reproductive physiologist by training. Prior to that, Ford was a research physiologist at the Roman L. Hruska U.S. Meat Animal Research Center in Clay Center, Nebraska.



Pete Stahl learned the value of international relations from his grandfather, a Spaniard who worked his way to the New World by rolling cigars in Havana in exchange for a ticket.

Putting this knowledge into action has been a hallmark of this year's 2012 Faculty Award for Internationalization recipient. Professor Stahl has pursued research that has had real-world consequences for people across Wyoming and the globe and expanded opportunities for Wyoming students to study abroad.

The award was established in 2001 by the UW International

Board of Advisers to recognize excellence in promoting international activities at UW.

A professor of soil ecology and director of the Wyoming Reclamation and Restoration Center, his research seeks to improve technologies for land reclamation and ecosystem restoration in sagebrush steppe ecosystems.

Stahl has developed collaborative relationships with colleagues worldwide:

- Working with colleagues from the Czech Republic, he has examined recovery of soil organisms on reclaimed surface coal mines in Wyoming, Canada, Australia, Germany, and the Czech Republic.
- He has developed, with colleagues from UW and Peabody Energy, an international exchange program to train students from Mongolia and Wyoming in the latest technologies and management practices in reclamation and restoration.



Professor Pete Stahl

Stahl and other UW scientists are developing a program on international watershed hydrology and ecosystem restoration science with faculty members from Universidad del Valle de Guatemala.

Anne Alexander, director of International Programs at UW, says Stahl's most outstanding international work is a collaborative partnership he has developed with Tribhuvan University in Kathmandu, Nepal. She says the partnership began as a memorandum of understanding that has grown into a model program of international cooperation.

"Through this program, the number of Nepalese students at UW has grown to the second-largest international student population on campus," Alexander says. "The research that Dr. Stahl has coordinated with his colleagues in Kathmandu has led to several major publications, visiting scholar exchanges, and results that will improve reclamation practices across several continents, including in two similarly situated mountain regions, Nepal and Wyoming."

His colleagues in the United States and abroad praise him both as a first-rate scientist and a true diplomat and ambassador of Wyoming.

"He serves as a role model for UW faculty and staff members and students in his pursuit of solutions to common global problems," Alexander says.

Stahl joined the UW faculty in 2000. He received a bachelor's degree in 1978 in agriculture from Oklahoma State University, and his master's and Ph.D in botany from UW in 1982 and 1989, respectively.

PROGRAM NOTES

AGRICULTURAL AND APPLIED ECONOMICS

Master's student **Alex Gorski** will present results of his carbon capture and strorage system economics research during the 2012 International Advanced Coal Technologies Conference in Xi'an, ShaanXi Province in China this June.

Gorski, of Meadville, Pennsylvania, for his master's thesis conducted an economic analysis of the carbon capture and storage system at the Jim Bridger Power Plant near Rock Springs, says his adviser, Tom Foulke, a research scientist in the department. The research focuses on the patented SequesTech carbon dioxide mineralization process developed by Professor K.J. Reddy in the Department of Ecosystem Science and Management. Flue gas and fly ash combine in a reactor to mineralize carbon dioxide, resulting in a potentially lowcost carbon dioxide sequestration solution. Overall costs and per-ton carbon dioxide costs are estimated for the carbon capture and storage system.

The UW School of Energy Resources with colleagues at the ShaanXi Provincial Institute of Energy Resources and Chemical Engineering will host the conference. The conference is designed to continue collaboration between Wyoming, ShaanXi, and Queensland, Australia, on carbon capture and utilization technologies, geological storage, enhanced oil recovery op-



Tom Foulke



Professor Stephen Ford

portunities, and economics of low-carbon technology and coal conversion alternatives for fuels, products, and chemicals.

ANIMAL SCIENCE

The Department of Animal Science recognized four outstanding senior students as recipients of their 2012 Senior Honor Book Award based upon their academic achievements and extracurricular activities.

They included Brice Mc-Intosh, an ag education/animal and veterinary science (ANVS) concurrent major from Wheatland; Stephanie Schroeder, an ANVS major in the pre-vet option from Douglas; Saralyn van Knapp Jennings, an ANVS major in the pre-veterinary medicine and business double option, who is also in the Honors Program, from Burbank, California; and, Tori D. Walsh, an ANVS major in the pre-vet option from Green River. These outstanding students have the opportunity to purchase a textbook of their choice for up to a \$150 value as a result of being recipients of this award.

The Department of Animal Science's 2012 Academic Quadrathlon (AQ) competition took place March 30-31 on the UW campus. Three, four-member teams participated in this year's contest, which was comprised of a written exam, an oral presentation, a lab practicum, and a Quiz Bowl competition. The winning team was Rebecca Vraspir, an ANVS major in the production and business double option from Emerson, Nebraska; Lauren Schiermiester, an ANVS major in the business option from Buffalo; Keah Cross, also an ANVS, business option student, from Morrill, Nebraska; and Dexter Tomczak, an ANVS major in the production option from Longmont, Colorado. These students will represent UW in the 2012 Western Regional

AQ competition in Phoenix, Arizona, in July.

Professor **Stephen Ford** was the Spring 2012 Faculty Senate Speaker Series Award recipient. Steve is the Rochelle Chair in the department and is a reproductive biologist who serves as director at the Center for the Study of Fetal Programming at UW. His presentation, entitled "You Are What Your Mother Ate," was given at the UW/Casper College Center April 17 and the UW campus on April 26.

ECOSYSTEM SCIENCE AND MANAGEMENT

"We are all getting used to our new department name and we hope you are as well," says Professor **John Tanaka**, head of the department. "We still do rangeland ecology and watershed management, soil science, and entomology. Our faculty members and students have been recognized with several awards."

Professor **Thomas Thurow** hit a trifecta with the College of Agriculture and Natural Resources Outstanding Educator Award, the University of Wyoming's John P. Ellbogen Outstanding Classroom Teacher Award, and the Society for Range Management and Range Science Education Council's Outstanding Undergraduate Teaching Award.

Miranda Bryant (entomology) was recognized with the UW Internationalization Award for Graduate Students. She is





Professor Tom Thurow



Caley Gasch

working in Ecuador with Professor **Scott Shaw**. Professor **Pete Stahl** was recognized with the UW Internationalization Award for Faculty.

Renee King was recognized with the National Association of College Teachers in Agriculture Outstanding Graduate Student Teacher Award.

Caley Gasch, a Ph.D. student in ecology, won third place for her poster in the Front Range Ecology Symposium at Colorado State University.

The Wyoming Reclamation and Restoration Center has been very active throughout the region, notes Tanaka. They recently completed a workshop in Utah that drew about 130 reclamationists. WRRC will present a series of two-day Wyoming Regional Reclamation Schools this summer across the state. The first day of the school is a classroom presentation of reclamation basics tailored to the specific region of the state in which it is presented. The second day is taught in the field and discusses pre-disturbance site assessment and inventory, including soils, vegetation, and wildlife. A regional school was in Powell in May. Other schools are in Rock Springs on June 27-28, in Ucross July 11-12, and in Laramie on August 15-16. Registration is \$50 for both days or \$30 for one day. Lunch is provided both days. For more information on the topics and registration, go to www.uwyo. edu/wrrc/workshops.

FAMILY AND CONSUMER SCIENCES

Wyoming AgrAbility welcomed new project coordinator **Chelsea Hampton** last spring. Chelsea has lived all over Wyoming but considers her home to be the Greybull/Cody area. Her experiences and education have cultivated an understanding and appreciation of rural

communities, and she acquired a familiarity with ranching and agriculture through the people she came to know in multiple Wyoming communities, says Professor Donna Brown, head of the department. "Chelsea also gained an understanding of disabilities and support services through her education in social work, as well as her position as job coach for persons with disabilities," says Brown. She may be reached at champto4@uwyo. edu or (307) 766-3052, and is in room 107 in the College of Agriculture Building.

Several senior students in the textiles and merchandising/ apparel design option within the department have had successes in competitive garment design. Three students had designs accepted as finalists for the juried Textiles and Design Showcase at the American Association of Family and Consumer Sciences National Convention in Indianapolis this June: Morgan Martin designs Purple Mountain Majesty and Ferum Surgentes were selected; Kati Stoll, the 2011 Undergraduate Best of Show winner's design Beaute Feroce was selected; and Michelle Adams' design Business is a Jungle was chosen. Martin's design Retro Hope was the winner of the recent Condom Couture event on campus guest judged by the Project Runway all-stars winner Mondo Guerra, and Stoll's design Live Joyfully was selected as second place and the People's Choice award



Chelsea Hampton

recipient at the same event.

As the elderly population grows over the next several decades, elder financial exploitation, the most prevalent form of elder abuse and the most under-reported, is expected to escalate. Because elder financial exploitation can be a painful family secret, there is relatively little available data, notes Brown. A particularly pernicious form of financial exploitation is abuse of powers of attorney (POA). Research conducted by Professor Virginia Vincenti and two University of Wisconsin-Madison researchers will use in-depth, open ended (phenomenological) interviews to gather data on POA financial exploitation of elder family members. The goal is to reduce the problem and the negative impact on the lives of elders and their families.

PROGRAM NOTES



Professor David Fay

MOLECULAR BIOLOGY

Professor **David Fay** received the Distinguished Graduate Faculty Mentor Award. Fay is director of the Molecular and Cellular Life Sciences Program.

"The award is among the university's highest faculty honors, recognizing outstanding faculty commitment to graduate mentoring," notes Andrew Hansen, associate provost for Undergraduate and Graduate Studies at UW. "It is testimony to his remarkable leadership skills and dedication to the University of Wyoming."

The award carries a \$5,000 honorarium.

Fay's laboratory studies the molecular and genetic mechanisms that govern animal development. One research focus is understanding the consequences to human health that occur when the normal functions of developmental genes are disturbed.

PLANT SCIENCES

Plants provide a great diversity of useful materials and chemical compounds in addition to food for humans and animals. Faculty members in the department are similarly diverse in their research interests, notes department head and Associate Professor **Steve Herbert**.

Valtcho Jeliazkov is an associate professor recently hired into plant sciences. He is also the director of the Sheridan Research and Extension Center on Wyarno Road east of Sheridan. Valtcho's research spans many aspects of horticulture, one of which is the production and use of medicinal and aromatic plants. In a recent series of papers, Valtcho showed that wastewater produced by distillation of essential oils from some aromatic plants may be used as foliar spray for spearmints and peppermint. Utilizing this wastewater this way improved the growth of the plants and modified their oil composition by means of the plant hormones and oil precursors remaining in the water. In another study, Valtcho analyzed the composition and antimicrobial activity of oils extracted from lavender and hyssop plants.

Since his arrival in Sheridan, Valtcho has collected hundreds of samples from medicinal and aromatic plants growing at the center and in the surrounding mountains. They hang from the rafters of the historic barn adjacent to his laboratory, per-



Associate Professor Valtcho Jeliazkov

fuming the air and waiting to have new knowledge extracted from them, says Herbert. His research involves horticultural and biofuel crops. Valtcho is also field-testing peppermint, spearmints, sweet wormwood, and other essential oil plants as new cash crops for Wyoming. In addition to his research, Valtcho has also developed two new horticulture classes by which to share his expertise. One of the classes is titled Organic Food Production. The other is Herbs, Spices, and Medicinal Plants. Both are taught by distance methods from Sheridan.

Professor **James Krall** retired this year after more than 30 years of service to the University of Wyoming. In this time, Jim authored or co-authored 66 refereed publications and 45 invited presentations. He also released 10 new crop varieties and was the recipient of the 2007 Wyoming Crop Improvement Association Excellence in Service Award. In recent years, Jim has

promoted the use of Australian ley farming for dryland wheat production in southeast Wyoming. This is a method of crop rotation in which nitrogen-fixing forage legumes are planted in alternation with winter wheat. During their rotation period, forage legumes enrich the soil, provide feed for animals, and make productive use of the land while populations of specific wheat pests are allowed to die down. Jim has also explored the production of biodiesel feedstock crops in Wyoming, including camelina, brown mustard, and canola. "Jim's active participation in our department will be missed, but we look forward to a continuing relationship with him as an emeritus member of our faculty," notes Herbert.

VETERINARY SCIENCES

A new course co-taught by the animal science and veterinary sciences departments expands opportunities for students interested in horses and the equine industry, says Professor **William Laegreid**, head of the department.

Equine Health and Disease (PATB/ANSC 4111) is an upper division course for students interested in equine science. Coordinated and taught by senior lecturer **Amy McLean** (animal science) and Professor **Donal O'Toole** (veterinary sciences), this course complements other equine science courses, such as nutrition and physiology, management, behavior



and welfare, and evaluation and selection, notes Laegreid.

Twenty-seven students enrolled in its inaugural offering. In addition to core lectures on health and disease, students heard from three invited speakers to address lameness and lower limb amputation (veterinarian Ted Vlahos, Sheridan Equine Hospital), foot problems (Mike Sussex, a Wyoming farrier), and complementary medicine (veterinarian Vicki Burton, Healing Ways veterinary practice). Students completed the course with oral and written presentations on diverse topics including Hendra virus encephalomyelitis, the ancient practice of firing injured tendons, seasonal pasture myopathy, clenbuterol use for horses with chronic obstructive pulmonary disease, and an iris-based horse identification system.

The course will be offered each spring. In 2013, the class will go from its two-credit form to a three-credit class and will be offered to upper division undergraduates and graduate students.

There is considerable interest among students in the college in terms of pursuing careers within the equine industry. McLean also serves as equine extension specialist. Her students have opportunities to learn about equine including gaining hands-on experience in the industry in general through an internship program. The equine diseases class was developed in part to allow another class (PATB 4110/5110) taught



Amy McLean



AES Director Bret Hess

by O'Toole (a diagnostic pathologist in the Wyoming State Veterinary Laboratory in addition to his research and teaching interests) to focus on diseases of food animals alone. The food animal disease course will be amended to include poultry and swine, beef and dairy cattle, and small ruminants.

AGRICULTURAL EXPERIMENT STATION

The amazingly beautiful spring weather we had brings hopes of a bountiful 2012 growing season, notes Bret Hess, associate dean and director of the Wyoming Agricultural Experiment Station. "Our researchers and staff members at the Wyoming Agricultural Experiment Station and its four research and extension centers likewise look forward to the growing season with much anticipation," he says. "The

summer is a period in which the centers take the opportunity to communicate much of their hard work to the public through demonstrations at field days." A Field Days Bulletin will accompany field day demonstrations to give attendees a chance to follow along with speakers. The bulletin includes two-page research summaries highlighting activities at all the centers. Publishing all of the centers' activities in a single document gives participants up-to-date access to research information from all four centers. The first field day is Tuesday, July 17, at the Powell Research and Extension Center. The James C. Hageman Sustainable Research and Extension Center field day and open house is Thursday, August 23. The Laramie Research and Extension Center's Greenhouse Complex will host an open house the following week. "A field day has not yet been scheduled for the Sheridan Research and Extension Center. but there are plenty of exciting developments to include in the bulletin," notes Hess. "All of us at the Wyoming AES are anxious to explain the latest results of our work, and we certainly look forward to seeing you at one or more of our field days."

UW EXTENSION

Joeli CrazyThunder joined the Wind River Reservation extension office in March and will work for the next year as the part-time 4-H program assistant on the Wind River Indian Reservation. Joeli is taking classes at Central Wyoming College in Riverton. She was a Fremont County 4-H member while in high school. She will be working with extension staff members to administer the 4-H Tribal Youth Mentoring Program and developing afterschool programs.

Hannah Swanbom began in April as the new community development education area educator based in Natrona County. She will also provide educational programming in Converse and Niobrara counties. She graduated in December 2009 with a bachelor's degree in sociology from Iowa State University. She completed her master's degree in agriculture majoring in agricultural extension education and graduated in May from Iowa State University. Hannah grew up in Colorado and says she is excited to return to the West, notes Susan James, federal relations and staff development coordinator.

PROGRAM NOTES



Joeli CrazyThunder

Sara Fleenor began as the 4-H youth educator in Crook County in April. A Crook County native, Sara was a nine-year 4-H member in the county. She has an associate's degree in general agriculture from Laramie County Community College, received a bachelor's degree in agricultural communications in 2000, and in 2002 a master's degree in public administration from the University of Wyoming. She has worked in higher education since 2003 in several positions at Laramie County Community College. Her strong youth background will be an asset to the Crook County 4-H program, says James.

Amanda Zamudio began May 30 as the 4-H youth educator in Teton County. Zamudio has a bachelor's degree in animal science and graduated cum laude in August 2011 from the University of Arizona. She is completing her master's degree in agricultural education. Her graduate research investigated Arizona's senior 4-H members' perception of life skill development. She is a 4-H and FFA alumna and brings strong experience to the Teton County program, notes James.

Hannah Swanbom

ACADEMIC AND STUDENT PROGRAMS

University of Wyoming alumni, including those from the College of Agriculture and Natural Resources, suggest in videos ways students can be successful in their job searches.

The videos, at http://bit.ly/ I35mz7, offer advice on several topics, including:

- What skills do employers really want?
- Life after graduation is intimidating; am I ready for my first real job?

- Why is that class important?
- Isn't earning my degree enough for employers?
- Shouldn't I hold out for that perfect job?

"Our faculty members do their best to communicate with students about the qualities employers seek in graduates, and this project reinforces that with direct messages from the employers themselves," says **Jim Wangberg**, associate dean and director of the office. "We appreciate these advisory board member's interest in student career placement."

The videos grew from conversations with **Ken Hamilton**, executive vice president with Wyoming Farm Bureau Federation, **Jason Fearneyhough**, director, Wyoming Department of Agriculture, and **Kara Brighton**, partner, Hageman & Brighton, P.C., during a College of Agriculture and Natural Resources advisory board meeting, says **Ann Jones**, assistant director for the Center for Advising and Career Services.

"Each expressed an interest in the career committee and in seeking ways to "give back" to UW students," says Jones. Each is now in a hiring position and more fully understand what skills and qualities new candidates should possess to be successful in the job market, she notes.

The project grew to include **Dominique Giroux**, membership coordinator at Wyoming Farm Bureau Federation, and



Associate Dean Jim Wangberg

Harriet M. Hageman of Hageman & Brighton, P.C.

"All participants of the Alumni Advice videos are graduates from either the College of Agriculture and Natural Resources, College of Arts and Sciences, College of Business, or the College of Law," says Jones. "All value their UW education and Wyoming roots and expressed their desire to be of assistance to any UW student as they begin their professional careers."

COLLEGE RELATIONS

Earlier this spring, the college mourned the passing of two long-time faculty members: former department head of family and consumer sciences **Margaret Boyd** and **Tom Dunn**, a long-time faculty member in animal sciences and former dean of graduate studies at UW. During their tenures, Margaret and



Tom helped thousands of people through teaching, research, and outreach. Often, when I talk with alumni or others, they relate stories about a faculty member or extension educator who made a difference in their education, businesses, or lives. This is still true today.

Recently, I had three students to my house who were having trouble baking successfully at 7,200 feet. What book did I show them? *High Altitude Baking* by Margaret Boyd. Originally published in 1965 by Margaret Boyd and **Mayme Schoonover**, it is as relevant today as it was then. Not only did we successfully bake gingerbread, but UW helped three Wyoming citizens solve a problem.

In 2004, large numbers of elk in the Red Rim area of southern Wyoming started to die. While looking for potential answers, a faculty member read a 1953 Agricultural Experiment Station bulletin by Dr. O.A. Beath. This publication, Poisonous Plants and Livestock Poisoning, helped the Wyoming State Veterinary Laboratory identify lichen as a probable cause of the outbreak. Laboratory researchers, with some help from a former UW faculty member, helped the college tackle a current problem. This is an example of applied research's impact and importance.

My colleagues do not focus exclusively on the importance of access to higher education,



Director of College Relations Anne Leonard

or good science, or applying science to practical problems. They view them as equally important. This is why those students who graduated in May, like the alumni who graduated decades ago, or people who have worked with an exceptional extension educator, will effortlessly remember these people as someone who made a difference in their lives.

In this issue of Ag News, Dean Frank Galey highlights the 150th anniversary of the legislation that created the land-grant college system. Together, the Morrill Act and the Wyoming Territorial Legislature created the University of Wyoming. The College of Agriculture and Natural Resources is fortunate to have students passionate about their education, citizens who believe in our work, and faculty members who are equally dedicated to teaching and disseminating useful knowledge to all citizens.

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UW Extension publications receive top national awards

Magazines and publications produced by the University of Wyoming Extension received gold, silver, and bronze awards from the international Association for Communication Excellence (ACE) and received runner up and thirdplace honors from the Wyoming Press Association (WPA).

Barnyards & Backyards magazine, published quarterly, received the top award for magazines and periodicals from ACE. Barnyards & Backyards provides information from land resource professionals to be of help to small-acreage landowners in Wyoming.

Entries are evaluated for content, editorial quality format, graphics, photography, design, and reproduction.

CONNECT, published annually, received a silver award for four-color popular publications. The magazine showcases examples of University of Wyoming Extension educators engaging the people of Wyoming. Entry evaluations are based on the same criteria.

Reflections, published annually, received a bronze award in electronic publications. The magazine highlights the teaching, research, and outreach efforts of faculty and staff members in the College of Agriculture and Natural Resources. Electronic publications are evaluated on overall ease of use, design, editorial quality, content delivery, appropriate use of electronic techniques, and appeal to the intended audience.

The publications are produced by Tana Stith, office manager, Steve Miller, editor, and Bernadette van der Vliet, graphic designer, in the Office of Communications and Technology.

The Association for Communication Excellence in Agriculture, Natural Resources, and Life and Human Sciences is an international association of communicators, educators, and information technologists. It offers professional development and networking for individuals who extend knowledge about agriculture, natural resources, and life and human sciences. The awards were presented at its annual conference June 11-14 in Annapolis, Maryland.

Awards received in the WPA Associate's Group com-



munications contest during its winter meeting:

- Ag News, published three times yearly, was runner-up in publications. The magazine features people and programs in the college.
- Barnyards & Backyards magazine placed third in publications.

Other awards were:

- Van der Vliet, second in page layout and design for the publication "Impacts 2010," which highlights efforts of educators and specialists in extension.
- Miller, second place in magazine writing for an Ag News feature about retired professor Larry Held in the Department of Agricultural and Applied Economics.







