Celebrating the Democracy of Education: Morrill Act Turns 150!

plus: Future Cougars  ■  Students in Rwanda  ■  Gift Grows Organic Farm
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Greetings, CAHNRS alumni and friends,

NOTICE ANYTHING DIFFERENT? Your alumni magazine is a new shape and size. And it has a new name—ReConnect instead of Connections. As you read it, you’ll also find that the story focus is new and different.

We decided to abandon the traditional, one-size-fits-all publication that tries to capture a year’s worth of news about the college into a single book, primarily because it is obsolete the day it is printed. We are moving to a magazine that focuses much more clearly on the greatest assets of CAHNRS—students, faculty, staff, and alumni. We will highlight the very best of CAHNRS through the lens of our people, our community. In addition, we will launch a quarterly e-newsletter, also named ReConnect, to keep you updated with the freshest stories about all things CAHNRS.

As an alum myself (’85, PhD Ag. Econ.), I can tell you that the connections I made here as a graduate student were among some of the most important and lasting in my life. I imagine that is the case for the majority of CAHNRS graduates. We have a common history, whether it’s early morning milking as part of the Dairy Team, burning the midnight oil getting ready for the annual fashion show, harvesting at the organic farm, or community outreach in HD205. That common history connects us. We are not only Cougars; we are CAHNRS Cougs.

So, here’s my request of you: reconnect. Let us know what you’re up to now. Send us a picture of your future CAHNRS Cougs. Tap into the larger CAHNRS community and benefit both yourself and your college.

We look forward to hearing from you!

Go Cougs!

Daniel J. Bernardo
Vice President for Agriculture and Extension, Dean of CAHNRS

WAYS TO STAY IN TOUCH

Submit your class notes online: http://cahnrsalumni.wsu.edu/alumni/

Send Future Cougar photos to: photos.cahnrs@wsu.edu

Subscribe to ReConnect online by sending an e-mail to: brian.clark@wsu.edu
Subject: ReConnect Subscription

Look for the “Connect” button to discover links to online content.
Preserving the flight of the alkali bee

CAN A BEE LEARN to fly over, instead of across, a busy highway? WSU entomologist Douglas Walsh is working with the Washington State Department of Transportation (WSDOT) to find out. Walsh is studying alkali bees and their flight around a stretch of US Highway 12 in central Washington to help WSDOT minimize the impact of a proposed highway improvement project on the native bees.

The transportation department is sponsoring a four-year, $232,000 study by Walsh and his research team to survey alkali bee population density in nesting beds that will potentially be affected by the project. He and his team will also determine bee flight paths from the beds to nearby alfalfa fields and back in relation to the project’s proposed route and assess whether bee barriers can be installed along the roadway to effectively alter the bees’ flight vertically and horizontally.

The proposed new highway would cut through the Touchet-Lowden agricultural district in Walla Walla County. The 84-square-mile area supports 16 growers producing 12,000 acres of proprietary alfalfa seed varieties for six different seed companies, according to one of those growers, Mike Buckley. That acreage makes Walla Walla County the second largest alfalfa seed-producing area in the United States, he said, with retail sales exceeding $50 million in 2009.

The same area also has the world’s largest community of non-honeybee pollinators in the alkali bee, according to Walsh. The bee is considered a critical alfalfa pollinator, and some local growers have relied on the bees for more than 50 years.

“This project will decrease the impacts of WSDOT highway construction on both farmers and their important bee resource,” Walsh said.

State-of-the-art weather prediction

WASHINGTON TREE FRUIT GROWERS are often at the mercy of Mother Nature when it comes to weather. Case in point: the severe thunderstorms of July 20 that, in some areas of south central Washington, battered apple crops with golf ball-sized hail, leaving some orchards with losses of 100 percent.

To help growers minimize their risk from similar future storms, AgWeatherNet, WSU’s automated weather station network, is testing a national, state-of-the-art weather forecasting model. The one-year study is supported by the Washington Tree Fruit Research Commission to establish a tool for better predicting potentially damaging weather systems, especially for parts of the state where tree fruit crops are commercially important.

“AgWeatherNet only provides current weather conditions,” said Gerrit Hoogenboom, the network’s director and WSU professor of agrometeorology. “Adding a weather prediction component will allow growers to make more informed decisions with respect to both the conditions that have occurred and the upcoming predicted weather conditions. This can be applied for preparation of extreme weather events such as frosts and freezes, as well as inputs into other models for pest, disease, and other management decision aids.”

Hoogenboom, postdoc Tes Ghidey, AgWeatherNet meteorologist Nic Loyd, and WSU civil and environmental engineering associate professor Heping Liu evaluated the prediction capabilities of the national model, called Weather Research and Forecasting, for three freeze/frost events recorded by AgWeatherNet in February, April, and October of 2011. The model performed well for 24–48 hour predictions at low elevations in eastern Washington, Hoogenboom said.

Learn more about AgWeatherNet at http://weather.wsu.edu.

Hail damage to a Sunnyside, WA, apple crop. Photo courtesy of AgWeatherNet, WSU
Making a difference in Rwanda

BY KATHY BARNARD

FIVE STUDENTS in the College of Agricultural, Human, and Natural Resource Sciences spent two weeks in Rwanda this June, and both they and the small village of Gashora are better for it.

The trip was the first of its kind for the college and a pilot for what officials hope will become an annual offering. Professor Kim Kidwell, executive associate dean of CAHNRS, and Colleen Taugher, project associate in the WSU Research and International Agricultural Development Office, led the project.

Mission Possible

The group worked in Gashora with community members as well as three students from the Rwandan Higher Institute of Agriculture and Animal Husbandry. Their mission included four main objectives:

- Develop and implement a system for drying fruits and vegetables grown in the area to minimize food loss.
- Build demonstration mushroom-growing houses to take advantage of the food’s regional popularity, nutritional value, and ability to grow in a small amount of space.
- Build composting toilets to improve health and sanitation in the village.
- Implement a general composting system to improve soil quality in surrounding gardens and farms.

“A lot can happen in a short amount of time, and I am proud and relieved to say that we completed our primary projects before we had to leave,” said Kidwell. “We had moments of tremendous frustration and celebrated many amazing moments of success. It would be impossible for me to create the richness of this experience in a classroom.

Translating Science

“In CAHNRS, we want our students to get the foundational science down, but we also want them to be able to translate it into something that matters and apply it in a real-life situation,” Kidwell continued. “Internationally, the only way to do that is to take them there.”

Students participating in the Rwanda mission agreed. “As I look back at… the whole trip, I have never felt more blessed by a group of people in my life,” said Victoria Marsh Barth, a junior from Careonada, Washington, majoring in field crop management with a minor in agricultural communication. “I know we gave them agricultural structures and knowledge, but I can’t help but feel that they gave me so much more. I will never forget their peaceful spirits and readiness to give whatever it takes to make the dream possible.”

Barth’s fellow student travelers included Charles Eric Christianson, Taya Brown, Dustin Tombreson, and Rowan Ringer.

By Bob HoffmAnn

Who Wouldn’T Appreciate a counter laid out with cheese and crackers, hot beverages, and other gustatory delights, appointed with handcrafted decorations? Rarely do tenured professors prepare a banquet for their students, but this is the Fungal Feast, the semester finale of Plant Pathology 150 (Pl P 150), Molds, Mildews, Mushrooms: The Fifth Kingdom, taught by Associate Professor Lori Carris and Professor Jack Rogers. Carris, who researches smut fungi, has worked at Washington State University since 1989. Rogers, a specialist in forest pathology and taxonomic mycology, has spent nearly 50 years behind the podium and in the lab at WSU.

Pl P 150 is the brainchild of Rogers and Carris. “Jack and I had been talking about doing a class like this for some time,” Carris recalled. “The plant pathology department focuses on graduate-level education. We don’t have many courses for the undergraduates.”

“There are classes in music appreciation and art appreciation,” Rogers explained. “Why not fungus appreciation?” After consulting with the head of WSU General Education, Pl P 150 was born in 2004 and listed as a general education requirement. The first 15 students to take the inaugural course spread the word, and not too many years later, registration hit the classroom capacity of 48 students. Rogers and Carris have split teaching duties 50/50, each focusing on their own professional and personal interests. A sampling of their academic menu includes tree diseases, wood decay, human pathogens, the Irish potato famine, mushrooms, and amphibian decline.

Broadening the Palate

Since the fungus kingdom encompasses many of our foods, the instructors thought it appropriate to cap the course with a selection of both common and less-known edibles of fungal origin. Interspersed among mushroom carvings and a painted bracket fungus were platters of food, all with some fungal component. Slices of yeast-leavened baguettes topped with Roquefort and brie cheeses were among the top choices. A bit less conventional, but still meeting popular approval, were hot Quorn Chik’n Nuggets, bite-size vegetarian snacks that look like their poultry namesake but are made with protein from the fungus Fusarium venenatum.

A more acquired taste was the Marmite, a spread concocted in the British Commonwealth. Carris noted that Marmite is similar to Vegemite, made fleetingly famous in the Men at Work song “Down Under.” She recalled that the first time she tasted the spread, the flavor clung in her mouth much like the ‘80s pop hit can stick in your head. But Rogers offered a dissenting view.

“Brits and Australians love this stuff,” he said, describing how it is scraped from the bottom of the barrel at the end of the beer brewing process. “A lot of kids prefer this to peanut butter.” Marmite is a bit lighter in color than tar, spreads more smoothly, and is so salty, you’d think it suitable to pack anchovies. The product slogan confesses the consumer will either “love it or hate it.”

Students in the latter camp could wash their Marmite down with Reishi tea. Reishi is the polypore mushroom Ganoderma lucidum, admired by homeschooler Katherine MacDonald from Colfax, Washington. MacDonald was enrolled in Pl P 150 as part of the Running Start program. Commenting on the legendary medical benefits of Reishi, she said, “It’s supposed to be good for everything from arthritis to zits.”

Student Favorites

Fellow student Victor Edenso, majoring in digital technology and culture, can name his favorite cheese (Roquefort) but is hard-pressed to name his favorite part of Pl P 150. He nonetheless expressed astonishment at the vast body of knowledge that is mycology, particularly after learning that fungi are considered to be more related to animals than plants because of the way they reproduce and digest their food.

Edenso spoke with fondness about a Pl P 150 assignment where students took home petri dishes with growth medium and set them out among varied living quarters, uncovered, for 30 minutes. After a couple of weeks, class members returned their portable experiments for collective examination of what airborne spores had landed in the dishes, as evidenced by the growths. Rogers picked up one particularly accepting host dish and asked the student where he’d set it out. “In my fraternity bathroom,” came the response. “Move out now!” advised Rogers sternly.

Appreciating fungus one bite at a time
**Mango Maandazi wows judges**

**STUDENTS in the Washington State University/University of Idaho Food Science Club earned first place at this year’s national Institute of Food Technologists food product development competition. The team’s winning product, Mango Maandazi, is a popular fritter snack throughout much of East Africa. The key to the team’s success was incorporating mango, a fruit cultivated in many tropical and subtropical regions around the world.**

Among the team members is Rossana Villa-Rojas, a PhD student in biosystems engineering who came to WSU from Mexico a year ago. “Back home, mangoes grow everywhere on trees, and I ate them all the time. Then I come here where they don’t grow, but I end up with a team of students that wins a national competition for how we used them in a new product. I am so impressed,” she said.

As were the judges, selecting the WSU/UI team above finalists from the University of Massachusetts-Amherst and Virginia Polytechnic Institute. “I loved how the students thought beyond the product itself,” explained General Mills senior scientist Tom Nacks from his office in Minneapolis, “and how they figured out small-scale production options that are economically feasible and would generate income for poverty-stricken rural villages in Kenya.”

The team’s winning idea went far beyond a recipe for maandazi. Their product adds value to mango harvesting by utilizing dehydrated mangos rather than the typical fresh-market supply that has a very limited shelf life. The WSU/UI team developed a supply-line plan in which mangos would be purchased from farms and transported to regional processing centers where the fruit would be cleaned, sliced, and dehydrated for retail and wholesale distribution or incorporation into a dry-mix product for maandazis. Using community-appropriate technology, the team envisions a safe, high-quality product that requires minimal capital expenditure and energy costs to produce and distribute and that will create jobs in economically-challenged communities.

**JUST 18 MONTHS after her premature death from cancer in December 2010, Washington State University graduate student Virginia Gale Lee’s dream of making a difference in the world is beginning to come true.**

Friends, family, and colleagues of Lee gathered to honor her memory at the second annual Dr. Virginia Lee “Change the World” Fellowship Fundraiser. The event raised nearly $5,000, bringing the endowment to $80,000, more than half of the university’s goal for the fund.

In addition, Kim Kidwell, a former WSU spring wheat breeder and now executive associate dean in the College of Agricultural, Human, and Natural Resource Sciences, along with Michael Pumphrey, WSU’s current spring wheat breeder, announced that the newest wheat variety developed by the spring wheat breeding program will be named “Glee” in Lee’s honor. Glee is a hard red spring wheat that features a combination of high yield potential and excellent disease resistance. WSU associate professor of crop biotechnology Michael Neff baked bread using Glee flour and served it at the fundraiser.

“In the past year and a half, Virginia Lee has had a profound and positive impact on the molecular plant sciences graduate program, the Department of Crop and Soil Sciences, and Washington State University,” Kidwell said. “Virginia’s focus on changing the world has been a reminder to all of us that what we do helps many people in many places live better lives.”

**VIRGINIA LEE CHANGES THE WORLD**

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**WSU/UI Food Product Development Team**

L–R, front row: Jenny Lim (Moscow, ID), Lauren Schopp (Highland Ranch, CO), Amir Golmohamadi (Tehran, Iran), Rossana Villa-Rojas (San Andres Cholula Puebla, Mexico); back row: Alex Fredrickson (Kennewick, WA), Anne Secor (Fort Dodge, IA), Jesse Zuehlke (E. Lansing, MI), Ford Childs (Centennial, CO)
Say cheese! Tomato meets oregano

BY BRIAN CLARK

CHEESE LOVERS received a Valentine’s Day treat when the WSU Creamery announced a new flavor last February. Oreganato is a savory blend of oregano and tomato. The new cheese went on sale on Valentine’s Day after a year-long search for just the right name to properly identify it.

The two ingredients actually met and fell in love more than a year ago, but kept their relationship under wraps until their married name was formalized, said Russ Salvadalena, manager of the Creamery on Ferdinand’s Lane. Creamery staff, who are mostly students, spent much of 2011 collecting and selecting among the hundreds of suggestions for the new cheese’s name; in November, customers voted for their favorite.

Hayley Hitchcock of Bozeman, Montana, a business major at Colorado State University in Fort Collins, submitted the winning name for this match made in cheese heaven. Hitchcock was in Pullman last February because she had heard what a wonderful school WSU is from Julie Jensen Thomas, a former Ferdinand’s employee and WSU grad. While in Pullman, Hitchcock visited Ferdinand’s Ice Cream Shoppe, the retail outlet for the WSU Creamery, and learned about the naming contest.

Certified Standards

Oreganato is made with loving care by the WSU students who produce world-famous Cougar Gold. Students working in the Creamery are mentored in their cheese-making chops by Nial Yager, one of only 121 individuals to pass the inaugural Certified Cheese Professional exam. This prestigious group consists of cheese professionals from across the United States and Canada.

The exam was established by the American Cheese Society to encourage high standards of comprehensive cheese knowledge and service for professionals in all areas of the industry. Testing encompasses a broad range of topics including raw ingredients, the cheese-making process, storing and handling cheese, selecting distributors, marketing and communicating about cheese, nutrition, regulations, and sanitation.

“Cheese-making is Nial’s forte,” said Salvadalena. “He’s been our go-to guy for cheese-making questions for years. He started as a student with us in 1988, so the certification is an important validation of what his knowledge and experience mean to us.”

While a student at WSU, Yager studied mechanical engineering and physics but quickly grew enamored of cheese-making. “I knew quite a bit about the production of the kinds of cheese we make here, but the exam is all-encompassing, so I had to study a lot,” Yager said. “There were questions about cheeses that we don’t make, about handling cheese, about hygiene in production facilities, and about food safety in the retail cheese business. It really covered all aspects of the cheese business.”

Yager said he studied for and took the exam in order to add value to courses taught at the Creamery. “We offer short courses on cheese-making which attract people from all over the country. So taking the exam deepens our skill level and broadens our knowledge base so that we can offer our cheese-making students a richer experience.”
It was a long, hot, ugly summer in the United States of 1862. Civil war had raged for more than a year. Thousands had been killed or wounded. Families, homes, crops, and businesses had been destroyed. National and international commerce and industry had been disrupted. We were a nation divided, and there was no end in sight.

It was against that backdrop that President Abraham Lincoln made arguably one of the most impactful decisions of his presidency—to sign into law the Morrill Act. The act granted every state in the union 30,000 acres of federal land for every member of its congressional delegation and funds to create colleges. These “land-grant” institutions were to emphasize teaching and research in agriculture, mechanical arts, military sciences, and the “classics.” They also had to be open and accessible to Americans from all walks of life.

“The Morrill Act laid the groundwork for the democratization of public higher education all across our nation,” said Washington State University President Elson S. Floyd, “marking for many Americans their first true hope of obtaining a meaningful education for themselves and their prosperity.”

President Lincoln was killed before he saw that hope realized, and yet, the robust and resilient network of land-grant colleges and universities in the United States today is testimony to the wisdom of his vision. Land-grant institutions such as WSU continue to provide quality, accessible education to students at campuses distributed throughout the state. WSU scientists continue to generate knowledge and research in agriculture, engineering, and science—including alternative energy, clean technology, and global health. Extension educators in each of Washington’s 39 counties continue to test, apply, and deliver that knowledge into the hands of those who need it most.

“Providing the general public with access to the latest scientific knowledge and education has helped to shape our nation,” said Dan Bernardo, WSU vice president for agriculture and extension. “The Morrill Act empowered the American people with the tools and technological advances they needed to prosper 150 years ago, and continues to do so today.”

With Earth’s population expected to exceed 8 billion by 2025, those tools may be more important than ever. How will we feed that many hungry mouths? How will we meet the energy needs of those 8 billion people?

At WSU, the plant and agricultural sciences offer the most promising solutions to feeding the world and powering the planet. Unlocking the genetic–chemical–metabolic secrets of plants to produce and harvest both food and non-food plants with fewer inputs like water and fertilizer is at the heart of WSU’s teaching, research, and extension enterprise. Here are just a few of those advances.
Giants of Science

Some of the greatest scientific minds in the United States are a part of WSU’s heritage. These “giants of science” have not only dramatically changed the Washington grain industry, but global agriculture.

William Jasper Spillman, WSU’s first wheat breeder, independently rediscovered Mendel’s Law of Heredity, which describes how traits are passed on genetically, and is credited with a major role in the acceptance of Mendel’s Law by scientists and agriculturalists. He put his discovery to work for Washington wheat growers by developing varieties that were grown for more than 50 years. The genes from those varieties, first released in 1905, are in the pedigrees of today’s wheat varieties.

Orville Vogel and his wheat breeding team at WSU developed the world’s first commercial semi-dwarf wheat varieties, which were released to farmers in 1961. His work with dwarf wheat varieties is widely recognized for laying the foundation for the Green Revolution that roughly doubled the amount of wheat available worldwide.

Clarence “Bud” Ryan pioneered the study of the “innate immune response” of plants. In the early 1970s, he began trying to understand the natural insecticides in plants that prevent attacks from insects and microorganisms. Prior to his work, plants were assumed to contain the inhibitors all the time. Ryan discovered instead that plants make the inhibitors in response to an attack. He further showed that an attack on one part of a plant sets off chemical signals that spur production of inhibitors throughout the entire plant. Ryan was inducted into the National Academy of Sciences in 1986.

James Cook, dean emeritus of the WSU College of Agricultural, Human, and Natural Resource Sciences, received the Wolf Prize for Agriculture for seminal discoveries in plant pathology and soil microbiology that impact crop productivity and disease management. His research discoveries greatly improved disease control in wheat and barley and altered paradigms of disease control in other crops. Cook was inducted into the National Academy of Sciences in 1993.

Amber Waves of Grain: A Legacy of Partnership

The very first agricultural partnerships developed by WSU were with Palouse grain growers. For more than a century, producers have worked with WSU faculty and staff to find new ways to grow crops with reduced inputs, higher quality and yields, and less impact on the ground we hold in trust for our children.

Superior Cereals

Researchers in the Department of Crop and Soil Sciences are breeding new varieties of wheat and barley that adapt to changing climate, emerging pests and diseases, and consumer needs. The effort to combat Ug99, a virulent pathogen that has caused devastating grain losses in developing countries and may soon threaten crops in the United States, has led to identification of genes that strengthen variety development.

Another critical breeding project with global implications involves developing varieties of “desert wheat” that will grow with little or no rainfall. Researchers are zeroing in on genes that promote vigorous and downward-growing root systems to take best advantage of limited moisture.

Ecosystem Security

A progressive article in the world-renowned journal Nature co-authored by WSU Regents Professor John Reganold urgently calls for greater investment in perenniation for Africa to increase food production. Perenniation improves soil quality based on the growth of trees and crops that stay in the ground for a minimum of two years, and is related to research at WSU on perennial grains that can grow with 5 times less water and 35 times less nitrate than grains planted annually.

Alternative Grains

In response to requests by Washington State organic farmers to research the environmental and economic viability of quinoa and buckwheat, a team of WSU scientists conducted variety trials and established a farmer evaluation process to determine the most desired traits. These under-represented grains have the potential to diversify cropping systems, provide nutritious and locally-grown options for both humans and animals, and improve soil quality.
STEPS TOWARD SUSTAINABILITY

A team of soil scientists based at the WSU Puyallup Research and Extension Center are working to refine agronomic practices that reduce soil erosion and maintain the “thin brown line.” The results of experiments comparing organic farming systems with different soil amendments and tillage frequency will shed light on how soil microorganisms regulate nutrient cycling for optimum plant growth, as well as the size of a grower’s carbon footprint.

Icon of Excellence: Washington Tree Fruit

The Washington apple is a symbol of quality around the globe. From its earliest days, WSU has been an active partner in that success, bringing science-based solutions to bear on the challenges of the time. With the Tree Fruit Research and Extension Center (TFREC) in Wenatchee and the Irrigated Agriculture Research and Extension Center (IAREC) in Prosser, WSU scientists are in the heart of tree fruit country to best understand and resolve the issues that producers face, and thereby help ensure the long-term sustainability and profitability of one of the state’s largest agricultural industries.

EXTENDING THE SEASON

During the course of that partnership, WSU horticulturists and postharvest specialists developed a system of controlled atmosphere storage that makes it possible to have Washington-grown apples and pears available almost year-round in most places on the planet. The technology allows producers to regulate supplies for maximum efficiency.

PREMIUM PRODUCE

WSU is also home to the Rainier cherry, a blush-colored sweet variety that originated from the crossbreeding of the Bing and Van varieties by scientists at the IAREC. Pioneering research into cherry genetics resulted in a product that is still considered superior in taste a half century after it was born. WSU’s current tree fruit breeders continue to leverage new techniques and technology in developing premium-quality varieties of a range of tree fruit adapted to Washington growing conditions and target markets.

From Home Economics to Human SCIENCES

LAND-GRANT UNIVERSITIES provided some of the first meaningful access to higher education for women in the United States. “Domestic science” (home economics) took a scientific approach to every aspect of managing a home and family. Today, the human sciences at WSU continue to address challenges facing businesses, families, and communities with the latest and most impactful teaching programs, research, and outreach. Read on to get an idea of the diverse offerings now available.

Apparel Merchandising, Design, and Textiles

- Provides the only state-supported four-year apparel design and merchandising program in Washington.
- Prepares students to succeed in the fashion, retail, textiles, and apparel industries with experiential learning opportunities.
- Conducts research on corporate social responsibility and sustainability in the textile and apparel industries.

Economic Sciences

- Provides BS, MS, and PhD programs specializing in resource allocation related to agriculture, business management, policy, and trade.
- Focuses on global issues such as health care, climate change, and economic growth in developing countries.
- Supports research on market power in food industries, livestock production, and transportation.

Human Development

- Provides a broad-based multidisciplinary bachelor of arts; specialized certificates in early childhood, adolescence, gerontology, family studies, and family and consumer science education; and a new graduate program in prevention science.
- Prepares students for appropriate career choices by requiring internships that allow them to apply classroom knowledge.
- Conducts research on influences that help to explain teen pregnancy, aggression, and depression.

Interior Design

- Provides the state’s only four-year program accepted by the Council for Interior Design Accreditation.
- Integrates design, research, and theory to improve individual and community quality of life.
- Develops students’ abilities to make critical design-based judgments from interdisciplinary design studio experience.
A COORDINATED APPROACH

Although central Washington State has a unique climate ideal for producing outstanding tree fruit, growers still must contend with damaging insects and disease. By combining a variety of strategies such as biological controls and environmentally “softer” chemicals to combat these threats, WSU scientists have built Washington into a world leader in integrated pest management (IPM). Economically, IPM has saved Washington tree fruit producers hundreds of millions of dollars, bolstering the bottom line and preserving jobs. Environmentally, IPM reduces the health risk to humans, wildlife, and beneficial insects, as well as minimizes the degradation of soil, water, and air quality.

INFORMED DECISIONS

To optimize pest and disease control, TFREC and IAREC faculty have developed some of the most sophisticated technology available that helps tree fruit producers make informed decisions about orchard management. The Decision Aid System uses statewide AgWeatherNet data to provide pest models that show the relationships between insect life cycles and climatic factors; disease models that connect relevant temperature history and moisture conditions with preharvest and postharvest disorders; and related recommendations. An integrated pesticide database allows growers to compare available materials for specific pests, known effects on natural enemies, and usage requirements.

A Perfect Pairing: WSU and the Washington Wine Industry

Washington State is the nation’s second largest wine producer and ranked among the world’s highest quality wine regions. According to a study prepared for the Washington Wine Commission, the industry is Washington’s fastest-growing agricultural sector, contributing $8.6 billion to the state’s economy in 2011 and providing 27,000 jobs. Much of this success can be attributed to the groundbreaking research of WSU horticulturist Walter Clore and WSU food scientist and winemaker Chas Nagel in the 1960s. Clore determined that premium wine grapes could be grown in Washington, while Nagel made and tested wines from experimental grapes grown by Clore.

Today, WSU’s viticulture and enology programs have the largest cadre of faculty focused on emerging issues of cool-climate wine in
the United States. These researchers work with wine producers to find science-based solutions for efficiently growing the most suitable grapes for a variety of quality wines, as well as managing wine chemistry. The future Wine Science Center, scheduled for construction on the WSU Tri-Cities campus beginning in fall 2013, is expected to help triple the already significant economic impact of Washington’s grape growers and winemakers.

THE GOLDILOCKS PRINCIPLE
Growing wine grapes is a touchy enterprise. The fruit requires just the right amount of water and type of fertilizer at just the right time to yield just the right color, flavor, and that obscure feature called astringency (often described as mouthfeel). Growers must also know just when to harvest to ensure these qualities. To narrow down some of these perplexities, WSU researchers are investigating the effects of water movement on berry size and concentration of key substances by conducting experiments that measure the interaction of temperature, transpiration, and plant structure.

CONTROLLING CHEMICAL REACTIONS
Even if a grower has harvested an ideal crop of wine grapes, the final product is still a long and complex process away. Winemaking involves managing a myriad of chemical factors with in-depth scientific knowledge. WSU enologists work diligently to gain and share practical insights into the development of unique wine characteristics by researching the molecular compounds and changes that affect fermentation and refinement techniques.

MAINTAINING VINEYARD HEALTH
Just like Washington’s other leading agricultural products, pests and diseases are also a threat to the sustainability and quality of wine grapes. WSU entomologists and plant pathologists take an interdisciplinary collaborative approach to solving problems that interfere with vineyard health. For example, the strategies explored by scientists in WSU’s grape virology program to reduce the impacts from the economically destructive grapevine leafroll disease include vegetative virus screening, vector control with insecticides and endemic predators, and infected vine removal.

PREPARING INDUSTRY EXPERTS
WSU’s wine specialists are not just in the lab. Their broad expertise has allowed WSU to offer the region’s first four-year degree program in viticulture and enology. Multidisciplinary graduate programs, 1.5-year professional certificate programs, and self-directed courses are also available from world-class professors and industry experts. Alumni have attracted international attention with some of the industry’s highest honors.

WSU Biofuels Featured at International Expo

WHEN THE MORRILL ACT TURNED 150 years old this summer, the Smithsonian Folklife Festival joined in the celebration by highlighting the contributions of land-grant universities. The annual outdoor summer festival, which attracts an average of one million visitors, presents contemporary living cultural traditions and is described by the Smithsonian Institution as “an exercise in cultural democracy.”

WSU was one of fewer than 30 universities in the country selected to have an exhibit at the festival, which was set up on the National Mall between the Washington Monument and Capital Hill in Washington, DC. Selection was based on written proposals; WSU’s winning submission focused on sustaining the balance between fuel and food with the title “Feed the World. Power the Planet.”

The WSU exhibit featured the processes of breaking down woody biomass into fuel, the synergy between engineering and the plant sciences in creating biofuels, as well as the increasing number of ways and places food is being produced around the globe.

A DNA extraction station allowed children of all ages to don lab coats and goggles and remove genetic information from strawberries. Exhibit visitors could also color “Plant Man,” a new superhero able to turn sunlight into food and fuel. WSU graphic designer Gerald Steffen created Plant Man especially for the Smithsonian event.

Check out the Smithsonian exhibit team’s blog at http://wsu-siffteam.posterous.com/.
Cutting-edge research fuels tree fruit industry

BY BRIAN CLARK

Research in support of the Pacific Northwest tree fruit industry continues to be one of WSU’s pinnacles of excellence. From innovations in automation to jumpstarting a regional hard cider industry, WSU scientists are working with growers and their industry allies to add value to the entire tree fruit production chain. Here are a few highlights of recent efforts by WSU to help ensure the sustainability and economic competitiveness of Washington-grown apples, pears, cherries, and stone fruit.

1 Cider Beside Her

Carol Miles of the WSU Northwestern Washington Research and Extension Center in Mount Vernon is leading a team that has identified two of the objectives necessary for establishing a Washington hard cider culture. First, researchers need to evaluate the characteristics of apples and their juice to determine their suitability for cider making in the Pacific Northwest. Second, researchers need to automate apple harvests to make cidering economically feasible.


2 Encouraging UFOs

Two-year-old trees in the WSU Roza Experimental Orchard near Prosser are the first step in transforming a 100-year-old production system for sweet cherries—with UFOs. No, the trees don’t harbor aliens, but they do grow unique branches. These “upright fruiting offshoots” form the core of a novel architecture ideally suited for mechanized harvesters.

Planted at an angle, young cherry trees are trained to grow UFOs on a two-dimensional plane, putting more of their effort into developing a fruiting wall instead of the nonproductive wood typical of a traditional, three-dimensional canopy. The UFO tree architecture is taking off beyond Washington around the world, according to Matthew Whiting, associate professor of horticulture at the WSU Irrigated Agriculture Research and Extension Center.


3 Orchards of the Future

In orchards and vineyards of the future, one sensor will measure the amount of sunlight being absorbed by tree and vine canopies at any time of day. Still others will sense moisture levels from leaves and soil. A variable-rate irrigation system can then supply just the right amount of water and fertilizer, depending on what a particular plant needs. And all the information can be collected, processed, and seen by growers in real time through their mobile devices so they can make educated decisions quickly. Meanwhile, driverless vehicles will patrol orchards looking for pests and weeds while others use 3D imaging technology to inform orchard managers about the current state of fruit development.

“Our research is aimed at developing and integrating soil- and plant-based sensors to optimize management in orchards and vineyards,” said Qin Zhang, director of WSU’s Center for Precision and Automated Agricultural Systems. “The importance of this research to Washington’s wine grape and tree fruit industries is that their profitability is
strongly dependent on the production of high-quality fruit, which is associated with a proper balance of canopy and crop load.”

Not only does automation research help ensure optimal fruit quality, it provides growers with ways to meet the challenges of labor costs—and labor shortages, which sometimes leave valuable fruit unpicked. As WSU Vice President for Agriculture and Extension Dan Bernardo has said, by meeting these challenges head on we not only give growers valuable management tools, but also potentially create new jobs in the orchard automation technology industry.


4 Bugs Off

Insect traps can be an orchardist’s best friend by giving early notice of emerging threats to fruit. But they can also be a management headache. That’s why Vince Jones, a scientist at the WSU Tree Fruit Research and Extension Center in Wenatchee, is collaborating with a group of researchers on the development of an automated insect trap that can capture and identify insects and relay the data to orchard managers.

The automated insect trap features an electrical grid, a global positioning system receiver, and a radio transmitter. The lures are the same as those in conventional traps, but once the insect enters the trap, everything is different. Instead of getting stuck on glue, the insect hits an electrical grid composed of vertical metal rods hanging in a circle around the bait. The electricity stuns the insect, which drops into a capture container. The size of the insect and other physical characteristics, such as whether it has scales, hairs, or a smooth body, affect the electrical properties of the grid at the moment of contact, allowing the system to distinguish between different insects.


5 A SNP in Time

If I say “po-tay-toe” and you say “po-tah-toe,” a linguist can begin to tell which part of the country each of us is from. To a linguist, a tiny difference in the pronunciation of a vowel acts as a kind of marker. So too with genetics: single nucleotide polymorphisms are minute differences that help geneticists differentiate between members of a single species. With DNA, though, there are only four “vowels”—A, C, G, and T—the nucleotides that can configure themselves in many (“poly”) forms (“morphisms”).

These tiny differences are, to geneticists and their plant breeder partners, markers of potentially interesting traits. If one plant has, say, a resistance to powdery mildew (an all-too-frequent disease known to farmers and gardeners) while another does not, sequencing their respective genomes and then contrasting the results may reveal an SNP (single nucleotide polymorphism); that is, a polymorphism in a single nucleotide that makes the difference between resistance and lack of resistance to powdery mildew.

That’s why WSU plant scientists have been hard at work using various approaches to identify SNPs. WSU horticultural genomics scientist Amit Dhingra and his students and colleagues have helped make significant advances in efforts to breed better fruit.

“That better fruit is the ultimate goal,” said Tyson Koepe (pictured right), a doctoral student in Dhingra’s lab. Koepe and a team of WSU scientists recently completed work that resulted in the identification of over 2,000 SNPs in cherry, thus vastly improving our understanding of cherry genetics. The information will accelerate efforts to breed desirable new cherry varieties for Washington growers.


6 Financial Sustenance

Just last fall, apple and pear growers throughout the state agreed to make a historic investment of $27 million over eight years to support tree fruit research and extension at WSU. It is the largest single gift in the university’s history.

“A gift of this magnitude is truly transformational,” said WSU President Elson S. Floyd. “In partnership, WSU and growers will work to ensure the industry continues to be a leader in the global market.” Floyd and Jim Doornink (pictured right), chair of the Washington Tree Fruit Research Commission, made the agreement official in September 2011.

Read about this commitment to WSU at http://bit.ly/XgtS9T.
Understanding why 25–30 percent of pregnancies in beef cattle are lost and developing ways to improve those odds could translate to increasing the success of human pregnancies, according to WSU professor of animal sciences Thomas Spencer.

Spencer, along with Holly Neibergs, an animal scientist at WSU specializing in genomics, and Tom Geary, a reproductive physiologist working with the USDA’s Agricultural Research Service at Miles City, Montana, have received a $1.125 million grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. It is part of a relatively new National Institutes of Health (NIH) grant program called “Dual Purpose with Dual Benefit: Research in Biomedicine and Agriculture Using Agriculturally Important Domestic Species.” Ahmed Tibary, large animal clinician in WSU’s College of Veterinary Medicine, also is a part of the team.

“Cattle and humans have the same problem,” said Spencer. “There is a lot of pregnancy loss within the first two to three weeks, and about half of those have to do with problems of the uterus. It’s very difficult to get samples from early pregnant women, so working with cattle is an effective way to explore issues that affect both humans and animals.”

Over the next five years, Spencer, Neibergs, Geary, and WSU students will research the origins of infertility and pregnancy loss using beef cattle. Their goal is to develop new technologies to diagnose, treat, and prevent infertility.

Mapping Pregnancy Potential

Working with herds housed at Miles City, the team first will identify cattle that are easily impregnated and those that never or only occasionally get pregnant. They then will compare the genetic makeup of both groups with a genome-wide association study to see why.

“We’re hoping to develop genetic markers for fertility,” Spencer said. “That has tremendous implications for humans, but it also gives us a practical selection tool in cattle production. Ideally, with a simple test, we could determine at birth which cows are likely to be more fertile.”

Spencer explained that infertility is one of the largest costs in cattle production. “It is a significant problem that reduces the profitability of a herd,” he said. For example, finding out an animal is infertile after months of feeding and caring for it means not only the loss of those input costs, but also the expense of purchasing a new animal. The average cost of replacing a dairy heifer is approximately $1,500, and up to $1,000 to replace a beef heifer.

In addition to identifying genetic markers, the team also will work to identify biomarkers that could be used in clinical settings, such as current amniocentesis technology for early detection of certain birth defects. “What if we discover a certain protein in the uterus that correlates with fertility or infertility?” Spencer said. “Developing that into a test would be a truly translational outcome, the kind of bench-to-bedside result that NIH is after.”

More information about Spencer’s work and the project is available at www.AnSci.wsu.edu/people/spencer/faculty.aspx.
A recent assessment of US educational and research programs in organic agriculture named Washington State University as one of six top-rated land-grant institutions in the nation. In fact, WSU outranks every other school in the country because it is still the only one to offer a four-year, science-based bachelor’s degree in organic agriculture. WSU’s program is hands-on and draws on decades of faculty research and educational leadership to give students a solid grounding in the science and business of organic and sustainable food production. WSU is also one of the few universities in the world to offer online and, through various departments, graduate programs in organic and sustainable agriculture.

And it’s only going to get better. A recent $5 million investment by organic and natural foods pioneers Chuck and Louanna Eggert and their family will expand the WSU Organic Farm from 4 acres to 30 acres, making it the largest organic teaching and research farm in the country.

The assessment was conducted by the Organic Farming Research Foundation (OFRF), a national nonprofit organization that advocates for more organic production through research, education, and federal policy. In the assessment, OFRF scored each institution on eight points, including maintaining organic research land; cultivating a student organic farm; offering an organic minor, major, or certificate; and employing dedicated organic ag faculty.

OFRF’s Organic Land Grant Assessment sheds light on America’s ability to meet growing demand for organic food with well-trained organic farmers and innovative research. There are currently 14,600 certified organic farmers in the United States; the USDA hopes that will increase by 20 percent over the next five years.

**GROWING ORGANIC AGRICULTURE**

BY BRIAN CLARK

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**Master site plan for WSU’s Eggert Family Organic Farm**

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“An ounce of prevention...”

BY KATHY BARNARD

A NEW INTERDISCIPLINARY DOCTORAL DEGREE program at Washington State University focuses on the science behind preventing some of the thorniest social problems in the nation rather than costly, after-the-fact treatment or intervention.

“When it comes to issues like teenage alcoholism, teen pregnancy, and childhood obesity, we know that prevention is less expensive and more effective than treatment after the fact,” said Tom Power, director of the WSU Department of Human Development, “and yet many of the evidence-based programs that actually work aren’t being used.” The biggest problem is finding effective ways to deliver these programs, he said.

Another complication is the efficacy of research-based programs when real-world users change them to fit the circumstances at hand. “We are doing studies to see what happens when people make changes to proven curricula,” Power said, noting that one of those effectiveness trials is being conducted within WSU Extension’s Strengthening Families program. “We are at a really critical stage in the prevention field. We have the programs; now how do we implement them in a way that is sustainable?”

To best respond to these needs, the new PhD will emphasize both the generation and translation of research-based knowledge on prevention for practical use. Launched this fall, more than 15 students already are enrolled.

The Prevention Science graduate program is built on strong collaborations among WSU units in human development, health communication, community nursing, educational communication, and extension. The program will also work closely with WSU Health and Wellness Services to bring a prevention science approach to student health and well-being.
The Cougar Nation has spoken: after more than 34,000 votes, WSU now has an official tartan.

WSU PRESIDENT ELSON S. FLOYD; students from the Department of Apparel, Merchandising, Design and Textiles (AMDT); department chair Karen Leonas; and Butch, the university’s beloved mascot, made the announcement during Homecoming week. “We were absolutely delighted to see the enthusiastic participation by Cougars of all stripes in the Prowling for Plaid campaign,” Leonas said. She laid the groundwork for the campaign and involved AMDT students in development of the tartan designs from concept to market.

The winning tartan will be registered with the Scottish Register of Tartans, an international database of some 7,000 unique tartans created worldwide. Besides the new school tradition and source of pride, WSU’s tartan will deliver tangible benefits to AMDT students: a portion of the revenues generated by sales of tartan merchandise will support and enhance the student learning experience.

“We work very hard in AMDT to provide our students with the type of experiences that prepare them for leadership positions in the textile, apparel, and retail industries,” Leonas said. One of the opportunities that may become available from WSU tartan product proceeds is a trip to Scotland to gain first-hand knowledge about the Scottish textile industry.

More information about how to purchase Cougar tartan merchandise is available at http://amdt.wsu.edu/.
MOEKETSI MAJORO moved 8,700 miles away from home to complete his graduate degrees in agricultural economics at Washington State University in Pullman. He didn’t see his family in Lesotho, Africa, for five years and 85 days.

“I left to go home on the 86th day,” said Majoro, now on the International Monetary Fund (IMF) Executive Board representing 21 sub-Saharan African countries. Majoro has worked with the IMF since November 2008, first as alternate executive director before assuming the duties of executive director in late 2010. Established in 1944, the IMF is an “organization of 188 countries working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world,” according to its website.

Majoro returned to Pullman on August 24, two decades after receiving his master’s and doctoral degrees, to present a seminar titled “Africa and the Fast-Changing Global Economy” to students and faculty of the WSU School of Economic Sciences (SES). Times are changing for Africa, with the continent experiencing high economic growth for more than a decade, Majoro highlighted in his presentation. Moreover, this growth is expected to continue. Africa is the second-fastest-growing region after Asia. The United Nations’ Economic Commission for Africa has predicted that by 2034, the country will join China as a new pole for global economic growth.

Better economic times have brought more foreign investment, particularly from China, Majoro said. In the last few years, investment from Chinese firms seeking African commodities has grown rapidly, surpassing firms from Western Europe and the United States.

Majoro stressed that the United States must invest more in Africa if it hopes to compete with China for a share of the African market. “It’s almost too late,” he said.

To strengthen its position in Africa, the US government this year outlined a new strategy that encompasses security cooperation and extends the scope to governance and economic relations, Majoro said. However, