

FOOD FOR THOUGHT

FALL 2012

CSU taters
are **TOPS** page 12

Citizen of the West is
KING of corn flakes page 30

Take a break in a
PARK(ing) space page 24

Organic Agriculture

Our program earns a
PERFECT SCORE page 16



Colorado State University

20



30



36



22



8

On the cover
Organic Agriculture

Alyssa Eckley, a senior in horticulture with a minor in interdisciplinary organic agriculture, is a star student in the top-ranking CSU Organic Agriculture Program. She shows off organically grown herbs, veggies and berries from the CSU Hort Farm.

Publishing Information

Food for Thought is a publication of the College of Agricultural Sciences. Contact Editor Coleman Cornelius at (970) 491-2392 or coleman.cornelius@colostate.edu.

Editor: Coleman Cornelius
Contributing writers: Coleman Cornelius, director of communications, College of Agricultural Sciences; Malinda DeBell, CSU sophomore studying animal science; Jennifer Dimas, CSU Department of Public Relations; Beth Etter, director of communications, CSU Alumni Association; Nik Olsen, assistant director of communications, CSU Office of the President.

Contributing photographers: Bill Cotton, John Eisele and Joe Mendoza, CSU Communications and Creative Services; Dan Bihn Photography; Jessica Davis, CSU Department of Soil and Crop Sciences; Eddie Gehman Kohan/ObamaFoodorama.com; John Matsushima family.

Design by CSU Communications and Creative Services: Kate Wyman, Sandy Thode.

We welcome your support! To support College of Agricultural Sciences programs with a charitable gift, please contact the Development Office, (970) 491-7686.

We welcome your ideas! Send comments and mailing addresses to: *Food for Thought*, Colorado State University, College of Agricultural Sciences, 1101 Campus Delivery, Fort Collins CO 80523-1101.

Editor Coleman Cornelius may be reached at (970) 491-2392 or coleman.cornelius@colostate.edu.

Colorado State University is an equal access/equal opportunity university.

- 4 Trees and Carbon Sequestration
- 6 Nitrogen – from Thin Air
- 8 The Pathology of Jan Leach
- 10 Monfort Professor John McKay
- 12 Spuds in the Spotlight
- 16 Organic Agriculture
- 20 Compost Program
- 22 Ram Camp 2012
- 24 PARK(ing) Day
- 26 Meat Mastery
- 28 A Chance Meating
- 30 Citizen of the West: John Matsushima
- 34 Distinguished Alumni Awards
- 36 Young Alumni Spotlight: Caroline Kamer
- 38 Malinda DeBell Touts Agriculture
- 40 Alumni, Faculty and Staff, and Student News

BEEF. *It's what's for* DINNER. In KOREA.

Colorado State University's international work benefits state agricultural industry

The College of Agricultural Sciences in late August teamed up with the U.S. Meat Export Federation to host a group of editors from Korea's leading lifestyle magazines. Hosts provided visiting editors with information about quality and food-safety practices in every step of the U.S. beef industry supply chain, from Western cattle ranches to swanky Manhattan steak houses.

The first-time tour provided a transparent window on the U.S. beef industry and answered questions from key influencers in an important export market.

Scientists with Colorado State University's highly regarded Center for Meat Safety and Quality gave the Korean editors research-based insights about food-safety measures through the supply chain, as well as information about consumer trends and the impact of sound production practices on meat quality. Our Agricultural Research, Development and Education Center was a main stop on the cross-country itinerary.

Here's the significance: Korea was the No. 3 market for U.S. beef exports a decade ago, but that came to a screeching halt in 2003 with a scare over bovine spongiform encephalopathy, commonly known as mad-cow disease or BSE. Korea reopened to U.S. beef in 2008, and since then has rebounded to a No. 5 export market position, according to the U.S. Meat Export Federation, based in Denver.

The educational trip was part of an ongoing effort to rebuild and grow this market – and other Asian markets that increasingly demand U.S. beef as many Asian consumers shift tastes in protein.

Our interaction with Korean editors offers a telling example of the value of Colorado State University's international work. Economics is the bottom line for much of our international teaching, research and engagement.

What does that mean in Colorado? To continue the case example, beef is by far the top commodity in Colorado, where agriculture contributes an estimated \$40 billion each year to the state economy. In 2011, cattle and calves generated more than \$3 billion in sales, according to the Colorado Department of Agriculture.

State leaders have repeatedly noted that agriculture – specifically, the robust export of beef and beef products – gave Colorado a substantial economic cushion during the recent Great Recession, then helped the state recover.

This illustrates how our college's international engagement supports Colorado agriculture and the broader state economy; these international efforts are at the heart of our land-grant mission of service to Colorado, its citizens, and its agricultural industry.

Indeed, international work is a proud tradition for the College of Agricultural Sciences. For example, Emeritus Professor John Matsushima, to be honored by the National Western Stock Show as 2013 Citizen of the West, helped open Japan to U.S. beef exports through his international work. Colorado beneficiaries included beef producers Monfort of Colorado Inc., now a key holding of global company JBS USA.

What are other benefits of our college's international efforts? Here are a few:

• **Reciprocal knowledge**

Knowledge gained from CSU research flows many ways. Our researchers are examining food, land and water systems, for instance, in grasslands of sub-Saharan Africa; in tropical montane cloud forests of Hispaniola; on struggling farms in Afghanistan and Pakistan; and at sheep and goat operations in Mali.

Discoveries are applicable in Colorado because of similarities in geology, ecology, resource availability, even challenges in risk management. As we know, studying a problem through a different lens often provides new insights.

• **Students**

To prepare students for success in a global economy, we must expose them to international challenges, partnerships, and problem-solving. Our students need the language competency, cultural competency, geographical, historical, and political knowledge that arise from direct

international study, and from knowledge gained through professors with extensive international experience.

Our students recently have traveled to China, India, Costa Rica, New Zealand and France for learning that has expanded their life experiences, knowledge – and preparedness for professional work in a complex, global agricultural industry.

Students who become citizens of the world are better prepared for life ahead.

• **Security**

Consider global food riots that occurred in 2007-08 and 2010-11 as a result of crop failures and skyrocketing food prices. Such unrest is a clear sign of the need for international agricultural development; put simply, food security contributes to overall security.

Agricultural scientists accept an important responsibility on this issue. It's no coincidence that several ongoing international projects in our college – such as work to improve soil fertility in Ethiopia and water management in Afghanistan – receive funding from the U.S. Agency for International Development. The federal agency funds research that holds promise for boosting economic development in the world's poorest nations while also improving international trade and security for the United States.

Nations may have borders – but knowledge has no boundaries. We're all better for that, as is the agricultural industry to which we are devoted.



Craig Beyrouly, Dean

Craig Beyrouly

Craig Beyrouly
Dean, College of Agricultural Sciences

Craig.Beyrouly@colostate.edu
or (970) 491-6274

TREES *are the* ANSWER?

by Coleman CORNELIUS

It was a typically warm September in South Carolina, with temperatures reaching into the 80s, when Bill Bauerle first noticed something puzzling about tree leaves. It was the same with every species he examined – Paulownia, red maple, oak, birch.

Photosynthetic activity was plummeting. Bauerle’s sensitive instruments measured a distinct slowing of the cycle: carbon dioxide absorbed and sequestered, and oxygen and water vapor released.

This is surely a mistake, he thought. Conventional wisdom among plant scientists held that warm environmental temperatures propelled photosynthesis, and it was definitely warm in the Appalachian early fall. Tree leaves were still green, with easily a month before a deciduous kaleidoscope would mark true fall.

As his measurements continued to confirm declining leaf activity, Bauerle, a plant physiologist, developed a novel idea: Maybe length of daylight, not temperature, is the primary driver of photosynthesis. He knew the notion, if validated, could have significant implications for modeling global carbon sequestration and the impacts of climate change, because in many places photoperiod ebbs several months before temperatures fall.

“I was surprised at what we were finding with tree leaves and photosynthetic activity, but at the same time I was excited that I had come across something new,” said Bauerle, a professor in CSU’s Department of Horticulture and Landscape Architecture. Bauerle was working at Clemson University in South Carolina when his research on the subject began in earnest in 2005.

“I knew the findings might ultimately lead to adjustments in carbon and climate models from the leaf level to the global level,” he said.

After five years researching the impact of photoperiod on tree leaves, Bauerle and eight national and international collaborators published landmark findings in the prestigious Proceedings of the National Academy of Sciences in May.

The study, titled “Photoperiodic regulation of the seasonal pattern of photosynthetic capacity and the implications for carbon cycling,” confirms ideas Bauerle began formulating back in South Carolina. Photoperiod, rather than temperature alone, is a key driver of leaf activity, according to findings published in PNAS.

In fact, photosynthetic activity peaks on the summer solstice – the longest day of the year – and begins to wane long before autumn’s chill, the study shows.

The drop in photosynthetic activity means trees absorb less carbon dioxide than they had on the longest day of the year and ultimately sequester far less carbon on a global scale than earlier thought, the researchers found.

Correctly accounting for the impact of photo-

period to the extent that scientists earlier assumed, the nine researchers write. That is true even when warm temperatures delay signs of aging in tree leaves.

“These values are substantial when considering the amount of global atmospheric carbon,” said Bauerle, the study’s lead author, whose expertise is understanding the impact of environmental factors on plant activity. “As carbon levels rise and temperatures warm, trees can only do so much to protect the planet from the effects of climate change.”

Ram Oren, Nicholas Professor of Earth System Science at Duke University’s Nicholas School of the Environment, said the research discoveries are significant in the context of climate change. Until now, Oren said, scientists assumed that as the climate warms, growing seasons would lengthen and

period on tree leaf activity adjusts global estimates of carbon sequestration downward by more than 3 percent, according to the study.

The result: Net primary production – the amount of carbon dioxide the Earth’s vegetation absorbs during photosynthesis, minus that released in plant respiration – drops from 58.7 petagrams of carbon per year to 56.7 petagrams of carbon per year, according to the study in PNAS. That’s a downward correction of 3.4 percent (1 petagram equals 1 billion metric tons).

Tree leaves, responding to shorter days, simply do not fix the planet’s fast-rising carbon dioxide

forests would absorb more carbon dioxide from the atmosphere.

“Our findings mean that lengthening growing seasons with global warming will not increase photosynthesis, because day length will not change,” Oren said.

Scientists know from earlier studies that leaves generally are developing earlier in the spring and staying green longer in the autumn, noted Danielle Way, a collaborator who studies global change ecology at Duke University.

“Our work shows that leaves can remain green in the late summer and autumn, while photosyn-

YES*

* But study shows trees absorb less carbon than earlier thought as photosynthesis declines



Bill Bauerle, professor in the CSU Department of Horticulture and Landscape Architecture, demonstrates a gas-exchange instrument used to measure photosynthetic activity and transpiration in tree leaves during an international short course on campus last summer. Bauerle used the equipment for a study confirming that length of daylight is a key driver of photosynthesis in tree leaves.

Photo by Dan Bihn



“I knew the findings *might ultimately lead to adjustments in carbon and climate models from the leaf level to the global level.*”

— Bill Bauerle, CSU professor of Horticulture and Landscape Architecture

thetic capacity drops off, since photosynthesis is strongly controlled by day length,” Way said. “Leaves may stay green in a warmer climate, but that doesn’t mean trees will take up as much carbon dioxide from the atmosphere as we assumed.”

The findings will help refine global models of atmospheric carbon cycling and predictions about the impact of climate change, according to the study.

Likewise, new insights about the impact of photoperiod on tree leaves will improve estimates

of current carbon uptake based on vegetation greenness sensed with space-based technologies, the authors write.

“In this study, we demonstrate how to scale from the leaf to the global level,” Bauerle said.

The research team’s findings are based on measurements of tree leaf photosynthesis rates over five growing seasons.

The scientists used portable steady-state gas exchange systems to monitor photosynthetic activity in the leaves of 11 tree species, including

red maple, green ash, honey locust, white oak and birch. The team, representing research institutions in the United States, Canada and Sweden, also used previously published data from an additional 12 species.

Their leaf-level measurements controlled for factors including light, temperature and humidity to analyze photosynthetic response. The researchers found photosynthetic activity begins to decline many weeks before the leaves of deciduous trees change color and drop to the ground during fall.

“Even in the early fall, tree leaves are lush and green, but our study found that their physiological activity is much less than we’d expect based on appearance. Because of that, we have been overestimating the amount of carbon they are fixing,” Bauerle said.

Read the study



NITROGEN FROM *thin air*

by Nik OLSEN

Jessica Davis had an idea that came from thin air: improve farming and global economic development by finding a simple, cheap way to make nitrogen fertilizer.

Davis, a professor in the Department of Soil and Crop Sciences, and one of her former graduate students, Mike Massey, teamed up with an ingenious idea to provide an essential plant nutrient.

The key is cyanobacteria – or blue-green algae.

Davis and Massey founded Thin Air Nitrogen Solutions, LLC, a Colorado State University spinoff, to help fund research and development of their biofertilizer, and ultimately to help commercialize the innovation.

Since its formation in 2008, Thin Air Nitrogen Solutions has landed some \$350,000 in grants. The most recent totaled about \$100,000 from the U.S. Agency for International Development, significant because the federal agency funds research that holds promise for boosting economic development in the world's poorest nations while also improving international trade and security for the United States. Indeed, Rajiv Shad, USAID administrator, hailed the work of Thin Air Nitrogen at a World Economic Forum meeting last spring.

eye on making the system management and maintenance as simple as possible, while maximizing profitability for farmers.

"That's the goal – keep it cheap and simple," Davis said. "I think we can do this all with local materials, which will make it affordable."

The concept holds potential for U.S. farmers who want sustainably produced soil nutrients. Davis notes that most nitrogen used in the United States is imported from Canada, Russia or Ukraine. That drives up costs and farming's energy consumption.

The innovation also holds potential in developing nations, where nutrient-depleted soils are a critical concern; subsistence farmers are desperate for solutions to improve harvests – and their livelihoods.

In fact, Thin Air Nitrogen is actively working on the project with collaborators at Hawassa University in Awassa, Ethiopia, a land-locked country where transportation problems make fertilizer costs prohibitive. Davis led a delegation from the College of Agricultural Sciences to Hawassa University in early November to address this and other joint projects.

Davis hopes the bacteria-based biofertilizer will help improve the lives of subsistence farmers and their families in sub-Saharan Africa. In this poverty-stricken region, the vast majority of nations have hunger problems ranging in severity from serious to extremely alarming, according to the 2012 Global Hunger Index, released in October by the International Food Policy Research Institute.

Farmers could sell the nitrogen fertilizer or use it with their own crops, improving food security without the need for expensive, imported chemical fertilizers transported over rutted roads. Biofertilizer application in Ethiopia also could increase water-use efficiency, reduce erosion, improve soil health, and decrease deforestation that results from agricultural expansion, Davis said.

Recent work suggests the biofertilizer might even improve crop nutrient content, suggesting a way to reduce malnutrition in the developing world.



"That's the goal – keep it cheap and simple."

— Jessica Davis, CSU professor of Soil and Crop Sciences

"Four years ago, I had never even looked at a cyanobacterium," Davis said. Now, it's part of her everyday life.

The team's basic approach: Culture cyanobacteria from farmers' fields and nearby water bodies; the locally derived materials reduce costs and problems with invasive species. After the cyanobacteria are cultured from local soils, a process that takes about six months, the cultures are returned to farmers.

The blue-green algae then are grown in farm-based ponds, so farmers produce their biofertilizer on-site. During experimentation, Davis and her collaborators have delivered the nitrogen-rich fertilizer directly to soil using drip irrigation.

