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DATES TO REMEMBER
October
  1  WSU at Colorado
  8  WSU at UCLA
  15 Homecoming! WSU vs. Stanford; CAHNRS Hall of
    Honored Alumni & Friends; School of Economic Sciences
    Alumni & Friends Weekend—Visit ses.wsu.edu for more
    information.
  22 WSU vs. Oregon State at Century Link Field, Seattle
  29 WSU at Oregon

November
  5  WSU at California
  12 WSU vs. Arizona State,
    Dad’s Weekend
  19 WSU vs. Utah, Armed Forces
    Weekend
  26 Apple Cup! WSU at Washington

Save the date! 2012 events
April
  13– Scholarship Reception
  15  Mom’s Weekend
  25 Golden & Diamond Grad
    Reunion Luncheon (Classes of ’42, ’52, ’62)
June
  14 WSU Dryland Research Station
    Field Day, Lind
  27 WSU Wilke Farm Field Day, Davenport
  28 WSU/USDA-ARS Palouse
    Conservation Field Station Field Day, Pullman
August
  20– Auction of Washington Wines,
    22  Woodinville, WA
    auctionofwashingtonwines.org

CAHNRS Alumni &
Friends website:
cahnrsalumni.wsu.edu

COVER:  Photo collage by Gerald Steffen,
CAHNRS and WSU Extension MNEC.

LEFT: Abelson greenhouse. Photo by Robert
Hubner, WSU Photo Services.
A Partnership that Pays Both Ways

December 4, 2010, will go down in the annals of Washington State University as a truly historic day. As Cougs and supporters gathered at locations around the state—including our CAHNRS research and Extension centers at Mount Vernon, Prosser, Puyallup, and Wenatchee—President Elson Floyd announced the $1 billion “Campaign for Washington State University: Because the World Needs Big Ideas.”

Never in its 120 years has Washington State University undertaken such an ambitious and important campaign. Never in its 120 years has Washington State University research, teaching and outreach been so sorely needed. Big science-based ideas from our college—delivered, applied, and tested by WSU Extension in every corner of the state—are literally changing the world.

Plant science discoveries by WSU scientists continue to help feed a hungry world and ensure our food security and safety. Joe Poovaiah, for example, is working on research that will enable non-leguminous crops to fix nitrogen in the soil, potentially eliminating the need for petroleum-based fertilizers. Wheat breeder Michael Pumphrey and plant pathologist Tim Murray are on the front lines of the world’s war against UG99, a deadly rust threatening world wheat production.

The plant sciences also are among the very best hopes for energy independence at home and abroad. CAHNRS scientists are looking at oilseed crops like camelina as well as woody biomass as new fuel sources, especially for the aviation industry.

In tree fruit, our scientists are leveraging the very latest genetic and genomic tools to create better fruit varieties faster in order to keep Washington apple, pear, and cherry growers competitive in a global market. Those are big ideas. CAHNRS researchers also are leveraging the latest technology such as AgWeatherNet and DecisionAide to help growers know when and where to apply inputs and to guide other best practices. Extension educators throughout the state have been key in helping growers adopt these new technologies.

What about the big idea Walter Clore and Chaz Nagle had some 40 years ago? Without the work of these two WSU scientists and the work of faculty members and Extension educators throughout the state, the Washington wine industry would not be the world powerhouse it is today. Washington State University has the largest cadre of faculty focused on emerging issues of cool-climate wines in the United States. Every day, WSU scientists in the College of Agricultural, Human, and Natural Resource Sciences are finding new ways to keep all facets of the Pacific Northwest wine industry environmentally sustainable and economically profitable to ensure the production of distinctive, high quality wines.

In the area of natural resource sciences, WSU Extension is on the front lines of preserving water quality in the state with programs like Shore Stewards, Beach Watchers, and the Puget Sound Partnership. Scientists like John Stark and others are looking at issues of water quality and their impact on salmon and wildlife.

And, don’t forget the big “H” in CAHNRS, which represents all of the human sciences in the college—human development, economics, and the design disciplines. They now are working on increasing the depth and range of their research and creative scholarship. For example, research about parenting and family dynamics is being delivered and having a profound impact on households throughout the state via WSU Extension’s Strengthening Families Program.

Another big idea crosses all CAHNRS departments—growing visionary leaders for the future. The Transformational, Teaching, Learning, and Leadership Initiative builds on the successes we have established by helping students learn beyond the book and classroom with value-added involvement opportunities in clubs, internships, service learning, and other hands-on experiences.

This $1 billion campaign is insurance that big ideas will keep coming from the faculty, staff, and students at Washington State University for the benefit of humankind all over the globe. For the college and WSU Extension, raising our $240 million component means transformation from good to great, from great to world-class in teaching, research, and Extension in every program and department.

Go Cougs!
You’re a part of the WSU family… Is WSU a part of yours?

When you become a Legacy Associate, you make WSU a member of your family. By naming WSU in your will or trust, or as a beneficiary of your life insurance or retirement plan, you create a permanent legacy supporting the future of WSU.

To create your legacy at WSU, contact the Gift Planning Office at 800-448-2978 or by e-mail to gift-planning@wsu.edu.
AMDT students see China’s link in supply chain

BY NELLA LETIZIA

FIVE APPAREL, Merchandising, Design, and Textiles (AMDT) students and Professor Karen Leonas traveled to China May 14–June 4 to learn about textile, apparel, and soft goods manufacturing overseas. They visited apparel and textile companies, manufacturing plants, and corporate headquarters; listened to industry guest speakers; and toured major cultural sites.

Leonas developed the inaugural China trip as a way for students to learn about the industry from “concept to consumer” and to understand two major influencers in its transformation: geographic relocation of manufacturing and technological advancements. Textile manufacturing has gone global, with roughly 97 percent of general apparel goods and 66 percent of high-performance textiles being imported into the United States. At the same time, Web-based communication structures, computer-aided design, and product life cycle management have made the industry high tech and fast paced. With the advent of social networking sites like Facebook, it’s also consumer-driven.

“We now work in a supply chain, and China is a major factor in that. I really wanted students to see the supply chain in action,” Leonas said. “‘Concept to consumer’ is an intricate process, and most of this is implemented offshore. Students have to understand all aspects of this continuum. They also have to keep in mind the cultural and historical perspectives of China.”

Among the Shanghai and Hangzhou highlights, students Marsha Baerlocher, Sarah Baldridge, Kailey Counsell, Julie Gance, and Joelle Jalek previewed the fall 2012 fabric line by Winnitex Limited, a provider for Eddie Bauer, and visited its textile weaving/dyeing plant. They met with the head of sourcing and the lead bag designer for Hengfeng, which supplies outdoor gear to Costco and REI, and toured its headquarters and one manufacturing plant. The students also met designers and merchandisers from C&K Apparel, producers for Next, Marks & Spencer, Miss Selfridge, and Target, among others.

Leonas and the group learned about testing by visiting STR, a third-party tester that randomly pulls clothing samples to ensure they meet clients’ requirements. Along with quality control, STR tests whether items pass flammability and lead paint requirements and monitors companies for compliance to human rights. “It used to be that clothing companies did this kind of testing by sending their own staff to China, but the requirements are too numerous now,” Leonas said.

In Beijing, the students visited the Snow Lotus Cashmere Factory, one of the largest cashmere producers in China whose clients include Macy’s, Ann Taylor, and Liz Claiborne. There they saw Macy’s winter scarves being manufactured, from raw fiber through dyeing, spinning, knitting, and packaging. This was followed by a trip to White Collar Apparel, a Chinese clothing brand targeted for business women. “China is coming out with its own designers,” Leonas said. “That’s the future of what we’re seeing. China is not only an offshore producer but also a great market for luxury brands.”

The group rounded out the trip with cultural visits to the Forbidden City, Temple of Heaven, Tiananmen Square, Great Wall of China, and more. In Hangzhou they toured a silk museum and saw silk worms at work creating raw silk fibers. The students even learned how to make dumplings from their Chinese host and practiced tai chi with local residents in Shanghai’s Changfeng Park.

“The students who went on this trip were risk takers—future leaders in this business,” Leonas said. “We’re trying to train them to be independent, to explore, to have adventures. They need to see how these things are done in the world, and seeing the global and technological aspects of the industry is key.”

**Plant disease diagnostician joins Plant Pathology**

Karen Flint Ward, the newest member of Washington State University’s Department of Plant Pathology, will help make the department’s goal of a Pullman-based plant disease diagnostic lab staffed by a diagnostician with a database of plant disease occurrences in Washington state a reality. “Hiring a plant disease diagnostician with Karen’s background and expertise is a big step forward in our efforts to help keep Washington’s agricultural enterprise safe and secure,” said Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences. “It bolsters our ability to serve our stakeholders throughout the state with current, relevant information.”

Ward is the new coordinator of the WSU Plant and Pest Diagnostic eNetwork and plant disease diagnostician. She will be responsible for diagnosing plant health problems and collecting and reporting data on occurrences of plant diseases in Washington, especially those deemed to pose a threat to agricultural security in the state.

Ward also will coordinate training sessions for “first detectors,” the people most likely to encounter plant diseases in agricultural and natural settings. She will develop educational materials, organize workshops, and make presentations to support and advance plant disease detection capabilities in the state. In addition she will serves as the liaison between WSU diagnostic laboratories, the eNetwork, government agencies, and the Western Plant Diagnostic Network.

Formerly a plant disease diagnostician at Utah State University, Ward holds a master’s degree in plant pathology from the University of California, Davis, and a bachelor’s degree in plant protection and pest management from the University of Idaho.

**CAHNRS fall enrollment up**

CAHNRS enrollment is up at least 30 percent this fall (2011) compared to last, thanks to excellent recruitment efforts and a large increase in the size of the freshman class. Although final enrollment figures will not be available until October, by mid-July the college had 494 confirmed students compared to just 378 the previous year. The largest gains were in Agricultural and Food Systems, Integrated Plant Systems, Food Science, Animal Sciences, and Landscape Architecture.

Kim Kidwell, associate dean for academic programs in the college, attributed the growth to several factors. “Overall, WSU is accepting a much larger freshman class this year,” Kidwell said. “Our increased efforts to market our programs and actively recruit students are paying off.”

However, she added, one of the most significant reasons for the enrollment increase is the relatively robust job market in agriculture-related fields. “While other parts of the economy struggle, the ag industry has continued to offer good jobs to our graduates.”

**Cheers!**

“Celebrate Washington Wine” joins “Auction of Washington Wines” to support V&E

Washington State University’s “Celebrate Washington Wine” event has closed one chapter and opened a new one by partnering with the annual “Auction of Washington Wines” to raise funds for the university’s viticulture and enology program.

In its 10-year history, which ended in January 2011, Celebrate Washington Wine raised nearly $1.4 million for wine science programs at WSU. Volunteers, industry representatives, and WSU faculty and staff initiated and led the annual dinner and auction event.

WSU’s new partnership with the Auction of Washington Wines began Aug. 20 at the 24th annual Wine Gala at Chateau Ste. Michelle Winery in Woodinville. A portion of the proceeds of that event benefitted the Washington Wine Education Foundation Fund for the Endowed Chair of Viticulture and Enology at WSU, linking the Washington wine and philanthropic communities to WSU research.

Event leaders said joining forces “marks the beginning of an exciting time for WSU. This new partnership will allow us to tap into a broader audience, connect our mission to the interests identified by growers and wineries in the state of Washington, and, ultimately, expand the support for our wine science program,” they said.
TRUST YOUR KIDS
(When it Comes to Eating)

The familiar dinnertime litany from youngsters—“I’m full”—isn’t always a ploy to leave the table early. Research shows that young children know instinctively when they’ve eaten enough, and WSU Extension is developing a childhood obesity prevention program employing that knowledge and how parents influence it.

“Young children are really good at controlling their calorie intake, but many kids lose that ability as they get older. That often leads to overeating,” said Thomas Power, chair of WSU’s Department of Human Development and a project co-investigator. “Why is it that kids lose that natural ability? We wondered what the parents’ role might be.”

Previous research conducted by Power and others from three universities showed that parents who offer their children healthy food choices and let them decide how much they want to eat, encourage them to pay attention to their own signals of being hungry or full. Kids who can self-regulate are less likely to become obese.

Now the same researchers will use a $4 million USDA grant to develop, pilot, and test a family-focused childhood obesity prevention program in Houston and two Washington cities, Yakima and Tacoma. The program will reach preschool children as they are establishing lifelong eating and activity habits. No existing prevention program has focused on the self-regulation of eating, Power said.

Zapping our way to safer food

Using newly developed microwave technologies to control bacteria and other microbes that can cause foodborne illnesses and deaths will be the focus of a $5 million, multi-year, multi-institutional grant awarded to Washington State University and its partners by the U.S. Department of Agriculture’s National Institute of Food and Agriculture.

“While the U.S. food supply is generally considered to be one of the safest in the world, nearly 48 million Americans become sick each year due to foodborne illnesses,” said Catherine Woteki, USDA chief scientist and under secretary for research, education, and economics.

“These [NIFA] grants support the development of a more complete understanding of the sources and implications of microbial contamination and will promote the adoption of new food safety strategies and technologies. The goal is to greatly improve the safety of our food supply and, ultimately, save lives,” Woteki added.

WSU scientists, led by Professor Juming Tang, will join forces with researchers at the University of Tennessee, North Carolina State University, the USDA Agricultural Research Service’s Eastern Regional Center, and the U.S. Army Natick Soldier Center. The team will look at how best to expand the commercial possibilities of microwave technologies to control harmful bacterial and viral pathogens in packaged foods. They specifically will be working with ready-to-eat foods, deli meats, and seafood.

Food Preservation

In a separate but parallel project, efforts to commercialize a new microwave-based technology for food preservation, developed by a team led by Tang, are gaining momentum with a second approval from the U.S. Food and Drug Administration for its use in preserving what it calls “non-homogeneous” food—in this case, salmon filets in sauce. It follows FDA approval for use of the technology for “homogeneous materials”—mashed potatoes, specifically.

“The first approval validates the scientific and engineering premises behind our work,” Tang said. “The second makes the technology viable for processing more complex food systems, which is a major milestone on the way to commercialization.”

The WSU Research Foundation licensed the technology in late 2010 to Food Chain Safety of Maple Valley, a private firm committed to commercializing microwave-assisted thermal sterilization. Food Chain Safety has completed the designs for commercially viable microwave sterilization systems based on Tang’s work.
New research conducted at WSU is the first to demonstrate the sub-lethal effects of pesticide residue exposure on an insect largely responsible for a third of the human diet. Judy Wu, a former entomology graduate student at WSU and current Ph.D. student at the University of Minnesota, found that low levels of pesticides build up in honeybee brood comb wax. The buildup has serious consequences for developing worker bees and adult worker bees’ lifespans. The brood comb is the breeding quarters of a hive and the place where food is stored.

Bees are economically critical because of their pollination services, so colony health is a high priority in entomological research. While honey is also valuable, it doesn’t compare to the contribution bees make as pollinators.

The pesticides covered by Wu’s study are used by beekeepers, growers, and homeowners and include miticides, insecticides, fungicides, and herbicides. The accumulation occurs because beekeepers reuse their combs to save on the expense of replacement. Wu surmises that the pesticide residue contamination in the brood comb and its effects may be a potential contributing factor to losses associated with colony collapse disorder (CCD), a term coined in 2007 to describe the mysterious phenomenon that results in the disappearance of worker bees from hives.

Professor Steve Sheppard, chair of the WSU Department of Entomology and a widely respected authority on bees, said that CCD has a lot of possible causes. However, he is confident that while sub-lethal pesticide effects alone do not explain the disorder, Wu’s research shows that low levels of pesticide accumulation cause abnormal development.

Some of the consequences to bees that Wu found were delayed larval development and a shortened adult life span, which can indirectly result in premature shifts in hive roles and foraging activity. If a bee’s life span is shortened, it dramatically changes the dynamics of a hive. According to Sheppard, foragers are the bees that provide pollination and bring food back to a hive.

“A bee’s life span as a forager is on average only the last eight days of its life,” he said. “This research shows that if raised with pesticide residues in the brood comb, an individual’s foraging life span is shortened by four days, a 50 percent cut.”

If there is an insufficient number of foragers in the colony, the colony makes up the deficit by using younger bees that are not physiologically ready. The result is a negative cascade effect on the entire hive all the way down to the larval bees because individual nurse bees must prematurely move toward foraging behavior and stop feeding larvae, Sheppard said.

In addition, Wu’s study showed how longer development time for bee larvae may provide a reproductive advantage for Varroa destructor mites which live in hives and prey on bees. The extended larval development period enables mites to produce more offspring that devastate hives.
Grain has sustained you and your family. It has sustained generations before you and will for generations to come. For over a century, we have partnered with farmers—developing new crop varieties, solving problems from kernel to storage, and teaching the next generation to be leaders, thinkers, and global citizens. Your gift of wheat, barley, peas, lentils, or other crops will ensure we can continue our work in support of Washington farmers. We welcome your support for the Cook, Lind, or Spillman Farms, 4-H, agricultural scholarships, or any area of WSU.

All Gifts of Grain to WSU are welcome. Here’s how it works:

- If you are NOT an active, self-employed farmer, your gift will be receipted and you may take a charitable deduction.
- If you ARE an active, self-employed farmer using cash-basis accounting, you may realize a greater benefit than provided by a charitable tax deduction by:
  - Gifting grain from unsold inventory produced in the preceding year. This way you can deduct all production costs while avoiding federal income tax and self-employment tax on the fair market value of your gift.
- To maximize the tax benefits, have your local grain elevator make the receipt out to the WSU Foundation and let the Foundation know what area at WSU you would like to benefit. The WSU Foundation must be the seller of the gifted crop.

For more information, contact:
Office of Alumni and Friends
College of Agricultural, Human, and Natural Resource Sciences
(509) 335-2243
Or visit giftsofgrain.wsu.edu

Dr. Tom Spencer has joined the Department of Animal Sciences as the new Baxter Professor of Beef Research. An internationally recognized leader and researcher in the field of reproductive biology, Spencer has repeatedly demonstrated a strong ability to advance the fundamental sciences in uterine biology and pregnancy and apply those findings to relevant applications that improve the reproductive efficiency of livestock.

“Spencer brings a nationally recognized program of research excellence to WSU’s forward-looking animal sciences department, and further strengthens WSU’s ongoing partnership with the beef industry,” said Margaret Benson, chair of the Department of Animal Sciences. “We are delighted to fill the Baxter Chair with an outstanding researcher whose impact will be relevant to the beef industry as well as the scientific community.”

“I am honored and excited to join the Department of Animal Sciences and Center for Reproductive Biology at Washington State University. I’m eager to work with WSU scientists and the Pacific Northwest livestock industry to solve relevant problems that impact livestock production enterprises as well as human health,” Spencer said.

The long-term goals of Spencer’s research program are to discover and understand key hormonal, cellular, and molecular mechanisms regulating development and function of the uterus and placenta. Fundamental knowledge gained from this research will advance understanding of basic uterine biology and pregnancy. It will also provide the basis for rational design of therapies aimed at the prevention and treatment of infertility and pregnancy loss in domestic animals as well as humans.

Thomas E. Spencer aims to beef up reproductive science

Thomas Spencer
THE “NOBEL OF AGRICULTURE”

James Cook awarded prestigious Wolf Prize

BRIAN CLARK

JAMES COOK, former dean of the Washington State University College of Agricultural, Human, and Natural Resource Sciences and emeritus professor of plant pathology and crop and soil sciences, is one of the latest recipients of the Wolf Prize for Agriculture. The Wolf Prizes, awarded annually by the Israel-based Wolf Foundation, are given in agriculture, chemistry, mathematics, medicine, physics, and the arts, in order to promote science and the arts for the benefit of humankind.

Cook shared the $100,000 2011 prize with Harris A. Lewin of the Institute for Genomic Biology at the University of Illinois at Urbana-Champaign. Laureates receive their awards from the President of the State of Israel. The prize presentation took place at a special ceremony at the Knesset Building (Israel’s Parliament) in Jerusalem on May 23.

WSU President Elson S. Floyd said, “This is truly an outstanding and well-deserved honor. Jim Cook is, without question, one of the finest research scientists in the history of our university, and this honor shows once again that he is held in equally high esteem by his peers around the world. I can’t imagine a better choice for this award, and I extend my heartiest congratulations to Dr. Cook.”

Cook said he received a phone call early in the morning informing him that he had won the prize. “My first reaction was one of being overwhelmed,” he said. “I was hollering with joy and woke my wife up. It doesn’t get much better than this. To be in the company of people who have won this prize in the past is fantastic.

“All the work that led to this was done at WSU. I’m deeply grateful to my many research colleagues who helped me do the best science I could. Our goal was always to work at the cutting edge but then to apply that research to the real world, so I worked with a lot of great farmers, too, who were our partners in science.”

For 33 of his 40 years at WSU, Cook was a U.S. Department of Agriculture Agricultural Research Service scientist. In 1998, the Washington Wheat Commission made a $1.5 million gift to the WSU Foundation to establish the R. James Cook Endowed Chair in Wheat Research, with Cook as the first holder of the chair.

“In the 33 years of its existence, the Wolf Prize has brought great honor to the State of Israel and to scientific activity both in Israel and worldwide,” said Israel’s Minister of Education and Wolf Foundation Council Chairman, Gideon Sa’ar. “Moreover, the prize has become a predictor of the Nobel: one out of every three Wolf Prize Laureates—in chemistry, physics, and medicine—have gone on to receive the Nobel Prize.”

The Wolf Foundation was started in 1976 with an endowment of $10 million donated by the Wolf family. The founders and major donors were Dr. Ricardo Subirana y Lobo Wolf and his wife, Francisca. Annual income from investments is used for prizes, scholarships, and foundation operating expenses.

The prize description states that Cook is being acknowledged “for seminal discoveries in plant pathology and soil microbiology that impact crop productivity and disease management. Through an understanding of the factors that impact the ecology of pathogenic and non-pathogenic microbes, Professor Cook’s work has improved disease control in wheat and barley and altered paradigms of plant disease control in other crops.

“As a true pioneer in plant pathology, Cook has initiated, developed, and is leading the field of biological control of plant diseases. In this respect, he has had an impact beyond his own field. Professor Cook led the team that discovered the nature of suppressive soils that limit the growth of certain plant pathogens. He has identified and provided both fundamental and practical solutions to control different groups of soil-borne pathogens.

“In addition to his impact on research, Professor Cook is highly influential in the practice and policy of agricultural sciences. He is a very prolific writer who has published many papers. His peers report that his work has had a dramatic effect on virtually every aspect of discussion and decision-making on field crop disease management.”

Dan Bernardo, the current dean of CAHNRS, said, “This is truly a testament to a wonderful career. Jim continues to inspire us! I frequently use Jim’s program as an example of one that provides a scientist international acclaim for scientific contributions and immediate impact in helping agriculture. Jim has demonstrated, beyond a doubt, that if you are intentional in addressing each of these goals day in and day out, they can both be achieved at the highest level.”
Going Global

The newest members of the WSU College of Agricultural, Human, and Natural Resource Sciences bring a world of experience and expertise to their new home. In January, the International Research and Development (IR&D) unit in WSU’s Office of International Programs transferred to the college.

“This is an outstanding group of professionals whose work has received significant recognition for its impact on improving the quality of life in the rural regions of several developing countries,” said CAHNRS Dean Dan Bernardo. “Since 2004, the group has received more than $20 million in external awards.”

WSU’s international work began in 1954 and over the years has managed technical assistance valued at over $150 million. Chris Pannkuk, a soil scientist who earned his degree from WSU, heads the group. He is joined by staff in Pullman with the remainder working and/or living at project sites around the globe. IR&D personnel have over 145 cumulative years of experience in the support of donor-funded projects, and provide technical support for faculty and host-country scientists. IR&D is currently active on 18 projects in Afghanistan, Malawi, Kazakhstan, Georgia, Rwanda, Iraq, Tanzania, the Philippines, and Mozambique.

One of WSU’s primary international projects is sparking change that is rippling through the villages and back roads of one of the poorest countries on earth. Malawi faces numerous challenges: an average life expectancy of just 38, hunger, deforestation, and a lack of potable water. WSU’s Ripple Effect partnership provides practical tools like treadle pumps, trees for reforestation, and latrine kits to help address those issues and to improve the quality of life of individuals, families, and communities in this southeastern Africa state.

In the Ripple Effect partnership, WSU faculty, working with the staff of Total Land Care (TLC), a non-profit organization founded by WSU faculty members, partner with the people of Malawi to empower individuals and communities to:

• Improve water quantity and quality
• Increase the amount and nutritional quality of food grown and consumed

Perhaps the IR&D project with the highest visibility to date is in Malawi. There, partnering with Total Land Care, a non-profit organization that sprang from the WSU presence in Malawi, WSU is working on reforesting the area, providing clean water sources, and improving opportunities to irrigate crops to extend the food-producing season, among other life-changing projects.

Along with their new home in CAHNRS come some new goals, including:

• Increasing opportunities for faculty and students in developing countries to conduct research and education in food security, resource management, institutional and human capacity development, enterprise development, and health and sanitation

• Developing mutually beneficial partnerships to secure grants and contracts

• Raising the profile of WSU as a preeminent institution in meeting global development needs

“The possibilities are exciting with an on-the-ground partner ready to help build educational opportunities for faculty and students as well as extend technologies developed at WSU around the globe,” Bernardo said.

“Ripple Effect” spreading waves of hope across Africa

The goal is improve the overall quality of life by partnering with individuals and communities to develop the tools they need for sustainable prosperity. Each of the three partners—WSU, TLC, and Malawi villagers—invests time, money, and/or expertise to implement projects that reforest treeless areas, support the growth of new food crops, or bring potable water to a village.

“There is a hopefulness that surrounds the implementation of each of these projects,” said Kim Kidwell, associate dean of academic programs in CAHNRS and a member of the Ripple Effect team. “Because all of the partners are truly invested, they work hard to ensure the projects they undertake are relevant and effective, and that the impacts are transformational.”

Graduate students “NSPIRED” by nitrogen policy research

By Rachel Webber

Washington State University graduate student Christopher Gambino is measuring emissions of ammonia, a form of nitrogen released from cow excrement which causes that all-too-familiar smell surrounding a feedlot. Measuring ammonia emissions is a task mandated by the EPA, because too much ammonia in the atmosphere not only makes noses cringe but may also threaten biodiversity and the ecosystem. Gambino is using new technologies to help him pinpoint the amount of ammonia released from feedlots in Washington state and the correlation with the animals’ diets, weather conditions, and manure management.

“Decision makers right now want concrete answers, and science in most areas is seeking to mitigate unknowns,” Gambino said. “Determining ammonia emissions in feedlots is a task mandated by the EPA, because too much ammonia in the atmosphere not only makes noses cringe but may also threaten biodiversity and the ecosystem. Gambino is using new technologies to help him pinpoint the amount of ammonia released from feedlots in Washington state and the correlation with the animals’ diets, weather conditions, and manure management.

“When you look at a whole system, you need to look at it from a lot of different perspectives and we are doing a much better job at that now,” NSPIRE project leader Bill Pan said. “What makes it really trans-disciplinary is integrating hard sciences with social sciences and looking at policy implications.”

In the second of the five-year National Science Foundation grant, the multi-disciplinary program has brought together students from WSU’s colleges of Agricultural, Human, and Natural Resource Sciences; Engineering and Architecture; and Sciences to tell the bigger story of nitrogen cycling on earth: how nitrogen molecules interact in the atmospheric, aquatic, and terrestrial systems, and how those interactions are influenced by human activity.

“Nitrogen is like the unknown elephant in the room. People focus on carbon all the time and how it affects climate and the atmosphere,” said NSPIRE fellow Sarah Anderson, a graduate student who spends her time searching for nitrogen in the soils of snow-packed ground. She is looking at the nitrogen system as a whole and is interested in the intersection of landscape ecology, biogeochemistry, and human impacts.

“The thing is, everything we do interacts. Scientifically, we like to draw nice boxes around things, but in the great scheme of things you can’t box anything like that. It creates a block between science and policy.”

Nitrogen Studies

The rolling hills of the Palouse provide soil science graduate student Tabitha Brown with an ideal landscape to research no-tillage agriculture in the Pacific Northwest. No-till is an agro-nomic technique for growing crops from year to year without disturbing the soil. She is researching how terrain allows plants to absorb nitrogen and how to reduce the amount of nitrogen in soil, while still producing sufficient yields.

Brown said nitrogen fertilizers are applied uniformly across fields. But a farmer’s fields are not uniform from one side to the other and thus retain nitrogen at differing rates. Brown is using state-of-the-art GIS and other technologies in her search for ways to help farmers apply fertilizer at variable rates. That way, nutrients will go where they are most needed and not be wasted where they can’t be used. The result will be reduced costs for the farmer and less runoff into valuable water systems.

Brown said nitrogen fertilizer production began during World War I. Since then, 75 percent of reactive nitrogen has come from those fertilizers. Without the advent of this fertilizer manufacturing, 40 to 60 percent of the world’s population would not exist today, she said. “It’s a chicken and egg
thing in the sense that to feed ourselves we relied on nitrogen fertilizers. Now we are trying to figure out how to wean ourselves off them in order to be sustainable without starving.”

Tai McClellan, a graduate student in crop science, is studying nitrogen processes in cropping rotations—the crop planted between seasonal crops—in legumes. She said that legumes such as spring peas are unusual in that they can host root-inhabiting bacteria that fix nitrogen in the soil, which means they essentially produce their own fertilizer. For farmers, using springs peas as a rotation crop means a potential reduction in their application of nitrogen fertilizers.

“The really interesting thing about legumes is that they have a relationship with a certain type of bacteria and that relationship results in the creation of nitrogen,” McClellan said in describing the symbiotic process by which some plants are capable of fixing nitrogen in the soil. Like Gambino, she begins her field and greenhouse work in the spring, comparing how much nitrogen plants are pulling from the atmosphere into the soil and how much legumes are fixing in the soil.

McClellan’s work is an extension of her colleague’s research. Ashley Hammac, in his second year of the NSPIRE program, has been studying cropping rotations as well. Instead of legumes, he uses canola to research nitrogen cycling and the implications for biofuels.

Hammac found that nitrogen fertilizer recommendations for canola may overestimate the plant’s needs. He said that knowing the true nitrogen requirements of a crop is important information for farmers trying to minimize not only costs, but the threat to aquatic systems from nitrogen runoff, and the rate of increasing greenhouse gases. “In our world, we are trying to minimize the amount of energy input in the form of fertilizer to get the maximum yields that we can,” he said.

Each NSPIRE student will ultimately tie their research into policy either at a local, state, or national level, and take on a fellowship with either a national or international agency. “We want to be able to talk to anybody, and that’s a huge part of the program,” Anderson said. “We talk in words that are 10 syllables long, and nobody can spell them, and who knows what we are talking about. Sometimes we get stuck in that mindset.”

Anderson said having the opportunity to travel to Washington, D.C., to work with governmental and non-governmental agencies to explore potential career and research options was phenomenal and contributed greatly to the NSPIRE mission of preparing scientists to help communicate science. “Nitrogen is everywhere,” she said. “It’s like having several holes in a leaking dam. We just have to figure out which ones to plug right now and so I hope that our research can help play a role in that.”

More information about the NSPIRE project is available online at http://bit.ly/nspire.

NSPIRE GRADUATE STUDENTS (L TO R): Christopher Kelly, Sarah Anderson, Christopher Gambino, Tai McClellan, Sarah Waldo.
IN MID-JUNE, 14 students and their instructors sat at a rustic kitchen table covered by a green-and-white-checkered cloth and adorned with handpicked field flowers in glass milk bottles. The table occupied pride of place in the Quillisascut farmstead—three-quarters of the length of the kitchen where the students had prepared the noontime meal of chickpea miso soup and three kinds of bread. In the three days of the hearth breads class at Quillisascut, students turned out 140 pounds of dough for everything from brioché to cornbread to naan, using ingredients only grown on or near the grounds outside the stuccoed kitchen walls.

“With all of our groups, I think the part that is the most outstanding to me is our meals, when everybody is sitting down and they’re enjoying the food,” said Lora Lea Misterly, co-owner with husband Rick of Quillisascut Farm. “Usually, they’ve had a hand in creating what we’re eating, and so they feel a sense of ownership with it. The conversations that people have and the relationships that they build speak to me of the power of food, dining well, and all these things that most of us take for granted.”

Quillisascut Farm outside of Rice, Washington, has taught nearly 900 students about every part of the food cycle from farm to table since 2002, as well as fostering the close connection that comes from working on the land. People from New York, Florida, Texas, Colorado, and California have come to this little northeastern corner of the state to learn how to eat locally and seasonally.

Before the Misterlys taught their first class, Lora Lea was herself a student of a Washington State University program called Cultivating Success. Now in its 10th year, Cultivating Success has educated
close to 3,500 individuals from Washington and Idaho interested in learning about the economic, environmental, and social aspects of sustainable farming.

Cultivating Success courses are offered in 25 counties throughout Washington and 12 counties across Idaho. Activities and curricula are guided by three founding organizations: WSU, University of Idaho, and the non-profit Rural Roots. Core curricula center on sustainable small farming and ranching; agricultural entrepreneurship and business planning; science, society, and sustainable food systems; and field analysis of sustainable food systems.

A survey of past Cultivating Success students indicates that more than 37 percent are currently farming. For the agricultural entrepreneurship and business planning students, that percentage is as high as 78 percent.

Roots of Food

Lora Lea took the agricultural entrepreneurship course that the Cultivating Success program offered in 2002. By then, the Misterlys had been making farmstead goat cheese through their business, Quillisascut Cheese Company, for 15 years. This year, 29 goats produce the milk for three varieties of cheese sold in several Pacific Northwest stores.

The Misterlys wanted to start a farm school for food industry folks they’d met while selling their cheese. So Lora Lea took the Cultivating Success class to learn how to write a farm business plan. She also learned about determining who and where their market would be, whether a farm school was needed in their area, and more.

“It really gave me the skills to evaluate our goals, to become more focused, to make a path to get to where we wanted to go, and to assess what we had and what our needs were both financially and physically to bring people here and train them about the roots of where their food comes from.”

Extension specialists who understood agriculture and the region looked at their plan, offered guidance, and directed them to good resources, Lora Lea said. In addition, professional guest speakers discussed business law, insurance, record-keeping, and other facets of creating the business.

“I think that’s another piece that’s unique about Cultivating Success,” she added. “They bring in those people in your community who are your support network for being successful in farming.”

In turn, Lora Lea went through Cultivating Success’s instructor training program, and she has now taught for five years. To pass on the same principles, knowledge, and beliefs to others is exciting, she said.

“For us, it’s a lifestyle choice as well as a financial choice, to live in the country and to have a farm-based business. I think it’s a good life, and I really want more people to move to the country,” she added. “I think it could really bring us back to a more humane and agrarian lifestyle, which the United States was founded on. There are a lot of strong American values that are based on agriculture.”


Feeding Interest in Sustainable Farming

THERE’S NEVER BEEN a greater need for interest in sustainable farming, according to Marcy Ostrom, Small Farms Program director at the WSU Center for Sustaining Agriculture and Natural Resources in Wenatchee. Over the past several decades, more small and mid-sized farms are disappearing—farms that could have generated household income in Washington and Idaho.

Like other small businesses, small farms are valuable community assets, generating revenue and employment opportunities. These farms also serve critical environmental, aesthetic, cultural, and social functions that benefit everyone. Finally, a diverse array of productive, independently owned farms operating across the state helps insure a healthy, dependable, and accessible local food supply and preserves farmland for future needs.

“The vision of the Cultivating Success program is to increase producer and consumer understanding, value, and support of sustainable local farming systems in Washington and Idaho through educational and experiential opportunities,” Ostrom said. “Partners in this program strive to create strong communities with infrastructures that provide the resources and skills needed to produce local and sustainable food and agricultural products for the residents of the Pacific and Inland Northwest.”

Participants in Cultivating Success courses have steadily increased over the past decade as course locations expanded (see map). Recently, the program added online options to reach still more students.
Great spirits have always found violent opposition from mediocrities. The latter cannot understand it when a man does not thoughtlessly submit to hereditary prejudices, but honestly and courageously uses his intelligence and fulfills the duty to express the results of his thought in clear form.

Albert Einstein
NYTimes, 3/19/1940

TRANSLATING
BIG IDEAS INTO BIG RESULTS

BY KATHY BARNARD
When it comes to big ideas, feeding the world and powering the planet top the list—especially when the world population is predicted to grow to at least 9 billion by 2030.

“The world will have to produce more food in the next 50 years than it has since the beginning of civilization,” said Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences and director of WSU Extension.

What are the environmental impacts of growing that much food, not to mention addressing the energy needs of 9 billion people? Will there be enough water? How will foodstuffs grown on one side of the planet get to those who need it on the other side? In even a best-case scenario, small thinking isn’t going to cut it.

It has always taken bold, sometimes risky, ideas to realize big results. Consider for a moment what it took to turn mold into penicillin, refine pasteurization to kill bacteria, land on the moon, and of course, develop agriculture—the systematic husbandry of plants and animals for human consumption.

Closer to home, consider some of WSU’s biggest ideas: developing dwarf wheat varieties that laid the foundation for the Green Revolution in developing countries; major milestones in integrated pest management to deal with devastating pests such as mites and codling moth in tree fruit; and new models for engaging local residents in the monitoring of the natural environment through WSU Extension Beach Watchers and other programs. CAHNRS has more than a century-long history of translating big ideas into workable solutions to some of the world’s thorniest problems.

What turns big ideas into big results? In most cases, it is an imprecise combination of expertise, hard work, curiosity, perseverance, and a little bit of luck that results in new information, new knowledge, or a new approach.

That will become even more critical in the years to come, Bernardo said. “The science and research we bring to bear in the classroom, lab, and field in every department in the college will generate the big results we need in the form of strong leaders, new knowledge and fresh technology, and best practices,” he said.

In an increasingly competitive world, what distinguishes one college graduate from the next? Is it the school they attended? To a certain degree, yes. The subject matter they’ve mastered? Certainly. Their grade point average? Of course.

“What really distinguishes the leaders in today’s market is what happens beyond the classroom,” said Kim Kidwell, associate dean for academic programs in CAHNRS.

CAHNRS has a long history of emphasizing opportunities to learn beyond the classroom. “We work hard to provide as many students as possible with the hands-on experiences and leadership training so critical to making them competent and competitive,” she said.

And, that may be one reason that career placement rates are so high for CAHNRS graduates, regardless of major. Kidwell said—and our industry partners agree—that those efforts produce a “much stronger employee, much faster.”
The college’s newest “big idea” is to formalize what has happened informally for decades with the Transformational Teaching, Learning, and Leadership Initiative.

“Our goal is to make sure that every student in the college completes a rigorous program that makes them career-ready, Day 1,” Kidwell said. “This new initiative offers a suite of possibilities for every student in the college—regardless of major—to enrich his or her classroom work with real world experiences, leadership training, mentorship, internships, and more.

“It really pulls together the very best CAHNRS has to offer into an integrated, value-added program that gives students what they need to succeed in the workplace and in life.”

Hands-on experiences can take a variety of forms, including participation in student clubs and organizations like the Cougar Cattle Feeders, the Food Science Team, or the student chapter of International Textiles and Apparel Association. CAHNRS offers numerous internships in the private and government sectors and increasingly encourages studying abroad. Students in the college and throughout the university have the opportunity for formal leadership training through HD205, the most popular class at WSU. The college also supports undergraduate research projects mentored by CAHNRS faculty, complete with a competitive grant process that helps students pay for the time they spend on those projects.

Getting involved in hands-on activities also helps students stay in school and succeed. “Retention is a challenge for every university in the country,” Kidwell said, “and WSU is no exception. But the recipe for retaining students is pretty well known: the support needed for success in the classroom and meaningful, fun engagement outside the classroom, including a sense of community and belonging.”

Labor issues, human nutrition, environmental concerns, climate change and its impacts, increasing energy demands. The challenges are large and many. Here is just a sample of the big ideas CAHNRS scientists, researchers, and Extension educators are tackling today:

**Biofuels and Bioproducts**

Plant sciences are among the very best hopes for energy independence at home and abroad. CAHNRS scientists are looking at oilseed crops like camelina as well as woody biomass as new fuel sources, especially for the aviation industry. That work will also help develop bio-based replacements for other petrochemical products such as plastics and polyesters.

**Global Food Security**

Applying “The New Biology” in the form of rapid breeding and plant genetics will revolutionize agriculture around the globe. WSU scientists are working on ways to apply these modern biotechnology tools to improve crop yields, enhance the quality and nutrition of food crops, and mitigate the environmental impacts of growing food and fuel.

**Water Quality**

Mitigating agricultural impacts on water quality and water quantity is the focus of a variety of research being conducted at WSU. Scientists are creating nitrogen-fixing, non-leguminous plants by turning on a gene that allows plants to form symbiotic relationships with nitrogen-fixing bacteria in the soil. The outcomes could include reducing the amount of fertilizers plants need, which could mean dramatic cost savings for farmers and less nitrogen-filled run-off, which will improve water quality.
Food Safety

The National Centers for Disease Control estimate that there are 76 million cases of foodborne illnesses each year in the U.S., and the regulations aimed at addressing outbreaks such as the 2009 spinach *E. coli* outbreak in California are imposing large costs on Washington food producers. WSU scientists are researching ways to make food safer, beginning with the genomics of lowly food-borne bacteria all the way to predicting the safety and quality of foods and improving food processing techniques. WSU Extension educators are actively working to help educate the public about safe food handling practices across a variety of settings.

Microwave Sterilization

WSU scientists have perfected technology that combines pressurized hot water and microwaves to extend the shelf life and improve the food quality and nutrition of low-acid foods such as salmon filets, chicken and dumplings, and mashed potatoes. The combination eliminates food pathogens and spoilage microorganisms in just five to eight minutes and produces safe foods with much higher quality than conventionally processed, ready-to-eat products. Spearheaded by U.S. military and food processing companies from around the country, microwave sterilization is now being developed for commercial use.

Bovine Respiratory Disease (BRD)

BOVINE RESPIRATORY DISEASE (BRD) kills over one million animals annually, costing producers more than $700 million a year. It is the leading natural cause of death in U.S. beef and dairy cattle. Twenty different pathogens comprise this lethal disease. When thousands of cattle from different states and climates are combined in one feedlot, only an integrated approach to diagnosis and treatment can eradicate such a killer.

Researchers from six universities—including Holly Niebergs of WSU’s Department of Animal Sciences—and the USDA’s Agricultural Research Service are leading a $14 million project to develop cost-effective genomic and management tools to reduce BRD.

The project will combine research, educational, and Extension components. Goals include:

- Identifying the interaction of the cattle genome with the BRD causing pathogens;
- Developing a DNA-based diagnostic test and another DNA-based test to assist in selecting resistant cattle;
- Creating nationally accessible, web-based, distance-learning courses on integrating animal health management with genomic and breeding approaches to reduce livestock disease; and
- Developing and delivering educational programs on best management practices for cattle producers, including vaccinating and using anti-inflammatory pain relievers, combined with genetic selection.

In Niebergs’ words, “The aim of this project is to provide a multidisciplinary approach to a costly and complex disease in an attempt to make real progress in reducing the impact of BRD on the beef and dairy industries.”

Niebergs said providing research opportunities for students is also a critical component. Some 30 doctoral and veterinary students are participating in the project, with more likely to join the team. “There’s a lot to get done, but that also teaches them so they can carry the torch forward,” she said.
THE MODEL MAKERS

BY BRIAN CLARK
MODELS ARE FOR KIDS, RIGHT? In fact, modeling is one of science’s most valuable tools—especially for complex systems. The results are deeply informative for scientists attempting to further our understanding of, for instance, weather systems, insect biology, and water management.

For farmers with an eye on their bottom line, models provide incredibly valuable information to help in making economically important decisions. Wines may improve with age, but grapevines (and other crops) improve by looking to the future. For instance, knowing when there is a cold snap just over the horizon helps a farmer decide when to turn on fans and heaters to keep a vineyard or an orchard from freezing, while knowledge of an approaching warm, wet spell means being able to plan when to spray for pests that become active and voracious in just such conditions.

A robust model that can consistently deliver accurate information requires a huge data collection network. For decades, researchers at WSU have been installing data-logging devices throughout the state and harvesting weather information. Coupled with data about how insects behave in a wide range of conditions and how plants respond to diverse climatic conditions, the results have yielded several modeling systems—some still experimental, others in wide use by the general public—that prove the ancient maxim that knowledge is power.

The Weather

With about 140 WSU AgWeatherNet stations around the state communicating data in real-time bursts, growers, gardeners, and the public can dial in their particular location to get updates and alerts delivered via the Web or smart phone. Just by itself, AgWeatherNet is a valuable tool: it alerts growers to changing conditions and, based on that information, aids decisions about heating or cooling in orchards and vineyards.

But AgWeatherNet is just the beginning of value-added decision-aid systems developed at WSU. One of the most important of these is called the Decision Aid System, or DAS.

Decisions, Decisions

Vince Jones (pictured left) is striving to push forward the frontiers of our understanding of the complex ecology at play among insects in fruit tree orchards. Part engineering, part biochemistry, and part psychology, the technologies Jones and his colleagues have developed measure and channel bug behavior. Using lures and attractants, the researchers are able to capture a real-time picture of insect life in the orchard. These “smart” insect traps transmit their data to a computer where that data is combined with other information pouring in from the statewide network of weather stations. The result is DAS, providing growers with that most powerful asset of all, knowledge.

Decades of data collection have resulted in a tool that allows growers to envision the future with a remarkably high degree of accuracy. With real-time weather data, pest outbreaks can be predicted based on such variables as temperature and precipitation. Thus armed, growers can move quickly with a measured and targeted response.

Starting from zero users five years ago, Jones said that DAS has grown to be used by managers of nearly all of the 225,000 acres of Washington orchards. But the DAS is still a work in progress, he pointed out. Jones and his colleagues are preparing for major “upgrades” in pest management strategies.

“We’re going to compress years of outreach into just a couple,” Jones said. “That’s possible because we have an incredibly sophisticated industry that is eager to adopt strategies that will sustain their competitiveness and the environment.”

The Grapes of Math

For vineyard managers, watching the thermometer during eastern Washington winters is a bit like watching their charges dance the limbo: how low can they go? You don’t really want to find out; you just want to know in advance if you need to take frost protection measures.

That’s precisely the focus of a cold-hardiness prediction model being developed by John Ferguson, a WSU staff member based at the WSU Irrigated Agriculture Research and Extension Center in Prosser. He has been analyzing 20-plus years of cold hardiness and weather data collected at Prosser research vineyards, primarily by
one of Ferguson’s colleagues, Lynn Mills. After examining a wide range of parameters, he’s noticed some very interesting patterns. Harnessing a simple but powerful algorithm, he’s turned those patterns into a working model that predicts when a particular grape variety in dormancy will freeze its buds off — and thus when, and in which fields, vineyard managers should find a way to crank up the heat.

“Developing a cold-hardiness prediction model is an iterative process,” Ferguson said. He motions to a whiteboard covered with an elegant, multi-colored graph that illustrates the relationship between temperature and cold hardiness and that plots the inexorable march from approaching winter to the following summer. Ferguson has been able to program his number-crunching, stats-analyzing software so that it compares point after time-and-temperature point, each one marking the grapevine’s jagged descent into winter freeze and senescence and its subsequent bumpy emergence from dormancy through the spring.

“When we say ‘iterative methods,’ what we really mean is trial and error,” Ferguson said. “There are billions of calculations involved in fitting a curve around just one set of data for a single variety. To be commercially useful, the model needs to work for lots of data sets for lots of varieties in different locations.”

Ferguson’s work continues but he’s already made significant progress, having developed models for three grape varieties commercially important to the Washington wine industry.

Mapping Complexity

Elsewhere in Prosser, Ian Yau is mapping complexity. A graduate student studying soil science, Yau is confronting the mapmaker’s perennial problem: the map can never be as detailed as the terrain it represents. But that doesn’t mean the mapmaker doesn’t try. Especially when there is tremendous pent-up demand from Washington grape growers for a vineyard site-selection tool.

Consider what you’d need to know if you wanted to plant a vineyard in Washington. You’d want to know for a given plot of land, how many growing degree days it got at a certain elevation on a particular slope. You’d want to know about the soil of that plot: is it going to drain properly so the grape vines don’t wallow and rot? Is there hardpan or some sort of other restrictive layer close to the surface that will prevent the plants from sinking their roots deep into the soil? And what’s the water-holding capacity and pH of that soil?

As a future wine-grape grower, you might not even know that you do, in fact, want to know these things. But Yau does, and that’s because he’s working with Joan Davenport, a WSU soil scientist who has been studying grapevines and the (“don’t call it dirt!”) soil they grow in for years.

“Nothing will ever replace an on-site inspection of a potential vineyard site,” Davenport said. “But with the massive growth of the industry, we get a lot of calls asking about the suitability of a site, so having this tool will help us weed out sites that obviously won’t work.”

Yau, who just completed his master’s project, has a working iteration of the site suitability model for Washington. “We’re testing the validity of the tool by comparing the model’s predictions with established vineyards,” Yau said. That means walking vineyards to check the accuracy of soil-type data, topology, and much more, as well as interviewing experienced vineyardists about the conditions in their fields. “Establishing a vineyard is very expensive,” Yau said, “so, of course, people want to get it right.”

More online

Keep track of the model makers and their work by subscribing to On Solid Ground and Voice of the Vine. Visit www.cahnrsnews.wsu.edu for links to both e-newsletters.

Tune into www.treefruit.wsu.edu for updates and information on tree fruit research from WSU.
CAHNRS student award winners

THE WASHINGTON STATE UNIVERSITY College of Agriculture, Human, and Natural Resource Sciences honored its best and brightest at the 52nd annual awards banquet held in April. Hundreds of students, family members, faculty, and staff gathered in the Ensminger Pavilion to celebrate the year’s accomplishments.

SUPEIOR CLUB

The Dairy Club and its 31 members have participated in a variety of activities this past year, including the Animal Sciences Welcome BBQ, Mixers with the University of Idaho Dairy Club, Western Regional Dairy Challenge, and the hosting of Cougar Youth Weekend at the Knott Dairy Center.

ALPHA ZETA’S ARNOLD KNOPF OUTSTANDING FRESHMAN

Jake Fischer—Jake graduated with honors from Pomeroy High School. After serving in the U.S. Air Force on military and humanitarian missions in Iraq and Afghanistan for several years, Jake came to WSU as a Food Science major and plans to contribute to food research and safe food production.

OUTSTANDING JUNIOR IN HUMAN SCIENCES

Cindy Ola—Cindy is a Human Development major from Kennewick who is also minoring in Psychology. She represents the first generation of her family to attend college. Cindy is very involved in university research as well as community activities and plans to continue on to graduate school.

OUTSTANDING JUNIOR IN AGRICULTURE

Erik Walker—After growing up on a small farm in Port Orchard, Erik is now majoring in Animal Sciences and is active in several student clubs. His passion to work with and care for animals motivates him toward his goal of becoming a vet. His future plans include traveling abroad and operating a mixed veterinary practice.

FAMILY AND CONSUMER SCIENTIST OF THE YEAR

Ryan Fallgren—Ryan is an Economic Sciences major from metropolitan Seattle who has been actively involved in educating the public about CAHNRS and the School of Economic Sciences. He plans to use his in-class and extracurricular experiences to be a leader in the economic community.

AGGIE OF THE YEAR

Michael Anderson—Michael is an Agribusiness Economics and Management major from Othello. He balances his time between school, agricultural pursuits, and school organizations. He plans to eventually take over his family’s farm.
HER EDUCATION. Her career. Her husband. Jean Rickard Berney attributes much of her success in life to two things: participating in 4-H and attending Washington State College, now Washington State University.

The Cougar alumna and member of the Colville Confederated Tribes earned her bachelor’s in home economics in 1958. Since then, she has become a leader in her community, the Washington cattle industry, and WSU Extension’s 4-H Youth Development Program.

Berney first learned about the 4-H Youth Development Program as a child living in Oregon. “There was the 4-H Health Club, and they had a contest to see who was the healthiest girl in the county. It wasn’t me,” she said, laughing.

After moving to Nespelem on the Colville Indian Reservation, Berney said she wasn’t really looking for further involvement. But, the enterprising WSU Extension educator working there at the time saw the family moving in and noticed Jean was the perfect age for 4-H. He enthusiastically recruited her mother, Donna Mae Rickard, as a volunteer leader, and Jean as a member. “That made an impression on me,” Jean said.

During the 1950s, Jean participated in 4-H throughout her school years, primarily in foods and baking. It was 4-H that first brought her to the then-Washington State College campus in Pullman.

“I attended the state 4-H camp there for a week,” she said. “And right after that was a three-week high school music camp. It was my first time on a college campus.”

She went to the 4-H camps several years in a row, which she says helped ease the transition from home to college when the time came. “If I hadn’t been familiar with campus and felt comfortable, I would have still been floundering.”

Still, Berney said, she was not prepared for the rigors of college. “I had never written a research paper, never written a theme,” she said. Thankfully, a friend’s mother was an English professor at the school and was willing to help.

A degree wasn’t the only thing Berney acquired at college. She also connected with her husband of 50 years, Buzz. She had met him at county 4-H activity days during high school. But it was while on the Pullman campus that their relationship moved to the next level.

“I’d go to the library every Saturday to read the Omak newspaper so I could keep up on things at home,” Berney said. “So did Buzz. One thing led to another. We started dating and then got married between my junior and senior year.”

The couple and their four sons went on to build a large and successful cattle operation in the state. They have been strong supporters of WSU’s Cougar Cattle Feeders Program and continue to be active members of the Washington Cattlemen’s Association.

Throughout it all, Berney has maintained her 4-H and Extension connection. While still in college, she served as a counselor at the statewide 4-H camp and was head counselor during her senior year. She served as a volunteer leader throughout her adult life, helped develop the 4-H curriculum for food and clothing and traveled to Washington, D.C., courtesy of Campbell’s Soup Co., to participate in their educational programs. She has also served on many WSU Extension position selection committees.

Donna Mae Rickard and Jean Rickard Berney
 Scholarships
Create Opportunities

With approved tuition hikes for the coming biennium, resident undergraduates at Washington State University will soon be paying nearly $10,000 a year, which is more than 50 percent higher than tuition was four years ago, according to the WSU Office of Financial Aid. “A robust scholarship program is more critical than ever for recruiting and retaining good students,” according to Kim Kidwell, associate dean of academic programs in CAHNRS. “We use our scholarship dollars strategically to help as many of our students complete their education as possible.”

Kidwell said more and more students are going deeper in debt to attend school or are forced to work too many hours while also trying to succeed in their classes. Scholarship dollars help mitigate those hardships, according to scholarship recipients in the college.

Kirstyn Lawler, a human development major from Covington, received the Catharine Melissa Loomis Early Childhood Development Scholarship. “As of now, I am paying for college entirely through borrowed funds, and I am grateful for the opportunity to have some assistance and to borrow less,” she said in a letter of thanks to scholarship donor Betty Loomis. “With the current tuition increases and economic hardship, your assistance with funds is a true blessing.”

Connell native Chandler Dolezal said the Ward L. and Iiohne Vander Griend Scholarship she received will allow her “to continue to pursue my dream of becoming an agronomist.”

Horticulture major Carmelle Sabater said the Scott B. Hambelton Memorial Scholarship “will be very helpful in freeing up my time to focus on my studies rather than worrying about whether I can continue to afford to pursue my degree.”

“These contributions to our students’ successes matter,” Kidwell said. “Our sincere, heartfelt thanks go out to all former, current, and future donors for providing CAHNRS’ students with opportunity.”

More information about CAHNRS’ scholarship program is available at http://academic.cahnrs.wsu.edu/scholarships/ and http://cahnrsalumni.wsu.edu/.

Reservation elder supports mission of WSU Tribal Extension

It was the life skills offered by Washington State University Extension agents to tribal youth involved in 4-H that first attracted Donna Mae Rickard to the program operating on the Colville Confederated Tribes Reservation.

“I could see how the agents were instilling these wonderful values—planning ahead, working hard, thinking about the next step—into the young people in 4-H,” Rickard said. “They were always urging the kids to do more, be more, try for more.”

It impressed her at that time, and, it is why she continues to support WSU Extension. To date, the 97-year-old has invested enough to establish and support the WSU-Colville Tribal Family Project Fund. Proceeds from that and a match from the Colville Confederated Tribes help to fully fund an Extension position focused on family self-sufficiency and self-reliance, including nutrition, financial management, family relationships, child development, and building family strengths. Rickard said she sees it as a way to give back to her community.

“So much of our lives, we take,” she said. “You reach a point where you need to give. I think it is exciting to be able to help. You may not be able to see the results of your gift in your lifetime, but you are building something that will last a long time.”

Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences and WSU Extension director, agreed. “The food preservation workshops and the yearly Tribal Nutrition Calendar are always a hit with many members; Tribal program leaders regularly request extra calendar copies to help in delivery of their outreach,” he said. “Kids learn to stay healthy with the ‘black light hand washing’ activities to prevent disease spread. Without Donna Mae and the Colville Confederated Tribes match, none of this would be occurring.”

“The impact that one person can have is amazing,” said Bernardo, who recently presented Rickard with a formal certificate of recognition. “Donna Mae’s legacy truly will be a healthier, happier community.”

Dan Fagerlie, WSU Ferry County and the Colville Reservation extension director, agreed. “The food preservation workshops and the yearly Tribal Nutrition Calendar are always a hit with many members; Tribal program leaders regularly request extra calendar copies to help in delivery of their outreach,” he said. “Kids learn to stay healthy with the ‘black light hand washing’ activities to prevent disease spread. Without Donna Mae and the Colville Confederated Tribes match, none of this would be occurring.”
AFTER DECADES OF ACCEPTING GIFTS OF LAND, Washington State University is recommitting to holding the land bearing its donor’s name and has developed a new process for managing that land. “Keeping a farm in the family is not easy,” said Caroline Troy, director of development for the College of Agricultural, Human, and Natural Resource Sciences and a member of a farm family herself. “We appreciate the difficulties families face in making decisions about their land and the future.”

In an effort to ease some of those difficulties, WSU is taking a new approach to accepting gifts of land. In addition to maintaining the name associated with the property, WSU President Elson Floyd has created the WSU Land Legacy Committee to manage gifts of land. Members of that committee represent farmers, ranchers, timber experts, and agribusiness leaders.

Leaving a land legacy with a well-planned charitable gift of family property to the university may provide significant tax benefits as well as address income and land-management issues, Troy added. For example, donors making a gift of land to WSU can avoid capital gains tax and reduce estate taxes while benefitting from charitable deductions. They can also keep their land in production and resolve family succession issues or, through a retained life estate, continue to manage their land and retain the income throughout their lifetime.

Gifts of land to WSU can support programs in several ways:

- Productive land can be preserved and managed to grow crops, graze livestock, or harvest timber, with income providing funding to an area of the donor’s interest within WSU.
- Property located in proximity to one of WSU’s many research and Extension centers, campuses, or Extension sites could be used as an outdoor classroom for students or a living laboratory for researchers, Extension faculty, and local communities.
- With donor permission, WSU could sell the land and use the proceeds to benefit students, faculty, and programs.

Farms currently under WSU management include:

- **Bohrnsen Farm**: 1,014 acres in Spokane and Whitman counties. Revenue supports the Vogel Endowed Chair and the Vogel Wheat Research Fund.
- **R. James Cook Agronomy Farm** (WSU Precision Ag Direct Seed Research Farm): 400 acres in Whitman County. The farm was originally obtained from the Earmel Cunningham Trust.
- **Ferne Daniel Farm**: 640 acres in Grant County. Revenue supports the Daniel Family Endowment for Precision Wheat Farming and Wheat Breeding.
- **Cleora Neare Farm**: 903 acres in Adams County. Received from the state of Washington for support of the Lind Research Station.
- **Schmidt Farm**: 215 acres in Spokane County. Revenue supports the Verle Kaiser Conservation Endowment in the Center for Sustaining Agriculture and Natural Resources.
- **Schroeder Farm**: 118 acres in Douglas County. Revenue supports the Schroeder Family Scholarships in Electrical Engineering and Agriculture.
- **Valeska Farm**: 114 acres in Latah County, Idaho. Revenue supports the Hattie Davis Espy Memorial Scholarships.
- **Wilke Farm**: 342 acres in Lincoln County. Revenue supports agricultural research at the Wilke Farm.

For more information about WSU’s Land Legacy program, contact

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legacyofland@wsu.edu
(509) 335-2243
2011 REUNION SPOTLIGHT

Golden Grads

Front Row: (L to R)
Dave Burgess, Marilyn Sontag,
Janis Phelps-Fairchild,
Jan Thomson, Curt Thomson

2nd Row: (L to R)
Garner Ekstran, Barbara Teel,
Patti Grant, Dee Hyden

3rd Row: (L to R)
Bill Hundley, Jean Chambers,
Del Schwisow, David Detchever,
Dick Howell Osborne, Rick Ross

4th Row: (L to R)
Robin Gates, Marge Ekstran,
Dennis LeMaster, John Grant

Back Row: (L to R)
Jack Larsen, Mike Brookes,
Marge Ekstran, Dan MacQuarrie,
Bob Hirschel

Visit our Alumni and Friends website at www.cahnrsalumni.wsu.edu to catch up with more of your fellow CAHNRS Cougs. On our site, you’ll also find the donor roll and memorial list.

Diamond Grads

Front Row: (L to R)
Eloise Huston, Maxine Lange,
Dolores Koch, Delores Bussell,
Nina Parcel, Lawrence Brown

Middle Row: (L to R)
Fred Huston, Jack Schenaker,
Burgess Lange, Ed Hanks,
Eugene Forrester, Robert Tokarczyk

Back Row: (L to R)
Dave Roach, Roy Goss,
Roger Roberts, Jim Loudon
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