Davis and Massey are working to perfect the technology so the biofertilizer can be produced in a volume, timeframe, and at a cost that fit farmers' needs. As the duo carry out research, they keep an



Endalkachew Wolde-meskel, associate professor of soil microbiology and molecular biology, is a collaborator with Jessica Davis at Hawassa University in Ethiopia.

Thin Air Nitrogen Solutions research

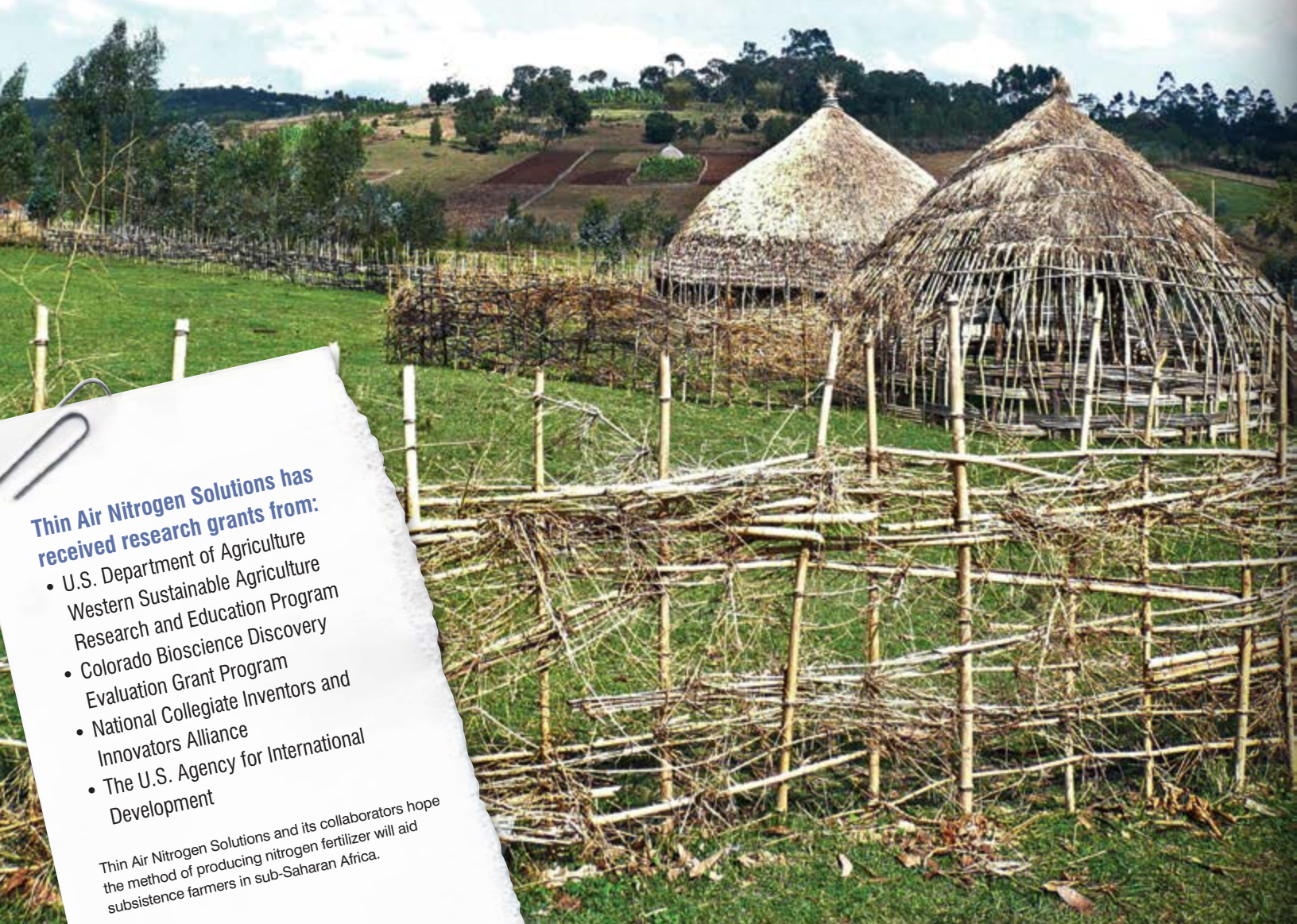
- In the lab, scientists work with some of Earth's smallest life forms – microscopic organisms called cyanobacteria that transform nitrogen in the air into fixed nitrogen, the kind that plants can use.
- Researchers pick cultures that grow best and fix the most nitrogen. Then they evaluate how different parameters, such as light intensity, aeration, culture depth, and nutrient solution ingredients, can affect rate of growth and nitrogen fixation.
- They are also working on harvesting methods, because some cyanobacteria float and some sink.
- Researchers take their work to local farmers, aiming to perfect biofertilizer production in natural light and temperature.
- Prototype ponds are seeded with cyanobacteria cultured from local soils; this way, the bacteria are adapted to field conditions.
- With every step in research and development, Thin Air Nitrogen works to simplify system management and maintenance, and to maximize profitability for farmers.

Source: Thin Air Nitrogen, LLC

Thin Air Nitrogen Solutions has received research grants from:

- U.S. Department of Agriculture Western Sustainable Agriculture Research and Education Program
- Colorado Bioscience Discovery Evaluation Grant Program
- National Collegiate Inventors and Innovators Alliance
- The U.S. Agency for International Development

Thin Air Nitrogen Solutions and its collaborators hope the method of producing nitrogen fertilizer will aid subsistence farmers in sub-Saharan Africa.





Jan Leach, University Distinguished Professor of plant pathology, works in her Colorado State University greenhouse with students Paul Langlois, left, and Rene Corral. They are surrounded by different varieties of rice plants, which the team grows and evaluates for resistance to blight disease and other traits.

Jan Leach *is* PATHOGEN LOGICAL

by Coleman CORNELIUS

CSU authority on plant-pathogen interactions tapped for biosecurity board

“Every time I travel in Asia and I see how important rice is to people, and how devastating it is when a family loses a crop to disease, I realize our research has an important outcome. I always come back with a new amount of energy.”

— Jan Leach, CSU Department of Bioagricultural Sciences and Pest Management

Rice researcher Jan Leach vividly recalls the day in 2008 when federal officials declared *Xanthomonas oryzae pv. oryzae* – bacteria she has studied for three decades – as a “select agent” with potential for use in bioterrorism.

“I cried,” said Leach, a Colorado State University Distinguished Professor of plant pathology.

Leach knew the designation would mean onerous regulations for her laboratory and greenhouse as she works to understand and strengthen rice resistance to *Xanthomonas oryzae pv. oryzae*, which causes bacterial blight disease and devastating crop losses across Asia.

In complying, Leach unwittingly has gained new expertise in managing dual-use research, meaning studies whose findings could greatly improve human well-being, yet in the wrong hands could be used for biowarfare or bioterrorism.

Leach’s insights recently led to her appointment as a new member of the high-profile National Science Advisory Board for Biosecurity. Dr. Francis Collins, director of the National Institutes of Health, invited Leach to join the board; her two-year term began in August.

The 25-member federal advisory board, coordinated by the U.S. Department of Health and Human Services, is composed of leaders in a range of scientific disciplines. The board advises federal agencies about the complexities of dual-use research, and suggests guidelines to protect public health and national security without hindering scientific progress.

“I’m kind of a rosy person, so I don’t like to think about terrorists. But I don’t want to see science shut down because of irrational people,” said Leach, who works in the CSU Department of Bioagricultural Sciences and Pest Management.

It’s critical that scientists are involved in policy discussions, she said, because they can provide fact-based views of risks and benefits of dual-use research. This year, dual-use research has been a red-hot topic among life scientists, sparked by debate over the publication of studies involving the avian H5N1 influenza virus.

“What’s important is to have rational scientists making decisions, rather than people who don’t

have the full view of the science involved,” Leach said. “Many of these discussions involve risk-benefit analysis. ‘What’s the balance? If we block research because of the potential for evil, do we block our ability to help people?’”

Leach is a foremost expert in rice genomics and the interactions between plants and pathogens at the molecular level. As a University Distinguished Professor, she is among a select group of world-class CSU professors known for outstanding scholarship and achievement.

She also is a past president of the American Phytopathological Society, a scientific organization dedicated to the study and control of plant diseases, and is current chair of the society’s Public Policy Board, among other prominent roles.

“Dr. Leach’s appointment to the National Science Advisory Board for Biosecurity is a great testament to her research expertise and her dedication to science as a path for improving food security and quality of life for people around the world,” said Craig Beyrouthy, dean of the College of Agricultural Sciences. “Her public-policy insights are an important contribution.”

Leach has worked extensively with *Xanthomonas oryzae pv. oryzae*, a bacterial pathogen that causes rice blight disease. The disease often wipes out between 20 percent and 50 percent of rice crops raised by farmers in Asia.

That’s often disastrous because rice is the most important food crop in the developing world and the staple food for more than 3 billion people – about half the world’s population, according to the International Rice Research Institute. It is grown by subsistence farmers across Asia.

Leach, who employs new genomics technologies and collaborates closely with colleagues in Asia, seeks to determine how rice resistance to *Xanthomonas oryzae* can be strengthened and

PATHOGEN Continued on page 39

Jan Leach’s career

Colorado State University

Distinguished Professor of plant pathology and adjunct scientist at the International Rice Research Institute, Philippines.

Authority on the molecular biology

of plant-pathogen interactions, with particular focus on rice genomics.

Grew up in Lincoln, Neb., and was a

first-generation scholar – the first in her family to earn a college degree.

Earned bachelor’s and master’s

degrees in microbiology from University of Nebraska and worked in a campus pathology lab to help pay for school; this drew her into plant pathology.

Earned Ph.D. in plant pathology from

University of Wisconsin and did post-doctoral work in Britain.

Has studied ways to strengthen and

sustain rice resistance to *Xanthomonas oryzae*, a bacterial pathogen that causes rice blight disease. Started this work because of opportunity to research a pathogen with a distinct role in a well-known crop, using new genetic and genomic technologies.

Has used the work as a genomic

model to understand rice within a system that includes other diseases, pests, temperature and moisture variations, and more.

Expertise has led to new studies in

biofuels and ways to boost the health benefits of rice.

Work has been funded by National

Science Foundation, U.S. Department of Agriculture, U.S. Department of Energy and the Rockefeller Foundation, among others.

Teaches graduate-level courses

in Plant Bacteriology, Bioenergy Technology, and Advanced Molecular Plant-Microbe / Pest Interactions.

More than a dozen people, including

graduate students, work in the Leach Lab at CSU.

The INNER LIFE of PLANTS

by Jennifer DIMAS

New Monfort Professor McKay examines plant adaptations to improve agriculture



John McKay, far left, a plant biologist recently named a CSU Monfort Professor, discusses features of canola root architecture that help the plant tolerate drought stress. The presentation was during the Plant Breeding for Drought Tolerance Short Course, an international event held at CSU last summer for graduate students and faculty. McKay led the course along with fellow College of Agricultural Sciences researchers Bill Bauerle and Pat Byrne, second from right.

Photos by Dan Bihn

It's no wonder John McKay has been pegged as a rising star at Colorado State University. He's making a mark with studies that show how and why plants adapt to local conditions.

Understanding the ecology, evolution and genetics of adaptation in local plant populations is essential to improving agriculture. Highly technical, yes. Yet this is the kind of science that leads to improving drought tolerance and other prized traits in crops.

His dedication to this pursuit earned McKay the vaunted title of Monfort Professor – an award conferred to faculty members

ate professor in the Department of Bioagricultural Sciences and Pest Management. He has made significant contributions to plant biology, especially in the area of plant adaptation, by integrating fundamentals of plant ecology, physiology and evolution to address plant adaptation to climate.

His focus on abiotic stresses – or non-living chemical and physical factors in the environment – is leading to fundamental insights into drought-tolerance mechanisms, a critical focus for agriculture, as has been clear during the drought-stricken 2012 growing season.

“Hundreds of studies have found evi-

Evolutionary Ecology, and Plant Breeding for Drought Tolerance.

McKay is an active mentor for undergraduate students. He and colleague Stephen Chisholm developed and coordinate a Biological Summer Undergraduate Research Enrichment program. Students in the program conduct independent laboratory research, with mentoring and peer interactions that help develop presentation skills, laboratory techniques and experimental design skills.

In addition, McKay has led a plant science outreach effort at a local elementary school that annually exposes thousands of K-12 students and their parents to plant science topics.

McKay has received a number of recent awards and recognitions. For instance, he was one of 20 invited participants to New Phytologist Workshop: Ecological and Evolutionary Genomics of Plant Adaptation in the United Kingdom. He was a featured speaker at the 2011 Keystone Meeting on Plant Abiotic Stress Tolerance Mechanisms, Water and Global. He also was featured speaker at the annual Ecological Genomics Symposium in 2010. And he received the 2009 Community Science Outreach Award from Putnam Elementary School in Fort Collins.



“Hundreds of studies have found evidence for local adaptation in plants. What is missing is the knowledge of the traits and genes that confer adaptation to specific environments.”

— John McKay, plant biologist, associate professor in the Department of Bioagricultural Sciences and Pest Management

whose work makes them rising stars at CSU. McKay received the honor, established by the Monfort Family Foundation, at the Celebrate! Colorado State awards ceremony.

“Dr. McKay’s contributions and achievements have spanned active research in multiple disciplines of plant ecology, genomics, genetics, physiology and evolution,” said Jan Leach, University Distinguished Professor. “His work is characterized by tremendous scientific scope and depth that integrates field and lab studies. Dr. McKay is generous with his comprehensive knowledge and tremendous passion for science, and this benefits his students, post docs, and collaborators, as well as our community.”

The Monfort Professor designation comes with \$150,000 awarded over two years.

“I am extremely grateful for this funding,” McKay said. “It allows me to make strategic investments in my research laboratory to develop projects that hold potential, but are not yet funded by competitive grants.”

McKay is a plant biologist and an associ-

dence for local adaptation in plants,” McKay writes. “What is missing is the knowledge of the traits and genes that confer adaptation to specific environments. This understanding is needed for both applied questions – related to crop breeding, conservation and invasive species, for instance – and to theoretical questions in ecology and evolution.”

McKay has advanced the traditional ecology and evolutionary biology fields by integrating concepts and techniques from genetics, plant physiology, genomics, ecology and evolution to understand plant adaptations to changes in environment. He is nationally and internationally recognized for his knowledge, and because he seamlessly links these areas to understand how genetic changes relate to physiological changes – and how these changes impact plant evolution.

McKay also is known as an excellent teacher, mentor and citizen of the academic community. He has developed and taught three graduate-level courses since joining CSU: Molecular and Genome Evolution,

About the award

The Monfort Family Foundation established the Monfort Professors award in 2002 to reward innovative teaching and research among junior faculty. The program helps CSU recruit and retain talented faculty. Faculty members are nominated for the award and are competitively selected; the designation spans two years. Rajiv Khosla, a professor of precision agriculture in the Department of Soil and Crop Sciences, previously was a Monfort Professor in the College of Agricultural Sciences.

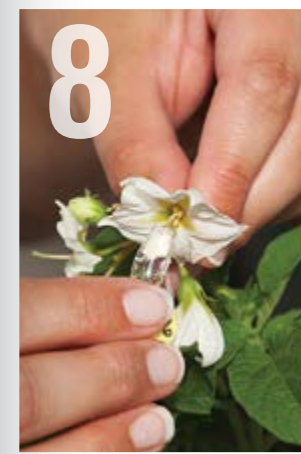
You say POTATO, I SAY COLORADO

CSU spuds grabbed the spotlight this year. Take a look!

1. Colorado potato sales totaled nearly \$250 million in 2011 – making potatoes tops among all fruits and vegetables in Colorado and the state's No. 7 commodity overall.

2. In Colorado, the San Luis Valley is spud hub. The majority of potato acreage here – about 60 percent – is planted in varieties developed by Colorado State University's Potato Breeding and Selection Program.

3. The San Luis Valley Research Center is home base for CSU's potato program. Meet the tater team: Rob Davidson, from left, center manager and specialist in seed potatoes and potato certification; Dave Holm, potato breeder; Sastry Jayanty, authority on post-harvest physiology and storage; and Samuel Essah, expert in potato production, physiology and storage.



4. Dave Holm – email name, “spudmkr.” He leads the Colorado Potato Breeding and Selection Program. The program has released 28 varieties since it began in 1979 – impressive, because it takes 14 years to create a new type of potato. These cultivars have been developed just for Colorado’s environment and markets, with emphasis on yield, sustainability, improved quality, flavor, and human-health benefits.

5. The CSU potato program is a model for its successful work with state growers. In fact, the Colorado Potato Administrative Committee, which represents growers, supports CSU potato research to the tune of about \$250,000 a year.

6. Caroline Gray, a research associate at the San Luis Valley Research Center, works in a greenhouse with potatoes primed for cross-pollinating. The CSU program uses traditional plant-breeding methods; these spuds are not genetically engineered.

7. Gray removes anthers, or male parts, from the flower of a potato plant to collect their pollen. This is a male parent.

8. Now Gray applies pollen from the male parent to the stigma of the female parent. Anthers have been removed from the recipient flower to avoid potential pollen mixes. This way, crosses with desirable progeny can be identified and repeated.

9. Rob Davidson examines microtubers stored long-term for use in tissue culture. This material contains traits that might be useful in future potato breeding.

by Coleman CORNELIUS

10. These plantlets, held by Carolyn Keller, have been propagated through tissue culture. Tissue culturing occurs in the sixth year of the potato-breeding process, when researchers have distinguished a potential new cultivar – called an “advanced selection” – and are working to perfect it for seed certification.



11. Want a tasty tater? Dial up Sastry Jayanty. Here, he collects volatile compounds from a potato. These compounds contribute to a potato’s flavor through a specific aroma profile. Jayanty’s volatile testing adds to potato research, with the aim of producing more flavorful potatoes.

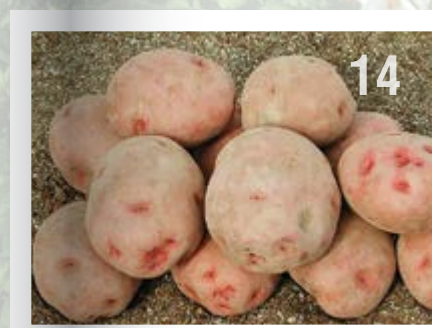


Here are two popular CSU potato varieties that drew special attention during the 2012 growing season:

13. Mountain Rose, released in 2005, is a specialty fresh-market variety with red skin and light-red flesh. It’s a multipurpose potato that’s high in antioxidants. Holm has developed

pigmented potatoes by introducing wild and heirloom potato species during breeding.

14. Sangre, released in 1982, is a fresh-market variety with red skin and white flesh. It’s a flavorful spud that stores well and is good for boiling and baking.



15. Presenting the 2012 White House Kitchen Garden, featuring potato varieties Sangre, Mountain Rose and Canela Russet. That’s right, First Lady Michelle Obama and a group of schoolkids planted the three varieties in the First Garden last spring. All three were developed by the CSU Potato Selection and Breeding Program. Just another sign that our taters are tops!

The CSU potato program is now introducing two new varieties – called Masquerade (**16**) and Crestone Russet (**17**) – with at least one more new variety waiting in the wings for naming and release in the coming year. Look for them at a gardening center or market near you!



Sources: Colorado Department of Agriculture, Colorado Potato Administrative Committee, Colorado Potato Breeding and Selection Program, Obama Foodorama. Photographs by Dan Bihn, Colorado Potato Breeding and Selection Program, and Eddie Gehman Kohan/ObamaFoodorama.com

ORGANIC AGRICULTURE

CSU's Organic Agriculture Program ranks among the nation's very best

by Coleman CORNELIUS

The Organic Agriculture Program, offering the most popular minor in the College of Agricultural Sciences, recently earned a perfect score for the quality and breadth of its teaching, research and outreach from a leading industry foundation that evaluated similar programs at land-grant universities nationwide.

The Colorado State University program was among 70 evaluated by the Organic Farming Research Foundation for its 2012 Land Grant Assessment report. The CSU Organic Agriculture Program was one of just six to attain perfect marks for its offerings.

"As the organic industry has grown from \$7.4 billion in sales in 2001 to \$28.6 billion in 2010, the Organic Farming Research Foundation has expected the land-grant university system to keep up the pace with increased investment in organic research, outreach and training opportunities," according to the foundation report.

The CSU Interdisciplinary Minor in Organic Agriculture, established in 2005, exemplifies the university's sustainability focus. The Organic Agriculture Program benefits from frequent interaction with industry partners, including the prominent Grant Family Farms; from northern Colorado's vibrant farmers market scene; and from university resources, including expert faculty and gardens designed for teaching and research.

The minor has 41 students enrolled in fall 2012, with most

majoring in horticulture or soil and crop sciences.

"We are pleased to offer a high-quality program that appeals to students while also advancing research and engagement in a dynamic sector of agriculture. It's rewarding to receive national recognition for this work," said Craig Beyrouthy, dean of the College of Agricultural Sciences.

Students in the program said they picked the organic path because it focuses on raising food with a philosophy and practices that value long-term environmental sustainability.

This focus plays out as organic farmers and ranchers forgo synthetic fertilizers, pesticides, antibiotics, genetic engineering and added hormones. Instead, producers use naturally derived inputs and management strategies based on knowledge of complex land, water and food systems.

Driving the sharp increase in nationwide sales of organic products is an exploding desire among consumers to understand the sources of their food and how it's produced.

"Organic systems are important to promote. Whatever I do, I want it to be as sustainable as possible."
 — Joseph Jonas, senior in horticulture. Grew up on Midwestern farm raising corn and soybeans using conventional practices and wants to move into organic production.

ORGANIC Continued on page 18



Feeding the Community

The CSU Horticulture Field Research Center north of Fort Collins grows an array of vegetables and berries as part of the university's specialty-crops and organic research. The produce is donated to the Food Bank for Larimer County for individuals and families in need.

Frank Stonaker, co-coordinator of the CSU Organic Agriculture Program, discusses with students a raspberry crop that is grown under screening and evaluated for performance at the Hort Farm north of Fort Collins.



ORGANIC Continued from page 16

Often in the camp of “locavores,” these consumers crave fresh, delicious, healthy food that contributes to local economies – and is raised with sustainable practices that protect global environmental resources.

Overall, organics compose a tiny sector of the agricultural industry. Yet the sector is flourishing as consumers demonstrate their willingness to pay the higher costs of organically and often locally grown food.

“I believe we’re all doing valuable work in agriculture. We all want to feed the world. In our program, we believe the organic approach is the

best way to do that,” said Keegan Athey, a junior majoring in soil and crop sciences with a minor in organic agriculture. Athey assists with research into cost-effective organic production methods for tomatoes, peppers, eggplants, raspberries and other crops at the CSU Horticulture Field Research Center north of Fort Collins.

If you think organic agriculture is crunchy granola stuff, step into a couple classes in the CSU Organic Agriculture Program. There’s a distinctly scientific focus.

“Our program provides students with a strong foundation in soils, pest management and crop production,” said Frank Stonaker, assistant professor in the Department of Horticulture and

Landscape Architecture and co-coordinator of the Organic Agriculture Program.

“Adding to that strong scientific foundation, we’re providing a rigorous understanding of organic agricultural production and the critical-thinking skills needed to objectively compare costs and to dissect perceptions,” Stonaker said. “We want students to thoroughly consider whether organic agriculture is a viable answer, and if so, how to approach it.”

Students take courses in ecology, soil fertility, entomology and plant pathology, among others. They gain hands-on field experience with coursework in composting and in greenhouse, vegetable and fruit production.



“I feel like conventional agriculture has really done a lot for feeding people worldwide, but it has also created environmental issues that we need to address in order to continue meeting food needs.”

— Colton McDonald, senior in horticulture. Completed a summer internship at Grant Family Farms and wants to apply his hands-on and classroom learning by starting a small organic farm.

“The benefits of organic agriculture will eventually speak for themselves because it’s a more sustainable approach. We are growing food with finite resources, and we won’t have to convince people to use resources more efficiently because we won’t have a choice.”

— Sara Kammlade, horticulture graduate student with a focus on organic production. Came to CSU from Illinois and has worked at the CSU Horticulture Field Research Center.



About organics

Consumer demand for organically produced goods has shown double-digit growth for more than a decade, providing market incentives for U.S. farmers across a broad range of products, according to the U.S. Department of Agriculture Economic Research Service.

Organic sales account for more than 3 percent of total U.S. food sales, according to recent industry statistics, the USDA-ERS reports.

There are 333 operations in Colorado that are listed as certified organic by the USDA National Organic Program. This includes farms, ranches, processors and handlers.

Of Colorado organic operations, 119 produced crops, livestock and poultry totaling more than \$70 million in sales in 2011, according to the Certified Organic Production Survey released by USDA in October 2012.



Students Keegan Athey, left, and Sara Kammlade get hands-on experience growing organic produce with direction from faculty expert Frank Stonaker.

Students may extend their learning with options including composting internships, work at the CSU Horticulture Field Research Center, and involvement in the Student Sustainable Garden, a student-run organic garden on campus.

During a summer course called Diagnostics in Organic Systems, students visited Native Hill Farm of Fort Collins to examine soil fertility, irrigation methods, pests, weeds and crop disease alongside the young producers who run the farm.

The students diagnosed tomato spotted wilt virus in some of the farm’s tomato crop and iris yellow streak virus in some of its leeks. Both are spread by thrips, a tiny insect that functions as vector of highly destructive plant pathogens.

Stonaker and Addy Elliott, a faculty member in the Department of Soil and Crop Sciences and co-coordinator of the Organic Agriculture Program, pressed the students to provide solutions.

These included use of resistant varieties, screening over high tunnels, reflective mulch to create insect confusion, sticky traps, pesticides approved for use in organic systems, and predatory mites and minute pirate bugs.

“If you’re providing the best habitat possible for your plants, you shouldn’t have many problems. But it’s hard to get there,” Katie Slota, co-owner of Native Hill Farm, told the students.



ORGANIC Continued on page 39

That's RICH

Students help campus Compost Program thrive

A major effort among Colorado State University's green initiatives – the Compost Program – will mark its second anniversary in April, converting more than half the total food waste from campus residential dining centers into a rich soil amendment.

By then, the program will have produced an estimated 250,000 pounds, or nearly 125 tons, of nutrient-loaded compost for campus flower beds, gardens and landscaping. Come spring, plants will sprout and bloom on the grounds of the very residence halls where students trashed their food waste, the essential ingredient in CSU compost.

Meanwhile, the Compost Program has provided 10 students from CSU's College of Agricultural Sciences with hands-on internships and independent study, prepping them for careers in a new era of sustainability. Student compost work is part of CSU's Organic Agriculture Program, which recently earned a perfect score from a leading industry foundation for its teaching, research and outreach.

"The philosophy and practice of organic agriculture revolve around re-use. In an organic system, it's important to re-use your waste and turn it into something beneficial," said Addy Elliott, known as the university's "compost queen." A faculty member in the Department of Soil and Crop Sciences, Elliott provides program consultation and supervises students working with the composting system.

In its first official year, the alchemic Compost Program – notable for its reliance on university faculty, staff and students – has proven it can transform the problem of food waste into a beneficial product.

by Coleman CORNELIUS

"We have a great team that brings it all together," said Tonie Miyamoto, lead team member for CSU Housing and Dining Services. "The Compost Program got us into the mode of focusing on food waste and diversion paths. Our work has set the stage of our next step of compost expansion."

It's a remarkable achievement for the program that began as a pilot project in April 2011. That's when Housing and Dining Services invested \$140,000 in a fully automated Earth Flow composting system and began operation on the CSU Foothills Campus.

It took several months of fits and starts – marked by equipment troubles and "recipe" tweaks – for the Compost Program to turn the corner and begin running smoothly. So frustrating were those initial months that members of the CSU compost team dubbed their system "Oscar," a reference to Sesame Street's famed grouch.

But the program found its groove. Oscar now processes about 10,000 pounds of waste material every week.

In terms of volume, about one-third of the material is food waste from the bustling Braiden Hall and Ram's Horn residential dining centers on campus. This waste, the compost nitrogen source, is mechanically ground and centrifuged, producing the dense ingredient of food waste, known as "pulp."

The other two-thirds of the compost starter material, the carbon source, is a mix of hay, straw, wood chips and horse manure from the nearby CSU Equine Center.

CSU Facilities Management hauls waste to the composting system, where students feed

Oscar its odiferous meals – amounting to some 2,000 pounds of waste material every weekday.

"You have to be out here frequently to make it work," said Alyssa Eckley, fall semester composting intern and organic agriculture student, as she recently added bins of material to the system. "The Compost Program is great because it shows how agriculture and our food system can be much more of a closed loop."

Eckley and fellow student Cody Baker, completing an independent study project in composting, watched as a large auger churned through rank muck, contained within the mechanized system known as Oscar, occasionally turning up a pineapple top or another vaguely familiar chunk.

"It's so gross, but so cool, right?" Elliott enthused.

As Elliott and her students conferred, the compost check-in quickly became a highly technical and scientific discussion about carbon, nitrogen, temperature, aeration and moisture. In about two months, with proper management of these factors, the muck would transform into a dark, crumbly and pleasantly earthy-smelling soil amendment.

"Compost is useful and it's re-using waste that otherwise would be put in a dump," Baker said, as he used a temperature probe to check the progress of curing compost. "Learning to compost will allow me to keep my soil-fertility program centered on-farm."



"The philosophy and practice of organic agriculture revolve around re-use. In an organic system, it's important to re-use your waste and turn it into something beneficial."
— Addy Elliott, Department of Soil and Crop Sciences, and CSU "compost queen"



See more, do more

Want to see it? Guided tours of the CSU compost system are available by special arrangement. Please call Tim Broderick, CSU Housing and Dining Services sustainability coordinator, (970) 491-3871.

Want to see more? Get a look at three major projects in a tour called, "CSU Sustainability: Earth, Sun & Fire," with stops at the university composting system, solar plant and biomass boiler. Contact RamTrax at (970) 491-6621 or ramtrax@colostate.edu.

Want to know more? Compost resources are available from Colorado State University Extension www.ext.colostate.edu/sam/compost.html.

Want a class? CSU students may enroll in a course called Composting Principles and Practices.



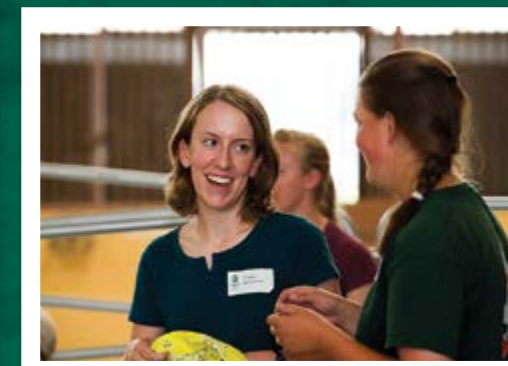
Students Alyssa Eckley, above, and Cody Baker, left, are among students from the CSU Organic Agriculture Program who have helped the university's Compost Program to become successful. Directing them is Addy Elliott, faculty member in the Department of Soil and Crop Sciences.



Ram Camp 2012

YOU'VE earned an A

At the start of each fall semester, the College of Agricultural Sciences welcomes freshmen and transfer students to campus with a special daylong orientation called Ram Camp. The program helps new students connect to our academic community — a key to college success. They interact with faculty members, learn about college programs, meet new friends and take part in team-building. Ram Camp is capped with formation of a human “A,” for agriculture, academics and our Ag Family.



Welcome new Rams!

Photos by Joe MENDOZA



Landscape architecture students turn parking spaces into miniature parks

PARK(ing) DAY



Landscape architecture students at Colorado State University highlighted the value of community open space this fall by participating for the first time in an international design event called PARK(ing) Day.

Four student teams transformed automobile parking spots in Old Town, Fort Collins, into miniature public parks on Sept. 21.

“We’re converting a parking space into a public space,” senior Brandon Parsons explained, as he and teammates put final touches on their design on Laurel Street. The street-side park included containers of rabbitbrush, plum trees and ornamental grasses, along with seats crafted from charred wood, as a reminder of the High Park wildfire that scorched foothills west of Fort Collins last summer.

“The key idea with this installation is the sense of community that draws people together here and helps us move forward. The sense of community is huge in this town,” Parsons said. “We’re also focusing on the value of sustainability, and ways recycled materials can be incorporated into public spaces.”

Judging by responses, passersby approved. “That’s awesome. Wow! Sweet, guys,” one called out while strolling by. Two drivers honked their horns enthusiastically.

PARK(ing) Day, begun in San Francisco in 2005, draws attention to the vital role of public parks, and the ability of thoughtfully designed public spaces to enrich quality of life in communities worldwide. The little street-side parks are temporary – installed for only one day – yet designers hope their ideas about public space take hold permanently.

The CSU student chapter of the American Society of Landscape Architects spearheaded PARK(ing)

by Coleman CORNELIUS

Day in Fort Collins. Student organizers were inspired by a campus visit from John Bela, a noted landscape architect in San Francisco, who started PARK(ing) Day seven years ago.

“PARK(ing) Day encourages people to take part in our community and the civic planning process, and to take your own place and responsibility in that planning process,” said Ben Canales, a CSU landscape architecture major and president of the student group.

Canales and his teammates created a park with wooden pallets, and interpretive materials conveyed the role of these simple skids in sustaining the global economy. The students said they recognize communities aren’t likely to build parks with pallets, yet they wanted to convey a broader concept.

“People will connect with a space if they’re learning something,” Canales said, while hammering together his structure. “The more you can get people to care about a space, the more they will take care of it. As a designer, I’d like to provide a message, not only a place to relax.”

A block away, Stephanie Larsen and her team spread sod over an asphalt parking spot, provided movable wooden benches under a potted maple tree, and used ornamental grasses and a bicycle rack to screen traffic on Mountain Avenue.

“This park promotes green space in an urban environment,” she explained.

Added teammate Brian Horton: “Combining the two systems – urban and natural – is really cool. It says a lot about what you can do in a city.”

Around the corner on College Avenue, landscape architecture students filled a parking spot with plants,

PARK(ING) Continued on page 39



Students in the CSU Landscape Architecture program transform Old Town, Fort Collins, parking spaces into tiny parks on PARK(ing) Day.



Jane Choi, assistant professor of landscape architecture, consults with a student in the program’s design studio.

About CSU Landscape Architecture

- CSU offers the only accredited undergraduate degree program in landscape architecture in the Western states of Colorado, New Mexico, Wyoming and Montana, according to the American Society of Landscape Architects.
- The program began in 1975 and is housed in the CSU Department of Horticulture and Landscape Architecture.
- Curriculum focuses on core drawing and planning skills; understanding of plants and landscaping; and key theories about the relationships between design, nature and society.
- We recently added a master’s degree program in landscape architecture.
- The Harvard connection: Three of our six landscape architecture faculty members were trained or taught at the Harvard University Graduate School of Design; all of our faculty have extensive professional experience.
- For information, visit <http://lamar.colostate.edu/~thinkps/> or call (970) 491-7283.

MEAT *Mastery*

Team wins national championship in Meat Science Quiz Bowl

New team assesses animal welfare

The CSU Department of Animal Sciences has launched a new Animal Welfare Judging Team. Students on the team assess the well-being of food and research animals and present oral reasons to judges. Each competition year has a new four-prong focus. This year's contests assess companion animals in veterinary clinics, laying hens, veal calves, and laboratory mice. Doctoral student Chelsey Shively is leading the team. She is advised by Temple Grandin, CSU's renowned expert in farm-animal welfare.

Judging teams amass championships

Students in the CSU Department of Animal Sciences scored other major wins during the recent academic year:

- National Champion 2011 Arabian Horse Judging Team
- Reserve National Champion 2011 Meat Judging Team
- Reserve National Champion 2012 APHA Horse Judging Team
- Reserve National Champion 2012 Meat Animal Evaluation Team

Dani Shubert and Will Callis perched on stools in the commercial kitchen of the Colorado State University Animal Sciences Building and assessed a flat iron steak.

It's a trendy cut of beef, popping up rubbed and seared in recent years at upscale restaurants, in online recipes, and with celebrity chefs. That's because the flat iron steak is tender, flavorful, and typically costs half as much per pound as prime boneless ribeye.

Shubert and Callis know these attributes, which make the flat iron a foodie favorite. They also know the scientific backstory: This steak is from the infraspinatus muscles of the beef chuck. In isolating the cut by muscle characteristics, meat scientists have transformed the lowly chuck from subprime pot roast into steak that appeals to epicures – and boosts profit potential for the food industry.

Such knowledge helped Shubert, Callis and six fellow CSU students claim the national title in the annual Meat Science Quiz Bowl in June. To become national champions, the CSU group bested 29 other squads from 19 universities across the country during the American Meat Science Association's professional conference at North Dakota State University.

It's the first time the CSU Meat Science Quiz Bowl team has earned a national championship in 11 years of competition. To win, the group beat a team from the University of Nebraska in a tenth round of questioning with a live audience of industry leaders.

"We're very proud of these bright students for successful teamwork that put their learning to use for a first-time national championship," said Kevin Pond, head of the CSU Department of Animal Sciences. "This win reflects overall excellence in CSU's meat science program and adds to our recent reserve national championships in meat judging and meat animal evaluation."

The national Meat Science Quiz Bowl uses a "Jeopardy!" format, with answers signaled by buzzer. But for student competitors, it's no mere trivia contest.

"Competing has helped me understand the science behind the product we're making," said Shubert, an animal science major who will coach the next team. "Our work is meant to improve quality for consumers. In the end, providing them with a safe, wholesome, reasonably affordable protein is the name of the game."

Knowledge needed for winning the national title also gives these Animal Sciences students the con-

"Our work is meant to improve quality for consumers. In the end, providing them with a safe, wholesome, reasonably affordable protein is the name of the game."

— Dani Shubert, animal science major

fidence to interact with meat-industry executives, they said.

"Through the team, I have a very good background in animal science and meat science. That gives me a much more complete understanding of the business," said Callis, who graduated in May with dual degrees in animal science and agricultural economics.

Talk about a complete understanding.

The CSU Meat Science Quiz Bowl team can explain the chemical processes that trigger color changes and impact meat flavor, turning a steak from top pick to manager's special.

Team members can rattle off the most significant federal laws and guidelines of past decades – from the Meat Inspection Act of 1906, partly sparked by Upton Sinclair's "The Jungle," to the sweeping food-safety management system known

MEAT Continued on page 29



Will Callis and Dani Shubert were members of CSU's 2012 National Champion Meat Science Quiz Bowl team.

TRADEMARKS & ICONS

Meat and GREET

Catering students have close encounter with Obama during visit

You might say Animal Sciences student Maggie Weinroth met the president over a steak dinner in Fort Collins.

Shortly before President Barack Obama was scheduled to speak at an Aug. 28 campaign rally on campus, Weinroth was hefting a hot tray of three dozen medium-rare ribeye steaks through the CSU Animal Sciences Building. She was helping to feed members of the Secret Service, national media pool and White House staff.

That's when the president hustled through the building with his security detail and aides, stopping a stunned Weinroth – still gripping the tray of steaks – as she and another student watched Obama stride by.

“I was carrying steaks and wasn't aware he would be coming through. It was a surreal experience to be within a few feet of the president of the United States,” Weinroth, a junior studying animal science, recalled of the close encounter. “We were working, and we figured we weren't going to be able to see him speak. We were not expecting him to be in such close proximity, so it was really, really cool.”

The Obama rally marked the first visit to Fort Collins by a sitting U.S. president and drew 13,000 people to the Monfort Quad just outside the CSU Animal Sciences Building. The stop was part of a campaign tour of college campuses nationwide.

As the crowd gathered at CSU, Weinroth and other student members of the CSU Meat Judging Team and Meat Science Quiz Bowl Team assembled for a different reason: They catered dinner for 65 campus guests, including national news reporters, White House staffers and Secret Service agents traveling with the president. The students prepared and served grilled ribeyes, roasted potatoes, green beans, salad and dinner rolls.

The president did not dine with other visitors in the Animal Sciences Building, nor did he meet the student catering crew as he walked through the building en route to the rally stage. Yet the meal and the students drew rave reviews.

“Your team did such a fantastic job yesterday!” a rally organizer wrote in a thank-you email. “The students were professional and on time. I am packing up the President's traveling pool now . . . and they are continuing to praise and talk about the food, especially the steaks! I've done a lot of these, and I've never ever heard the press talk so much about the catering.”

The eight students who catered at the political rally didn't

have an audience with the president. But preparing a meal for his posse was plenty fun. And the two who unexpectedly encountered President Obama have a college moment to remember.

“I was with Maggie carrying a bowl of butter for the dinner rolls, and we saw him in transit. We were like, ‘Was that really the president?’ It was a pretty unique experience,”

“It was a surreal experience to be within a few feet of the president of the United States.”
— Maggie Weinroth, animal science junior

said Jenna Oxenhandler, a junior on the Meat Judging Team. “I definitely called my mom after that.”

Catering raises money for student teams.

It follows that students on our meats teams raise money for competition by grilling meat.

Members of the Meat Judging Team and Meat Science Quiz Bowl Team work for a campus catering outfit overseen by the CSU Center for Meat Safety and Quality.

The catering group prepares full meals for clients, but its specialty is meat – namely, steak, prime rib, hamburgers, smoked beef brisket and smoked pulled pork.

The group annually caters about 50 campus events, which may draw from 10 to 750 diners.

Earnings cover costs of competition for the two teams. These costs total nearly \$40,000 each year for about 25 undergraduate students, and come in the form of travel, lodging and other expenses incurred for top-tier competition.

Yet the catering experience is more than a simple fund-raising tool; it allows students to practice critical concepts, such as food safety, and to interact with consumers.

“Our entire program benefits by providing students with exposure to the last step in the production chain. They gain a better understanding of consumers and their preferences,” said Dale Woerner, assistant professor in the Department of Animal Sciences and faculty adviser to the teams. Woerner is a meat scientist who oversees the catering venture.

Plus, students who help with catering learn to cook a heck of a steak.



Animal Sciences students Jenna Oxenhandler, left, Maggie Weinroth and Jordan McHenry grill up a storm to raise money for CSU Meat Judging Team competition. McHenry, a graduate student in meat science, coaches the team.

MEAT Continued from page 26

as “Hazard Analysis and Critical Control Points,” instituted by the U.S. Department of Agriculture in 1996.



They can explain how the longissimus dorsi and gluteus medius muscles visible in a strip steak indicate its location in the beef carcass and its tenderness and flavor attributes.

The students said they hope wide-ranging knowledge of industry history, meat quality, food safety, animal physiology, and livestock growth and development will help them pursue science-based careers in agriculture.

In fact, they're well on their way: Shubert had a summer internship in the research and development group of chicken producer Pilgrim's; teammate Barbra Davis helped to conduct a feed study at a large pig farm run by Seaboard Foods;

and Callis is beginning graduate studies in beef economics.

“Quiz Bowl has allowed me to see another aspect of livestock and how their bodies work. It gave me insight into how different feeds can affect an animal throughout its life,” said Davis, a junior who wants to pursue a career in swine nutrition. “It's also been a great way to make connections that will help me in the future.”

Other members of the 2012 CSU Meat Science Quiz Bowl team were: Chloe Goodwin, Lauren Jacobson, Megan Myers, Jenna Oxenhandler and Megan Semler. Scott Howard, a doctoral student, coached the team.



Nutrition PIONEER

CSU's beef-feeding innovator Johnny Matsushima named 2013 Citizen of the West

by Coleman CORNELIUS

In 1936, when he was 15 years old, Johnny Matsushima raised his first Hereford steer as a 4-H project and showed it at the Weld County Fair in Greeley alongside a 4-H rival named Kenny Monfort. Monfort, who would become a Colorado beef mogul, had the grand champion steer at the fair that year. But the diminutive Matsushima – an inquisitive boy dwarfed even by the short cattle of the time – had an idea.

He took his steer back to his family's Platteville farm. He fed the steer a bit longer, hauled the animal to auction at the Denver Stockyards, and fetched top dollar.

Beef-cattle feeding – yielding greater efficiency, profitability and carcass quality – soon would become his forte as an educator and researcher. Matsushima's greatest discoveries came during his 30-year career as a professor in the Colorado State University College of Agricultural Sciences. His innovations helped modernize and expand U.S. beef production with scientific underpinnings, data-based decision making and global reach.

Matsushima's evolution into a foremost scientist



John Matsushima got his start as an expert in beef-cattle nutrition while raising steers for 4-H projects in Weld County.

in beef nutrition helped drive the arc of Monfort's own career as a captain of the nation's cattle feeding and packing industry.

"I don't think Colorado would be a top-five cattle feeding state if it weren't for Johnny's work," said Daryl Tatum, a professor in CSU's Department of Animal Sciences, who is among those carrying Matsushima's torch in understanding links between nutrition and meat quality. "Johnny did as much as anybody in teaching and research to elevate the commercial cattle-feeding industry in Colorado and elsewhere. He was a game-changer."

For his achievements, Matsushima will be hon-

ored on Jan. 14 as 2013 Citizen of the West by the National Western Stock Show. At age 92, he will join a roster of Western luminaries that includes the late Kenny Monfort and W.D. Farr, Matsushima's close industry partners from the heyday of Colorado cattle feeding.

"Johnny represents the best in of the world of academia. He has an inquiring mind that hungers for knowledge, and I just can't say enough about his impact on students. He also represents the best of the world of agriculture. What he has accomplished with people and leaders over the decades is enormous," said Pat Grant, chairman of long-range planning for the National Western and co-chair of the Citizen of the West Steering Committee. "Certainly in the world of beef, I do not know anyone who has had more influence than Johnny Matsushima."

As feedlots were expanding across the state and nation in the 1960s, Matsushima pioneered the process of using steam and mechanical pressure to macerate corn kernels into corn flakes. The process makes starch more digestible in a cow's four-chambered stomach, thus improving feed efficiency by about 10 percent, reducing the amount of grain needed in feedlot rations, and improving profit

margins. The innovation remains a cornerstone of global cattle feeding.

"Efficiency has never been more important than it is today," said Randy Blach, a former Matsushima student and executive vice president of CattleFax, which provides industry analysis. "The technology he developed 50 years ago has more value today than ever before. That's phenomenal."

Blach continued, "Even a 1-percent change in feed efficiency can make significant changes in cost and profitability, so the things he brought the industry have become more and more valuable over time."

The late Kenny Monfort, an early adopter of the technology, joked that he flaked more corn than Kellogg's at his feedlots.

"Although researchers at many universities were working on flaking at the same time, I think Johnny's work was the best and most significant," Monfort told *The Denver Post* for a feature about Matsushima, headlined "Genius of the feedlots" and published in 1967. By then, Monfort was assuming leadership of Monfort of Colorado Inc. from his father, Warren, and was helping establish the first 100,000-head cattle feedlot near Greeley.

"We thought enough of it that we changed our whole feeding program," Monfort said of Matsushima's new, flaky rations. "It's cut down the number of days we have to feed an animal, and we get better conversions of feed to beef. We ran some tests, then we built a plant to make the flaked feed, designing it, mainly, just by listening to Johnny."

Each workday morning, Matsushima obsessively monitored the amount of feed that cattle had consumed – or left behind – in bunks at CSU's old Rigden Farm on the east side of Fort Collins, where the researcher conducted nutrition trials and jotted observations in daily record books. It was part of pinpointing technologies and rations that increased weight gain and decreased time to market.

Such constant questioning sparked Matsushima's big idea in 1961. It was a frigid morning, and he was eating a breakfast of hot cereal with some cattle feeders. Then it hit him: Maybe hot grain would appeal to feedlot cattle. The idea launched his research in steam-flaked feed grains.

"He's one of the pioneers who started developing modern cattle-feeding procedures," said Paul Clayton, senior vice president for export services with the U.S. Meat Export Federation and another former student. "Innovation was one of the things we were really pressed to work on at CSU. He motivated us to think about problems in a different way."

Matsushima recently visited the Kuner Feedlot, a 100,000-head feedyard established by Monfort of Colorado east of Greeley in 1974; it is now owned by JBS Five Rivers Cattle Feeding. A pen of Angus-crossbred cattle watched as Matsushima scooped up a handful of feed from the bunk and examined the mix of flaked corn and bits of silage, distillers grain and molasses-based supplement.

"It hasn't changed much," he noted to Kallen Moore, a young feeds professional who oversees



Old guard and new guard: Matsushima chats with Kallen Moore, feeds specialist at the Kuner Feedlot owned by JBS Five Rivers Cattle Feeding east of Greeley.

moiling at the Kuner Feedlot. The yard was a familiar stop for Matsushima during the 1960s, '70s and '80s, as he worked with large feeders to perfect research discoveries for practical industry application.

"This was a laboratory, definitely," Matsushima said, gazing across the pens, with Longs Peak rising to the west. "I was also able to take the information I learned here to other parts of the world. After all, food is a big issue in many countries, and beef is the choice of animal protein."

Moore laughed when discussing the complexities of modern rations. "Sometimes we thank you, and sometimes we cuss you. But either way, you changed everything," he told Matsushima.

It was a long way from Matsushima's beginning to his standing as an industry pioneer. He credits his

MATSUSHIMA Continued on page 32

About Citizen of the West

The honoree embodies the spirit and determination of the Western pioneer. The Citizen of the West, selected annually by a committee of community leaders, is committed to perpetuating the West's agricultural heritage and ideals.

The recipient is celebrated at a Western gala that attracts about 800 people and raises money for 74 scholarships granted each year by the National Western Scholarship Trust. The scholarships are awarded to college and university students in Colorado and Wyoming who are studying agricultural sciences, large-animal veterinary medicine, and medicine for practice in rural communities.

The Citizen of the West honor roll is a regional Who's Who – political, business, educational, philanthropic, and agricultural leaders who have advanced the West and its people. Past honorees include Kenny Monfort, Bill Coors, Ben Houston, Bill Farr, Sue Anschutz-Rodgers, Hank Brown, and Dick and Eddie Robinson.

John Matsushima is the third Colorado State University faculty or staff member to be named.

Others who have worked for CSU are Fum McGraw, football legend and former athletic director, honored with his wife, Brownie, in 1997; and Albert C. Yates, former university president, honored in 2002.

The 35th award dinner will be Jan. 14, 2013, at the National Western Stock Show Events Center Arena.

TRADEMARKS & ICONS

MATSUSHIMA Continued from page 31

late wife, Dorothy, their children, Bob and Nancy, and other family members, friends and colleagues for forgiving his absences and supporting his tireless work and travels. His perseverance was also essential.

Matsushima was born Dec. 24, 1920, to Japanese immigrants at Mercy Hospital in Denver. He was named Kiichiro and lived his early years in what he describes in his autobiography as a wooden shack near Lafayette. His cradle was an apple crate.

His family spoke only Japanese, and when Kiichiro arrived for first grade at Davidson School in Boulder County his teacher was confounded by the language difference and renamed him “Johnny.” It stuck.

The Matsushima family was poor, but his parents, who had eight children, saved \$4,200 cash at the outset of the Great Depression and bought an 80-acre irrigated vegetable farm near Platteville. They focused on farm work, and as an adolescent Matsushima began contributing to family income by trapping and skinning muskrats, then selling the pelts for up to \$2 each. He used some of the money to buy dairy calves, which he raised and sold for more profit.

He advanced to officer positions in FFA and 4-H, later using project income, combined with scholarships earned for graduating as valedictorian of his class at Platteville High, to attend what is now Colorado State University.

It was a struggle financially. Matsushima worked his way through school and wore the same shoes for two years, patching them with cardboard and rubber from a local tire shop. He obtained bachelor’s and master’s degrees in animal science in 1943 and 1945, then was recruited to the University of

Minnesota for doctoral studies in the fledgling field of beef nutrition; his dissertation reported fattening performance of feedlot steers. It was Matsushima’s launching pad for teaching and research.

World War II was under way as Matsushima studied in Fort Collins, and his college life changed dramatically when Japan bombed Pearl Harbor on Dec. 7, 1941. It didn’t matter that he was born and raised in Colorado; Matsushima’s Japanese heritage drew bigotry.

Local grocery stores hung signs ordering that

“I don’t think Colorado would be a top-five cattle feeding state if it weren’t for Johnny’s work.”

— Daryl Tatum, CSU Department of Animal Sciences professor

“Japs Stay Out.” Matsushima and his roommates, also Japanese-American, couldn’t buy food. So a fellow member of the livestock judging team bought their groceries and delivered them to Matsushima’s basement apartment in the dark of night. Matsushima was banned from a Fort Collins movie theater while out with the judging team, was refused a lift home in a snowstorm, and was denied membership in an academic honors fraternity.

The indignities eventually waned. Matsushima finished his schooling with a growing passion for teaching and research in feeds and feeding. His first job was at the University of Nebraska, where his findings in beef-cattle nutrition got the attention of area cattle feeders. These included Warren Monfort, the prominent cattleman Matsushima

knew from Weld County, who was spearheading a novel approach of year-round cattle feeding with crop surpluses.

The elder Monfort encouraged Matsushima to return to Colorado State University, where he was hired with the promise of a research facility that could annually handle more than 3,500 beef cattle and an appointment that included working with the Colorado Cattle Feeders Association to understand and solve problems.

As Matsushima’s reputation expanded over the years, he became a seminal figure in opening Japan as a market for U.S. beef exports. Central to this role were his technical knowledge, cultural proficiency and language skills, which he had improved with childhood lessons at Japanese summer school.

“Dr. Matsushima’s heritage was a big benefit,” Clayton, of the U.S. Meat Export Federation, observed. “The fact that he was able to get markets to open and give the U.S. the ability to have access to foreign markets is very big, and getting those markets open was very, very difficult. That’s a milepost of his career.”

His crowning achievement was earning the Japanese Emperor Citation, or “Tenno Hosho,” presented in 2009 by Emperor Akihito at the Imperial Palace in Tokyo. Matsushima was honored for promoting quality beef in Japan, for pioneering steam flaking of corn, and for teaching some 10,000 animal science students at three universities. The award typically is given only to national dignitaries and corporate leaders.

It was “perhaps the happiest day of my life,” Matsushima writes in his autobiography.

MATSUSHIMA Continued on page 39



Notable honors

1983: Top Choice Award from the Colorado Cattle Feeders Association, now the Colorado Livestock Association.

1984: National 4-H Alumni Recognition Award from the National 4-H Foundation.

2002: Best Teacher Award from the Colorado State University Alumni Association and Student Alumni Connection.

2003: William E. Morgan Alumni Achievement Award from the Colorado State University Alumni Association. This is the association’s highest honor and is awarded to alumni who have excelled nationally and internationally.

2009: Japanese Emperor Citation, or “Tenno Hosho,” presented at the Imperial Palace in Tokyo. He was honored for promoting quality beef in Japan, pioneering steam flaking of corn, and teaching thousands of animal science students.

The award typically is given only to national dignitaries and corporate leaders.

2010: Colorado Agriculture Hall of Fame induction by the Colorado FFA Foundation; inducted into the Colorado 4-H Hall of Fame the same year.



John Matsushima: Embodying the land-grant university mission

Matsushima worked in beef-cattle nutrition beginning in the 1960s. His career has been unique in its emphasis on improved efficiency for cattle feeders and meat quality to fulfill consumer demands. His career highlights:

Pioneered the use of steam to transform corn kernels and other feed grains into flakes, increasing digestibility. This greatly boosts feed efficiency in cattle – by 10 percent or more in some cases – cuts the amount of corn needed in feedlot rations, and increases profitability for cattle feeders.

Taught an estimated 10,000 undergraduate students at the University of Minnesota, University of Nebraska and

Colorado State University. Served as major adviser to 53 graduate students pursuing master’s and doctoral degrees.

Partnered with Colorado cattle feeders to put discoveries into action, propelling beef to its status as a \$3-billion agricultural sector in Colorado and the state’s top commodity. Colorado is ranked as the fifth state in the nation for cattle on feed.

Began use of antibiotics as an additive in cattle feed, which significantly reduced incidence of liver abscess and other health problems.

Perfected feedlot rations through scientific studies of ingredients.



Matsushima worked closely with Japanese officials to open that country and other Asian markets to U.S. beef exports in the 1980s. This meant developing guidelines for import and export, and addressing knotty legal, economic and food-safety issues.

Helped develop needed equipment, including mobile mixing trucks.

Helped establish cattle feeding worldwide, with focused efforts in Africa, Italy, Australia, Canada, China and Japan.

Established and served for 20 years as superintendent for the Fed Beef Contest at the National Western Stock Show, the nation’s premier carcass contest. Event

promotes data-based decisions among cattle growers, feeders, packers and retailers by looking beyond cattle appearance to measures of carcass and meat quality.

Has authored numerous scientific papers and books, including a self-published autobiography, titled “Broad Horizon – I Fear No Boundaries,” released in fall 2011.



John Matsushima, whose given name is Kiichiro, was born in 1920 at Mercy Hospital in Denver to Yakuye and Kihei Matsushima, who immigrated from Japan.



Matsushima graduated as valedictorian of his class at Platteville High School.



Matsushima and his late wife, Dorothy, are pictured with their two children and grandchildren during an annual family gathering at the National Western Stock Show in Denver.

Making strides in the

HORSE Industry

by Beth ETTER



Vaughn Cook, an expert in equine reproduction and owner of Royal Vista Equine in Fort Collins, received the 2012 Honor Alumnus Award from the College of Agricultural Sciences in early October for his contributions to the college, its students, and the horse industry.

Wave Carver, a 2006 AQHA World Champion, is among the Cooks' best-known horses.



2012 DISTINGUISHED ALUMNI AWARDS

“Vaughn’s encouragement, support, and exacting standards have influenced the careers of countless CSU graduates, and he has been a key factor in placing them throughout the industry,” said Gary Carpenter, industry outreach and liaison director for the college’s renowned Equine Sciences Program. “Through his expertise, knowledge, and rare insight as a horseman and businessman – and his affiliation with research and science – he has helped to advance the state of the art of equine reproduction and equine research for the benefit of the horse and the industry,” Carpenter said.

Cook received his award at Colorado State University’s annual Distinguished Alumni Awards Dinner and Program on Oct. 4. The CSU Alumni Association hosted the program at the start of homecoming weekend.

Cook, who was raised on a Thoroughbred racing farm in southeastern Colorado, graduated in 1974 with a bachelor’s degree in animal science. Since then, he has helped to advance cutting-edge equine reproductive technologies, has ascended to notable leadership positions in the horse industry, and has worked closely with CSU and its students.

After graduating, Cook started work at CSU’s Equine Reproduction Laboratory, eventually collaborating on the lab’s landmark research projects in equine reproduction and embryo transfer.

B.W. Pickett, former director of the Equine Reproduction Laboratory, and Dr. James L. Voss, former dean of the CSU College of Veterinary Medicine and Biomedical Sciences, started a stallion reproduction consulting service; Cook traveled with them across the country, handling top stallions from all breeds. He ultimately managed the lab’s clinical embryo transfer

services, bringing it national acclaim.

In 1992, Cook left the Equine Reproduction Laboratory, and he and his wife, Jill, a CSU veterinary graduate, began running Fossil Creek Equine Services.

The Cooks then established Royal Vista Equine, a breeding management company, which has gained national prominence as a premier embryo transfer facility.

The Cooks also founded a Quarter Horse racing breeding facility, Royal Vista Ranches, in Wayne, Okla. The stallion lineup at Royal Vista Ranches has included such champions as Wave Carver and Ivory James. The Cooks have also raised and owned several Quarter Horse graded stakes-winning homebreds; at the top of the list is 2006 AQHA World Champion Quarter Running Horse Wave Carver, who they co-own.

In addition to his successful business operations, Cook has been involved professionally in the horse industry at the state and national levels. He is the American Quarter Horse Association director for Colorado and has served on several national committees, including AQHA’s stud book and registration committee and the research committee. He is a Rocky Mountain Quarter Horse Association past president and a director of the Colorado Horseman’s Association.

Cook credits his success to his wife, hard work, and a close association with CSU and its graduates. Virtually all of the Cooks’ employees have been CSU alumni, or have gained work experience at the university. He also is a proud father of his daughters, Brandi, Shannon, Bailey, and Jamie.

“Jill and I, as a pair, we succeeded,” Cook said. “I owe a lot to her, to Dr. Pickett, and to the CSU Equine Reproduction Laboratory.”

“He has helped advance the state of the art of equine reproduction.”
— Gary Carpenter, CSU Equine Sciences Program



Vaughn Cook, 2012 Honor Alumnus Award winner from the College of Agricultural Sciences, is an expert in equine reproduction and a leader in the horse industry. He and his wife, Jill, a CSU veterinary alumna, own Royal Vista Equine and Royal Vista Ranches.

Dennis Repp, who earned a bachelor’s degree in agricultural business in 1960, received the 2012 William E. Morgan Alumni Achievement Award from the CSU Alumni Association. After graduating from CSU and completing two advanced degrees, Repp built a remarkable career in business and finance. He managed venture capital operations for Allstate Insurance, and later founded businesses with innovations in technology and biotechnology. With his successful ventures, Repp has become a philanthropist focusing on poverty, education, and the needs of wounded military veterans.



Milan Rewerts, a longtime friend of the College of Agricultural Sciences, received the Distinguished Extension Award from the CSU Alumni Association. Rewerts, who earned a master’s degree in 1974, worked for CSU Extension for nearly 40 years before retiring in 2005. Rewerts was director of CSU Cooperative Extension during the last decade of his career. He worked with several regional and national Extension and agricultural leadership groups, including serving as chair of the Western Regional Extension Directors. Rewerts has received many honors, including the Distinguished Service Award from the National Association of Extension 4-H Agents. He also is a decorated retired colonel of the U.S. Army Reserve.



“It’s been a dream since I watched Silver Charm race in the Kentucky Derby.”

— Caroline Kamer, '09

Charmed, for SURE

Equine graduate lands first job in marketing for Churchill Downs

Like many of our students, Caroline Kamer did not grow up on a farm or ranch. But she did grow up in Louisville, Ky., home of Churchill Downs and the Kentucky Derby. Kamer developed a love for horses and started English riding lessons at age 5. She later showed American Saddlebreds, a breed developed in Kentucky. Kamer also became a racing enthusiast and was smitten with Silver Charm, a legendary gray Thoroughbred who won the 1997 Kentucky Derby and the Preakness Stakes in the Triple Crown. Little did the young horse lover know that Silver Charm would lead her to enroll in the Colorado State University Equine Sciences Program – and on to an amazing first job at Churchill Downs. While visiting campus last summer, Kamer, 26, sat down with *Food for Thought* editor Coleman Cornelius to discuss her upstart career.

Food for Thought: *You grew up across the country in Louisville, Kentucky, so what drew you to majoring in equine science at CSU?*

Kamer: Because of my love for Silver Charm and racing, in high school I had the opportunity to tour Three Chimneys Farm in Midway, Kentucky. Silver Charm had retired to stud there. I was talking to a stallion manager, and I asked, ‘Where do you hire the most people from?’ She said, ‘Colorado State University. Their equine program is great.’ I started looking at it and fell in love. My family always came out to Colorado to ski. I already loved the state, and I came out for a visit my junior year, and I was like, ‘This is the place I want to be.’ It’s funny how Silver Charm linked it all in.

FFT: *So you were charmed by Silver Charm, and then you were charmed by Colorado and CSU. But why did you decide to major in equine science, rather than some other discipline?*

CK: I just knew that I couldn’t have a job that didn’t involve horses. So whether that be business, or marketing, or actually working in the barns, I just knew it had to revolve around the horse to make me happy for a lifelong career. After searching and finding out more about CSU, I just thought it would

be great. There were so many business classes involved that I knew it would be a well-rounded degree, and definitely the best in the nation.

FFT: *How did you wind up working at Churchill Downs?*

CK: During the summer between my freshman and sophomore years at CSU, I worked on the backside at Churchill Downs, in the barns. I found out that a woman I had ridden Saddlebreds with was working in the Brand Development and Marketing Department. The next summer, I reached out to her and asked for a networking interview, and she said, ‘Absolutely.’ I kept in touch with her, then she reached out to me probably six months after I graduated from CSU and said, ‘Hey we have an opening for a seasonal employee. Are you interested?’ So the very next day I had an interview with the entire team, and I was lucky enough to get the position. It really taught me the importance of reaching out. Don’t be scared; it’s OK to network. Most people are happy to speak with you.

FFT: *For people who are not in communications, explain what it means to be a brand development and marketing coordinator.*

CK: Sure. Not only do we carry out marketing for all the events at Churchill Downs racetrack – including the Kentucky Derby and Kentucky Oaks – we also develop new products and strategies to extend the reach of our brands and marketing. I play a large role in rebranding and creating new strategies for all of our websites, which includes churchilldowns.com, kentuckyderby.com and kentuckyoaks.com. I also took over our social media. We call our fans Derby Nation, so it’s Derby year-round. It was very cool taking that over at 55,000 fans, and today it’s over 220,000 fans. I developed our strategy with Twitter, and developed our mobile applications for iPhone and Android, for both Churchill Downs and the Kentucky Derby. My team supports all the different departments, and we’re always developing something new.

FFT: *You started down this career path because of your love for horses and horse racing. Now you*

are truly in communications – and fairly technical communications at that – so your expertise has gone down another path. How are the two fields linked for you?

CK: One thing I realized, even working at Churchill Downs, is 98 percent of people don’t know anything about a horse. So I became very valued because I do have that knowledge. I do know how to make information both understandable and accurate for horsemen and our core horse player, as well as for the horse enthusiast and the entertainment fan. All our fans are horse enthusiasts. That’s the common bond, and that’s where I think I bring a lot to the table.

FFT: *In what ways do you think your degree in equine science and your minor in business administration prepared you for your job?*

CK: My classes – from Intro to Equine Science, Equine Reproduction and

Equine Disease Management – gave me the background to answer a lot of fan questions without even having to look it up. I can answer clearly and concisely and make it understandable to the fan. That’s been essential. The business classes were also great – Marketing, Management, Entrepreneurship – and gave me a strong base for this job. So it’s a really well-rounded degree. I feel like I left CSU with a lot of flexibility.

FFT: *To what degree are you drawn into industry and national debates regarding racehorse health and scandals over drug use, and how do you address those issues in your role?*

CK: I’m very tuned in to it. I feel like if I’m going to educate our fans through social media platforms, I need to be. A lot of people ask, ‘Why would a horse even be on bute?’ (the anti-inflammatory drug phenylbutazone). So I need to be able to explain things clearly, and also represent the company the

way I need to.

FFT: *What has been the most fun aspect of your job at Churchill Downs?*

CK: I am in charge of the Kentucky Oaks Survivors Parade, a parade for ladies who have survived cancer. The Kentucky Oaks, as a race for fillies, is a day to celebrate women, and the Survivors Parade is on the track right before the race. There’s a lot of coordination, and it’s really rewarding. Also, as a horse fan, it’s great just getting so close to the athletes. I’ll wake up early and go see the workouts of the Derby horses before work. Just being close to these amazing horses has been a dream come true for me.

FFT: *What a place to work as a person in the horse industry. Congratulations to you.*

CK: Thank you. It’s been a dream since I watched Silver Charm race in the Kentucky Derby and saw the Twin Spires at Churchill Downs. I’m the only person on my team who goes back to work to watch the races. This is where I want to be, even on my day off. I just love it through and through.



Caroline Kamer
Graduated: 2009, bachelor’s degree, equine science; minor, business administration.
First job: Brand Development & Marketing Coordinator, Kentucky Derby

Connect with your dream career

The Career Services office in the College of Agricultural Sciences helps students identify career interests, connect with potential employers, apply for jobs, and successfully land jobs in their chosen career fields. The office organizes career fairs and resume reviews. Services are free. Contact Career Center Liaison Beka Crocket at beka.crocket@colostate.edu or (970) 491-3721.



Caroline Kamer recently visited the CSU Equine Center.

Suburban girl on a mission to help FEED the World

Gracefully floating across a sheet of ice and feeling the cold wind in my hair, the thrill of landing a jump and the exhilaration of a fast spin – these are a few reasons I’ve been figure skating competitively for 14 years, since I was 5 years old.

by Malinda DEBELL



These days, it surprises me to see people who don’t understand agriculture and who don’t realize how different their lives would be without it.

— Malinda DeBell

It might seem odd that a girl who has spent most of her time in a 32-degree ice rink would attend Colorado State University to major in animal sciences. After all, I grew up in Littleton, focused on school and skating; farm life has never been part of my background.

Yet farm animals caught my attention. Starting in second grade, I made deals with my mom that allowed me to spend summer weeks at a farm in Longmont when I got good grades. As my love for agriculture grew, I became a member of 4-H and completed projects with animals, crops and soil.

So why did a city girl decide to study agriculture? I realized that, even more than ice skating, my passion is helping to feed the world through what I have grown to believe is our most crucial industry – agriculture.

I have come to understand the satisfaction of raising a product that feeds our growing population, which has already passed 7 billion people worldwide. I’ve realized the hard work it takes to be successful, the dedication needed to solve problems, and the urgent demand for more advanced technologies to produce food.

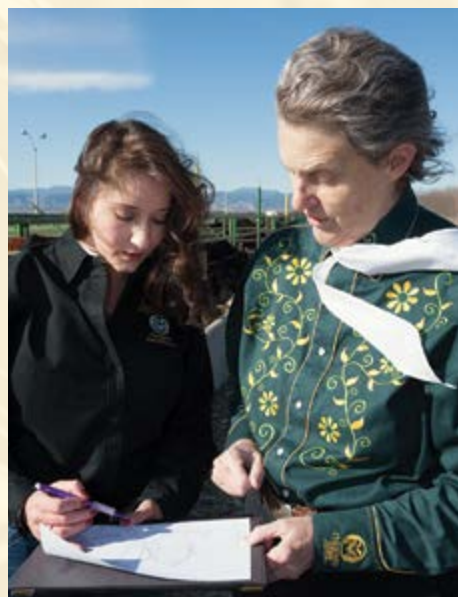
It is very common for students just like me, who have little or no agricultural background, to study in CSU’s College of Agricultural Sciences.

In fall 2011, 60 percent of students enrolled in the College of Agricultural Sciences did not come from a traditional farm or ranch background, according to records from our dean’s office. That means more than half of about 1,550 students in the college had no background in agriculture, yet they were studying some aspect of it.

I chose my major in animal science because I’m passionate about what agriculture is, and what it provides. Agriculture encompasses all of the sciences involved in raising animals and plants for food, fiber, biofuels and other products needed to sustain life. Agriculture gives us a

chance to improve people’s lives and to be a vital part of our world.

These days, it surprises me to see people who don’t understand agriculture and who don’t realize how different their lives would be without it. From the time we awake in the morning, we’re using agricultural products.



Malinda DeBell consults with Temple Grandin, a renowned CSU professor, on a facility design DeBell created for Grandin’s livestock handling class.

Does your bed contain cotton or silk sheets, or feather pillows? As you get ready for the day, do you use water, soap or lotion? Does your kitchen contain fruits, vegetables, grains, milk, sugar, eggs or meat? Did you feed your pet before you left this morning? Did you drive a car with fabric or leather seats?

If you’re like me, you answered “yes” to most of these questions, meaning you’re an avid consum-

er of agricultural products.

I’ve also learned that other agricultural students – whether from a farm and ranch background or not – share my passion for using agricultural sciences to help improve people’s lives.

Recent Department of Animal Sciences graduate Natalie Blackmer told me, “Ag science allows me to use my knowledge and love of animals to directly impact society by helping to provide safer food products and healthier lifestyles through zoonotic disease prevention.”

Katlin Hornig, another Animal Sciences graduate who is now a CSU veterinary student, said, “Agriculture is the heart of everything, our heritage, our soul and our being.”

Austin Piombo, a student from California who is studying agricultural business at CSU, said, “I have a strong passion for the ag industry and everyone who is a part of it. Agriculture has taught me so many life lessons and has given me experiences that I would have never had. It allows you to reach out and get involved.”

In a world where the population is expected to reach 9 billion by 2050, there is an essential need to produce more food and agricultural products with less land and fewer resources. I may have little experience, but I am obtaining a degree in agriculture so that I can help improve and change the world for others.

Malinda DeBell is a sophomore majoring in animal science. She is a member of the Agricultural Ambassadors student leadership program and other student groups in the College of Agricultural Sciences. During fall 2012, she has been writing opinion columns – including this one – for the Rocky Mountain Collegian, the campus newspaper, to share information about agriculture with other CSU students.

PARK(ING) Continued from page 25

along with benches and Adirondack chairs made with recycled wood.

“You can use very simple materials to create something beautiful,” student Micah Sexton noted, while kicking back in the outdoor living room.

Kelly Curl, assistant professor of landscape architecture at CSU and faculty adviser to the student group, said it was great to see students grasp ideas about sustainable public spaces

– featuring fewer paved “hardscapes” and more plant-rich “softscapes” – and take action to proliferate those ideas in their own community.

“PARK(ing) Day is a fantastic opportunity for students to bring concepts about parks to our town. I am proud of students and their success in creating temporary public open space,” Curl said.

“I’m very excited to see where this will go.”



When people learn about a space, they’re more likely to take care of it, says student Ben Canales, left, president of the CSU chapter of the American Society of Landscape Architects.

ORGANIC Continued from page 19



The day concluded with a visit to the CSU Soil, Water and Plant Testing Laboratory, where a discussion about soil fertility quickly became a detailed chemistry lesson.

Another group of students worked late last summer at the CSU Horticulture Field Research Center north of Fort Collins, where they helped conduct variety trials for specialty crops and assisted with research into viable strategies for increasing yields. Much of this research focuses on fresh-market tomato varieties, chiefly because tomatoes are the highest value crop grown for direct marketing to consumers.

The students pointed to cultivars including Cherokee

Purple, Amish Paste, Arkansas Traveler, Striped German and Green Zebra – tomatoes as colorful as their names. The varieties were studied in a production system of tall trellising under high tunnels, a simple greenhouse system covered with screening that effectively extends the growing season and thwarts pests.

Sara Kammlade, a graduate student in horticulture with a focus on organic agriculture, popped a tomato into her mouth.

“We love our jobs. There’s something about caring for plants, raising them and harvesting them that’s really fulfilling,” she said. “Plus, we get to eat the fruits of our labor.”

PATHOGEN Continued from page 9

sustained. The U.S. Department of Agriculture listed the pathogen as a potential agent of bioterrorism because of ramifications for food security if it were mishandled.

The pathogen cannot spread in Colorado because of the state’s dry climate, cold winters, and because rice, the host plant, is not present.

Even so, Leach follows strict regulations in her laboratory

and greenhouse: the tracking of every single rice plant used in experiments; sealed and guarded work spaces; complex decontamination procedures; regular inspections; even screening and fingerprinting of lab workers by the Federal Bureau of Investigation.

“This bacteria is an old friend. I’ve worked with it for 30 years. So

when it was designated as a select agent, I stepped back and said, “What do we need to do?” Leach said.

“As scientists, we are obligated to look at the disease that *Xanthomonas oryzae* causes in rice and to solve this problem. It’s a moral obligation. In order to keep feeding people, we need a more stable resistance.”



Rice...

- Is the most important food crop in the developing world
 - Is the staple food for more than 3 billion people
 - Is grown throughout Asia, typically on small farms
 - Has a critical role in global food security
 - Has been cultivated for millennia
 - Can be grown in wet environments, does not require crop rotation, and can produce three harvests per year
- Source: International Rice Research Institute

MATSUSHIMA Continued from page 32

Matsushima formally retired from CSU in 1992 – with 480 unused sick days – but with his emeritus professor status has maintained an office in the Animal Sciences Building. For a time, he continued to teach, and even now is often in his campus office at 6:30 a.m. for phone calls and emails, before heading home to tend his rose garden, mow his lawn, rake leaves or shovel snow.

“He calls me several times a year and wants updates on data,” Blach, of CattleFax, said. “That tells you it never has been a job for him. He has a passion for the industry.”

As Matsushima recently stood in the Kuner Feedlot surveying cattle, he explained his ongoing quest to gain and share information. “Knowledge never goes out of season,” he said.

ALUMNI NEWS

Harvey Achziger, who received a bachelor's degree in agricultural sciences in 1954, was inducted into the CSU Sports Hall of Fame at a banquet on Oct. 26. Achziger, who lives near Columbia, S.C., was a three-year starter at offensive tackle. He was a two-time All Conference player, a First-Team All American, and played for a year with the Philadelphia Eagles in the NFL.

Thomas Adair, who earned a master's degree in forensic entomology in 2004, has published a thriller titled, "The Scent of Fear," inspired by his 15-year career as an investigator with the Westminster Police Department and Arapahoe County Sheriff's Office. Adair has been board certified as a senior crime scene analyst, and is an expert in bloodstain pattern analysis and footwear examination at crime scenes.

William A. Berg, who earned bachelor's and master's degrees in agronomy in 1953 and 1958, was recognized as an Honored Alumnus of the Department of Soil and Crop Sciences in September. Berg's professional interests have centered on vegetation establishment and management on disturbed lands. He has researched the effects of coal strip mines in eastern Kentucky; has worked on reclamation of mined lands in Colorado's high country; has taught range science at Colorado State University; and has worked as a research soil scientist for the U.S. Department of Agriculture-Agricultural Research Service Southern Plains Range Research Station in western Oklahoma. He and his wife have retired to a small farm in North Carolina.

Fred A. Cholick, who received master's and doctoral degrees in agronomy in 1975 and 1977, was recognized as an Honored Alumnus of the Department of Soil and Crop Sciences in September. Cholick has spent much of his career focused on genetic improvement of wheat in the context of international agricultural development. He worked for many years as a faculty member and administrator at South Dakota State University. Cholick also has served as dean of the College of Agriculture and director of Research and Extension at Kansas State University. He now works as president and CEO of

the Kansas State University Foundation. During his career, Cholick has held a variety of leadership roles with national and international academic, scientific and industry organizations that advance education, agriculture, and international agricultural development.

Neal Fehringer, who earned a bachelor's degree in agronomy in 1979, was recognized as an Honored Alumnus by the Department of Soil and Crop Sciences in September. Fehringer is a Certified Professional Agronomist and Certified Crop Advisor who owns Fehringer Agricultural Consulting Inc. based in Billings, Mont. He consults extensively, provides expert-witness services, and performs contract research. Fehringer has worked for many years with the energy industry, analyzing soil, crop and water impacts of natural-gas production. He also owns Fehringer Ag Strip Tillage and has served on several agricultural advisory committees.

Chris Kraft, owner of Badger Creek Farms and Quail Ridge Dairy, was a featured speaker during the "Future of Food" forum presented on June 28 in Denver by the Washington Post Live and sponsored by the Western Dairy Association. Kraft, who earned a bachelor's degree in animal science in 1990, was part of a panel discussion that also featured Colorado State University President Tony Frank and Colorado Commissioner of Education Robert Hammond. The three discussed critical links between food production and education.

Walid El-Feki, who earned a doctoral degree in soil and crop sciences in 2010, returned to the Department of Soil and Crop Sciences to work as a post-doctoral research associate on drought-tolerant wheat. El-Feki is an assistant professor in the Department of Crop Sciences at the Faculty of Agriculture, Alexandria University Egypt.

Robbie LeValley, who earned bachelor's and master's degrees in animal science in 1987 and 1989, was guest speaker at the 10th annual Calf to Brisket fundraising dinner and seminar hosted by CSU's Collegiate CattleWomen. The event, on Oct. 13 in Fort Collins, raised money to

help members of Collegiate CattleWomen attend the National Cattleman's Beef Association annual convention. LeValley, a third-generation rancher in Hotchkiss, Colo., discussed the role of professional women in the cattle industry. She is a past president of the Colorado Cattlemen's Association and has served on the board of directors for the National Cattlemen's Beef Association. LeValley also is a founder of Colorado Homestead Ranches, a six-family cooperative based in Delta that markets natural beef products directly to consumers. She also has worked as an Extension range and livestock specialist.

Mick Livingston, who earned a bachelor's degree in animal science in 1973, earned the Alton Scofield Award from Colorado State University Extension during an annual banquet on Nov. 5. Livingston is a 4-H/youth agent with CSU Extension, working in the Golden Plains Area, which is headquartered in Burlington. His Extension peers nominated Livingston, and he was selected from a large pool of nominees. Livingston has been active in leading youth education programs, including AgFest, Wild Bug Fish Camp and the Meat Quality Assurance program. AgFest alone reached more than 1,200 young people in Eastern Colorado. The Alton Scofield Award recognizes sustained superior service by an Extension professional throughout his or her career.

Stephen D. Miller, who earned a bachelor's degree in agronomy in 1968, received the inaugural Andrew Vanvig Distinguished Lifetime Achievement Award from the University of Wyoming in September. The award recognizes Miller's leadership in weed sciences and conservation farming practices, and his dedication as a longtime UW professor and director of the Wyoming Agricultural Experiment Station.

Clint Rusk, who earned master's and doctoral degrees in animal reproductive physiology in 1992 and 1997, became head of the Oklahoma State University Department of Animal Science in late July. While at CSU, he earned the Charles N. Shepardson Graduate Student Teaching Award. Rusk earlier worked

as head of the Department of Animal Science at South Dakota State University.

Burt Rutherford, who graduated in 1980 with a degree in agricultural journalism, was honored with the annual Ambassador Award from the Beef Improvement Federation for his work as senior editor for BEEF magazine. The federation gives the award to a media representative for efforts communicating about beef industry issues. Rutherford works in Amarillo, Texas.

Laura Teague, who earned a bachelor's degree in animal science in 1990, serves as a county commissioner representing Fort Morgan in Morgan County, Colo. She and her husband, Gary Teague, who also studied in the college, own Teague Diversified Inc. The business encompasses a 25,000-head feedlot, 2,500 cows, and ranches in Nebraska and Colorado. Gary Teague presented the talk, "Family and Business are the Keys to our Livestock Operation," at the recent Beef + Transparency = Trust seminar led by the Department of Animal Sciences in Denver.

Merle F. Vigil, who received bachelor's and master's degrees in agronomy in 1980 and 1983, was named a fellow of the American Society of Agronomy. Vigil is the research leader and a soil scientist at the U.S. Department of Agriculture-Agricultural Research Service Central Great Plains Research Station in Akron, Colo. His fellowship was conveyed during the society's international scientific meeting in Cincinnati, Ohio, in October.



Clint Rusk

SHARE YOUR NEWS!

Connect with college friends by sending information about your latest pursuits and accomplishments to:

Food for Thought
College of Agricultural Sciences
121 Shepardson Building
Fort Collins, CO 80523-1101

or email coleman.cornelius@colostate.edu



Bill and Sylvia Webster, who earned bachelor's degrees in 1957, served as grand marshals of the Greeley Stampede and Independence Day Parade last summer. Bill, who received a degree in agricultural economics, and Sylvia, who earned a degree in social science, are longtime Greeley residents and supporters of the Stampede, known as the world's largest Fourth of July rodeo and Western celebration. Bill, former president of Webster Land and Cattle Co., also has been active with the National Cattlemen's Association, the United Way of Weld County, and the Greeley Planning Commission. Sylvia, founder of the North Colorado Medical Center Foundation, has served on the local school board and has been active with Weld County arts and charitable organizations.

STUDENT NEWS



Paul Freebury, a senior in the Department of Horticulture and Landscape Architecture, worked as student coordinator for CSU's Annual Flower Trial Garden, a gem in northern Colorado and the largest university trial garden west of the Mississippi River. The role spanned nearly a year and included a variety of research and management responsibilities, including oversight of the student crew whose work makes the Trial Garden a hallmark of the College of Agricultural Sciences.

The **Animal Sciences Academic Quadrathlon** team won three of the four sessions for the Western Section – National Academic Quadrathlon Competition in July. Students representing the Department of Animal Sciences in the national contest were **Natalie Blackmer, Barbra Davis, Emily Thometz and Kaitlin Wright**.

The **Animal Sciences Livestock Judging** Team was champion of the livestock judging contest at the State Fair of Texas in Dallas on Oct. 8. Team members competing were **Kaycee Vollmar, Cody Gifford, Derrick Brown, Whitney Darr and Barbra Davis**.

Cheryl Bowker, a doctoral student in the Graduate Degree Program in Ecology, earned an Ethyl Allen Fellowship from Sigma Delta Epsilon-Graduate Women in Science. The fellowship comes with a \$5,000 award for research. Bowker was one of 10 fellows selected from nearly 200 applicants nationwide. Her award

supports a research project called "Introduction history and patterns of spread of a tritrophic system in a novel habitat."

Emmanuel Caldera, a graduate student studying ruminant nutrition in the Department of Animal Sciences, attended the Latinos in Agriculture Leaders Forum in San Antonio in October. Caldera attended presentations about opportunities for Latino professionals in the agricultural industry. He also took part in a student panel, "What Will it Take to Recruit Me? Hispanic Students Share Their Perspective."

Jessica Davis, in the Department of Soil and Crop Sciences, earned "College Honors" for her presentation at 2012 Celebrate Undergraduate Research and Creativity. Her poster was titled "Comparison of Coleoptile Lengths in Synthetic-Derived Winter Wheat."

Continued on page 42

STUDENT NEWS

Continued from page 41

Members of the CSU English Riding Club traveled to Edinburgh, Scotland, to ride in the Royal (Dick) School of Veterinary Studies Horse Society International Invitational Horse Show in May. The six students rode horses provided by the University of Edinburgh. The CSU students participating were **Cailin Caldwell, Emily Dickson, Taylor Englert, Morgan Klatt, Julie McDermott** and **Delani Miller**.



Alex Harvey, above, a junior majoring in animal science with minors in Spanish and biomedical science, is serving during 2012-13 as a Student Alumni Associate. This volunteer student leadership group works closely with the CSU Alumni Association, interacting with university alumni and helping to promote lifelong engagement with CSU.

Jordan Hergenreder, a senior majoring in animal science, agricultural business, and soil and crop sciences, worked during summer 2012 as an intern in the Washington, D.C., office of U.S. Sen. Michael Bennett of Colorado. Hergenreder, from Longmont, Colo., researched agricultural issues, communicated with the senator's Colorado constituents, observed the legislative process, and helped with a variety of tasks in Bennett's office on Capitol Hill.

Donald Hodgkinson, a senior majoring in soil and crop sciences with a concentration in plant biotechnology, genetics



We've got nice MANRRS! Students in the CSU chapter of Minorities in Agriculture, Natural Resources, and Related Sciences won third place in CANstruction this fall. The design contest is part of Cans Around the Oval, CSU's annual food drive to benefit the Food Bank for Larimer County. The MANRRS chapter donated 584 pounds of food. Students pictured here are **Codi Brooke, Carrie Johnson** and **James Calabaza**.

and breeding, was named a Golden Opportunity Scholar by the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America. Hodgkinson, from Burlington, Colo., attended the societies' international scientific meetings in Cincinnati, Ohio, in October. He took part in a special mentorship program to gain guidance, professional contacts and encouragement in his chosen career field.

Eight students in the College of Agricultural Sciences – including five young military veterans – volunteered with **Honor Flight Northern Colorado** in September. Each spring and fall, the nonprofit provides two-day, fully paid trips to Baltimore and Washington, D.C., for about 120 northern Colorado veterans of World War II and the Korean War; Purple Heart recipients also may attend. The trips include guided visits to national war memorials and monuments. Volunteers assist with celebratory send-off and welcome-home ceremonies. The students who volunteered in September are: **Megan Beauprez**, a sophomore in animal science; **Ben Carpenter**, a veteran in agricultural business; **Ean Clay**, a senior in soil and crop sciences; **Elliot Demos** and **Devin Schaedig**,

both veterans in soil and crop sciences; **Jamie Lew**, a veteran in animal science; **Sheldon Skovgaard**, a veteran in agricultural economics; and **Deborah Stewart**, a sophomore in soil and crop sciences.



Katlin Hornig, above, a spring 2012 graduate in animal science, earned the Charles N. Shepardson Agricultural Student Leadership Award in May and was a featured speaker during commencement. Hornig, who since has entered CSU's Professional Veterinary Medical Program,

grew up raising Brabant Belgian draft horses in southern Colorado. She earned a coveted Boettcher Scholarship and was in the University Honors Program. Her senior Honors research project was titled "A Comprehensive Study of Carbohydrate and Fat Metabolism in Ovines throughout Gestation and Post-Partum," in which she identified a more accurate way to diagnose pregnancy toxemia in sheep. Hornig was an Agricultural Ambassador in the College of Agricultural Sciences and worked at the CSU Veterinary Teaching Hospital.



Hannah Larson, above, a senior majoring in animal science, was selected to serve as Presidential Ambassador during 2012-13. These student leaders represent the Office of the President at special events and activities, interact with an array of university constituents, and work to advance public understanding of CSU and its role in student growth and success.

Eight College of Agricultural Sciences students were selected to represent CSU at the **National FFA Convention** in Indianapolis in October. The students touted the theme, "FFA + CSU – We Launch Leaders." Those attending were **Elizabeth Boyd, Shelby Cochran, Bailey Field, Carlynn Korsch, Jennifer LaTour, Landan Schaffert, Shotika Smith** and **Tyler Witter**.

Jessica Milstein, a junior majoring in agricultural education with minors in agricultural business and Spanish, was recently selected by the National FFA Organization as a National Collegiate Agriculture Ambassador. Milstein, from

Hotchkiss Colo., will spend two years presenting information to people of all ages – and throughout the country – about the importance of agriculture.

Douglas Winter, a U.S. Navy veteran and a senior in agricultural business, received a \$14,500 scholarship that is allowing him to travel and study in Uzbekistan and Kazakhstan during the 2012-13 academic year. Winter earned a Boren Scholarship, funded

by the National Security Education Program, which focuses on geographic areas, languages and fields of study deemed critical to U.S. national security. He is the first CSU undergraduate to receive a Boren Scholarship since 2001. Winter, who is interested in foreign policy and food security, hopes to gain Russian language proficiency and a better understanding of the region's politics and history.



Kacie McCarthy, a senior majoring in animal science, has excelled as pitcher for the Colorado State University softball team. McCarthy was named 2012 Mountain West Conference Pitcher of the Year, then was selected to the National Fastpitch Coaches Association's Pacific Region second team. Her talents extend to the classroom: McCarthy, from Shingletown, Calif., was among 68 CSU student-athletes to earn academic all-conference accolades from the Mountain West during winter and spring seasons. *Photo by Dan Byers*

FACULTY AND STAFF NEWS



Three members of the College of Agricultural Sciences faculty and staff finished the 2012 Ride the Rockies, a grueling bicycle ride that spanned six days, 442 miles, and 24,937 vertical feet of elevation gain in Colorado's Rocky Mountains. Completing the ride were **Karen Allison**, student coordinator in the Department of Soil and Crop Sciences (top, pictured on left with friends atop Trail Ridge Road in Rocky Mountain National Park); **Ed Peyronnin**, director of information technology for the college; and **Zach Johnson**, an associate professor in the Department of Horticulture and Landscape Architecture (Peyronnin, above left, and Johnson are shown at the summit of Independence Pass near Aspen).

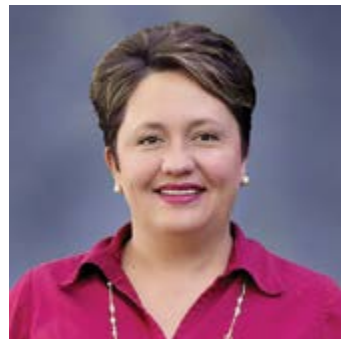


Jason Ahola, left, associate professor of beef production systems, was named a Top 10 Industry Leader for the region by Cattle Business Weekly, a leading agricultural newspaper. Ahola was the only Colorado professional recognized. He was cited for work as faculty adviser to the CSU Seedstock Merchandising Team, which gives Animal Sciences students hands-on experience in the beef business.

Continued on page 44

FACULTY AND STAFF NEWS

Continued from page 43



Shannon Archibeque-Engle, above, director of undergraduate programs in the Department of Animal Sciences, was a featured presenter at the second annual Latinos in Agriculture Leaders Forum in San Antonio, Texas, in October. The forum brought together industry, education and government representatives to explore ways to improve professional Latino representation in agriculture and related industries. Archibeque-Engle discussed the role of advising in attracting and retaining Latino college students studying agricultural sciences.

Troy Bauder and **Erik Wardle**, faculty members in the Department of Soil and Crop Sciences, led a presentation in August regarding the benefits of conservation tillage under furrow irrigation. The demonstration field day, at Colorado State University's Agricultural Research, Development and Education Center, drew about four dozen farmers, conservation district staff members and commodity group representatives. The CSU researchers discussed results from a conservation tillage project in its second year at ARDEC.

Thomas Borch, below, an associate professor of environmental chemistry



Temple Grandin, professor in the Department of Animal Sciences, was the featured guest at a public event hosted in by Rocky Mountain PBS in August. The event included a showing of "The World Needs All Kinds of Minds," a 30-minute documentary about Grandin and her work, which was produced by Colorado State University Communications and Creative Services. Grandin, a world-renowned animal-welfare expert who has overcome personal struggles with autism, also took part in a question-and-answer session with the audience. The event raised about \$2,000 for the Dr. Temple Grandin Scholarship in Animal Behavior and Welfare, which supports Grandin's graduate students. *Photo by Rosalie Winard*

and biogeochemistry in the Department of Soil and Crop Sciences, was one of 15 international researchers identified as "Emerging Investigators" by the prestigious Journal of Environmental Monitoring in June. As part of the honor, the journal published a research paper from Borch, titled "Determination of contaminant levels and remediation efficacy in groundwater at the former in situ recovery uranium mine." The journal called Borch and the other honorees "the new elite" in the field of environmental science and engineering.

Patrick Byrne, graduate student coordinator and a professor of plant breeding and genetics in the Department of Soil and Crop Sciences, was named a fellow of the Crop Science Society of America. Byrne's research focuses on the application of quantitative and molecular genetics to crop improvement. Since 2000, Byrne has led public outreach programs on the risks and benefits of genetically engineered crops, making presentations statewide, nationally and internationally on the hot-button topic.

He has established an educational website at <http://cls.casa.colostate.edu/TransgenicCrops>.

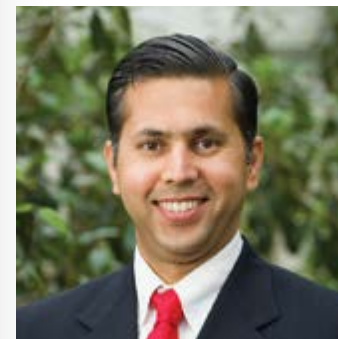


Ruben Flores, above, assistant director of undergraduate programs for the college, was a member of the planning committee for the second annual Latinos in Agriculture Leaders Forum in San Antonio, Texas, in October. The forum brought together industry, education and government representatives to explore ways to improve professional Latino representation in agriculture and related industries.

Lawrence Goodridge, a food microbiologist in the Department of Animal Sciences, will help host the premier international scientific meeting regarding foodborne E. coli infections that pose global health concerns. The next International Symposium on Verocytotoxin Producing Escherichia coli Infections will be in Boston in 2015. Goodridge, an associate professor and researcher, specializes in development of novel methods to detect and control the spread of foodborne pathogens, with a focus on E. coli. Other hosts will be the Agricultural Research Service Food Safety Program and Ohio State University.

Ajay Jha, assistant professor of international horticulture, and **William Spencer**, emeritus associate professor of agricultural and resource economics, led a study tour for 10 senior-level water-management and horticulture professionals from Pakistan in June. The tour was supported by funding from the U.S. Agency for International Development. The tour provided visitors with insights into watershed manage-

ment, conservation practices, irrigation technologies, and other strategies critical to improved production of high value horticultural crops, even with limited water supplies.



Rajiv Khosla, above, professor of precision agriculture in the Department of Soil and Crop Sciences, earned the Applied Research Award from the Soil Science Society of America. Khosla has developed an undergraduate program in applied information technology in agriculture. He has served as president of the International Society of Precision Agriculture. Khosla also serves on a federal panel, called the National Space-Based Positioning, Navigation and Timing Advisory Board. The board, sponsored by NASA, helps develop national policy on the use of space-based technologies. In 2012-13, Khosla holds an appointment as a Jefferson Science Fellow. The fellowship program, coordinated by the National Academies, allows Khosla to work with the U.S. Department of State to shape federal policy on global food security.

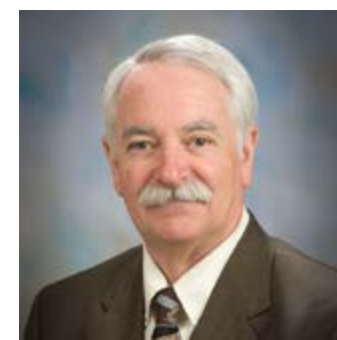
John Loomis, professor in the Department of Agricultural and Resource Economics, received the college's Distinguished Career Award in May. Loomis has amassed an impressive body of research into the economic valuation of non-marketed natural resources, such as rivers, endangered species and public lands. His research findings and books have informed public policy on a wide range of natural resource issues. Loomis teaches classes including "Economics of Outdoor Recreation," "Environmental Economics" and "Research Methods." He also has been a dedicated advisor to dozens of CSU graduate students.

Jan Naves, who handled budgeting, finance and human resources for the college, retired in October after working for 25 years at CSU. She received the

college's 2011 Administrative Professional Excellence Award; she is known for her warm and upbeat manner, and for her efficiency and professionalism.

Rick Novak is the new director of Colorado Seed Programs at CSU. Novak, also manager of the Colorado Seed Growers Association, will provide leadership for managers of seed certification, Agronomy Foundation Seed and the Colorado Seed Lab. He earlier worked for Syngenta as the production and supply manager for North America Cereals, and as an Extension specialist in seed production.

Gary "Pete" Peterson, professor emeritus and former head of the CSU Department of Soil and Crop Sciences, received a Distinguished Service Award from the Soil Science Society of America. Peterson served as president of the Soil Science Society of America in 2008. He also has served as editor-in-chief of American Society of Agronomy publications, and as editor, soils-technical editor, and soils-associate editor for Agronomy Journal. His research has focused on the application of soil science principles to management problems in the field, with emphasis on dryland cropping systems that conserve water and minimize soil erosion. He has been a major professor for dozens of graduate students and has authored or co-authored numerous scientific papers.



Kevin Pond, above, head of the Department of Animal Sciences, has been named secretary of the National Association for the Advancement of Animal Science. The association formed to advocate more effectively for federal research funding in animal agriculture. The group is made up of heads of university departments dedicated to animal agriculture; they represent universities nationwide.



Robert A. Young, professor emeritus in the Department of Agricultural and Resource Economics, was honoree and featured speaker at the department's inaugural Legacy Lecture in September. Young discussed his career as a water resource and agricultural policy economist with more than 40 years of applied research, teaching and consulting experience. He also conferred the first Dr. Robert A. Young Scholarship in Water Economics to recipient **Allison Gunter**, a graduate student in the department. Young, who continues to work nationally and internationally, has focused on methods for economic evaluation of proposed public policies for investments in and allocation of water supplies. His book, "Determining the Economic Value of Water: Concepts and Methods," prepared with support from the World Bank, was published by Resources for the Future Press in 2005.

Noa Roman-Muniz, a faculty member in the Department of Animal Sciences and Extension dairy specialist, received an award sponsored by Water Pik Inc. and the CSU Athletic Department recognizing her dedicated service and excellence in teaching. The award was conferred by Ram Student-Athletes at a home football game.

Tori Valdez, a research associate in the CSU Wheat Breeding Program, received the 2012 Jeannie Borlaug Laube Women in Triticum Award. This award provides professional development opportunities for women working in wheat during the early stages of their career. Valdez is among five international award recipients in 2012. She was invited to a technical workshop in Beijing, China, in September.

Jorge Vivanco, a professor of rhizosphere biology, is serving as a mentor for the NITROGEN Ideas Lab coordinated by the National Science Foundation. He will help select participants in the

Ideas Lab and will assist in developing research projects that investigate the role of nitrogen in producing food, while reducing pollution and greenhouse gas emissions.

Dale Woerner, meat scientist and assistant professor in the Department of Animal Sciences, helped host a group of editors from Korea's leading lifestyle magazines at CSU's Agricultural Research, Development and Education Center in Fort Collins in early September. The tour highlighted the quality and safety of U.S. beef for influential media representatives in Korea, the No. 5 market for U.S. beef exports. Other tour stops included a Wyoming cattle ranch and a high-end Manhattan steakhouse. The U.S. Meat Export Federation, based in Denver, organized the tour. Also in September, Woerner presented information about U.S. beef production, processing and grading during a seminar for importers and distributors in Santiago, Chile, one of the hottest global markets for U.S. beef.

MORSELS

Beef workshop offers facts from the inside

Building consumer trust was the aim of a first-time event called **Beef + Transparency = Trust**, held Oct. 3 at the Renaissance Hotel Denver and organized by faculty in the Department of Animal Sciences. Attending the event were about 110 invited food writers, dietitians, chefs and representatives of agricultural media outlets. These attendees – who influence consumer opinions and decisions – gained information about modern beef production from about a dozen scientists, business people and family ranchers. The seminar addressed a rise in consumer interest about food sources by providing facts from those who know most about beef production. The event was supported by the Colorado Beef Council, with input from the Colorado Dietetic Association and Colorado Chefs Association. Faculty member Travis Hoffman was lead organizer of the event, with help from Dale Woerner, assistant professor with CSU's Center for Meat Safety and Quality.



Ag Day 2012, at Hughes Stadium on Sept. 22, was a fall highlight for the College of Agricultural Sciences. The event attracted 3,300 people for a football-day feast of Colorado food. The 31st annual gathering celebrated agriculture while raising money for scholarships awarded to students studying agricultural sciences. Visit www.day.com for next fall's date, and join us!



President Tony Frank presented Dick Monfort with an honorary degree at the Colorado State University Graduate School Commencement Ceremony, May 11, 2012.

Monfort earns honorary doctorate for contributions

Dick Monfort, who has longtime ties to agriculture and Colorado State University, received an honorary doctoral degree during university commencement in May. President Tony Frank conferred the Doctor of Humane Letters, Honoris Causa, in recognition of Monfort's significant contributions to Colorado, industry and higher education in northern Colorado. Monfort is owner, chairman and chief executive officer for the Colorado Rockies

Major League Baseball Club. He spent 25 years in the cattle business, serving as president of Monfort of Colorado, the renowned beef company founded by his family, and ConAgra Red Meats Co. Monfort and the Monfort Family Foundation are among northern Colorado's leading philanthropists. CSU programs supported by the Monforts have helped the university host global leaders – and attract and retain outstanding students and faculty.

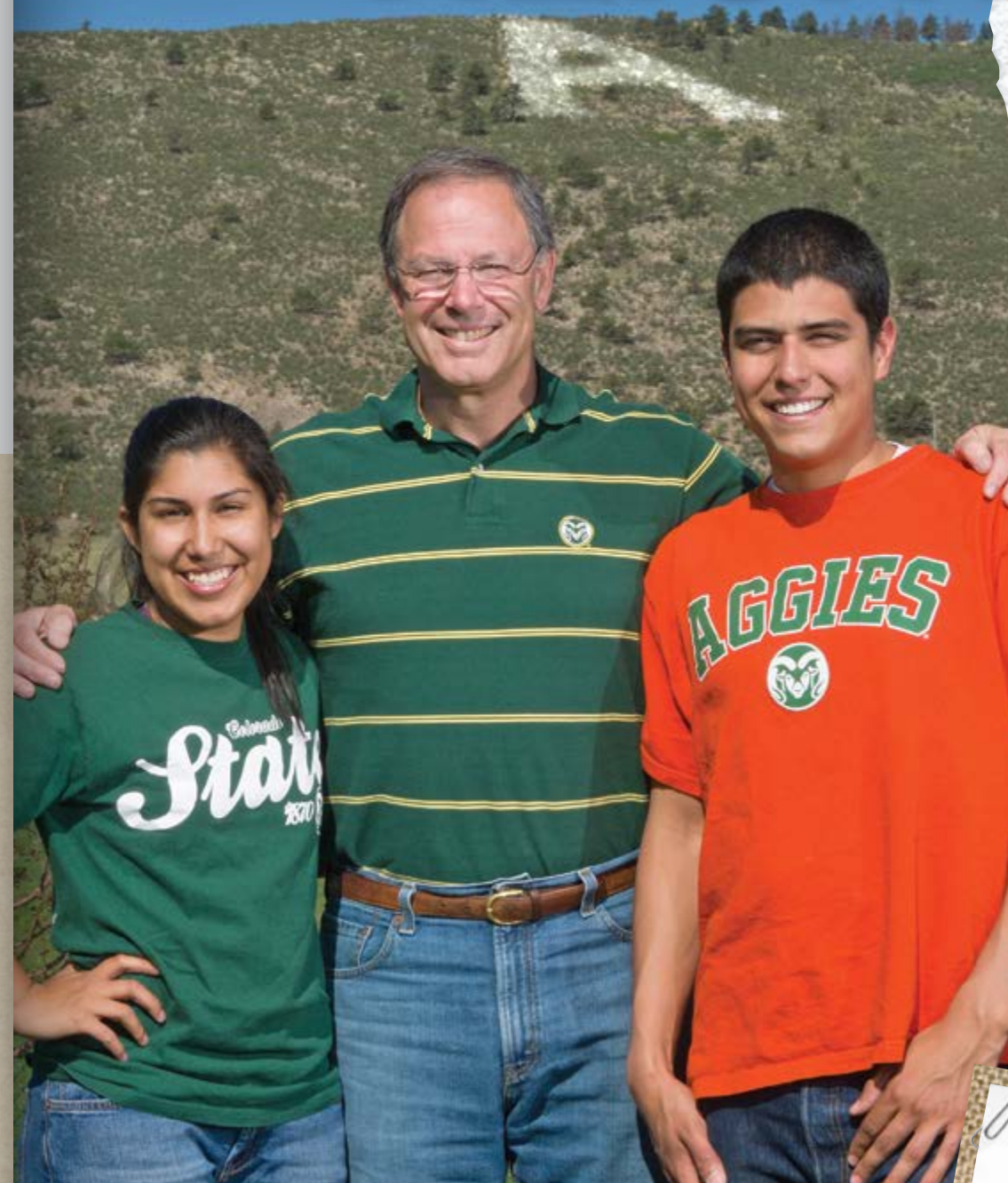
Lecture delves into a-maize-ing possibilities

The 13th annual **Thornton-Massa Lecture** in early November featured an invited public talk by Edward Buckler, a leading plant geneticist with the U.S. Department of Agriculture-Agricultural Research Service and Cornell University.

Buckler discussed ways to use cutting-edge genetic tools to improve corn for yield, drought tolerance, nutritional value, environmental benefits, and even perennial cropping. Buckler was named 2011 Distinguished Senior Research Scientist by USDA-ARS for developing maize with significantly higher levels of carotenoids for subsistence farmers in sub-Saharan Africa, where corn is a dominant food crop and vitamin A deficiencies often cause childhood blindness and immune dysfunction. The Thornton-Massa Lecture is presented by the colleges of Agricultural Sciences and Natural Sciences; it is generously supported by the families of the late Emil Massa and Bruce and Mildred Thornton, who believed in the importance of advanced plant sciences.



TAKING THE **A** TO NEW HEIGHTS



Feed the world.
Protect the environment.
Improve quality of life.

In the College of Agricultural Sciences, you will build on Aggie traditions to help solve the grand challenges of our times. Our global population will top 9 billion people as you reach the peak of your career. That makes agriculture more important than ever before. And it gives you the chance to master contemporary agricultural sciences that will make a difference. Here you'll have a supportive academic family and inspirational professors. You'll receive meaningful learning in the field, through clubs and activities, with internships, and in research laboratories. All this, in the unmatched setting of Colorado. Now that's taking our Aggie "A" to new heights!



About 54,400 new jobs will be available in the United States every year through 2015 for people with degrees in agricultural sciences and related fields, according to the newest U.S. Department of Agriculture jobs forecast.

Dean Craig Beyrouthy leads teaching, research and outreach in the CSU College of Agricultural Sciences. Megan Riveros, from Whittier, California, and Ben Canales, from Tacoma, Washington, support these efforts as Agricultural Ambassadors – student leaders for our college.



College of Agricultural Sciences
121 Shepardson Building
Fort Collins, CO 80523

Morrill Land-Grant Act

Thank you,

PRESIDENT LINCOLN

150 years of great university teaching, research and outreach

On July 2, 1862, President Abraham Lincoln signed the transformative Morrill Act, which led to creation of Colorado State University and other land-grant universities nationwide.

Until then, college education was for the privileged few. The Morrill Act established universities for the broad populace, with a focus on agricultural sciences and the mechanical arts.

CSU and other land-grant universities have become tremendous engines for discovery, economic development and community engagement. We're proud to carry the land-grant tradition to a new era!

Learn more at www.colostate.edu/morrillact



Colorado State University
COLLEGE OF AGRICULTURAL SCIENCES



150 YEARS
OF OPPORTUNITY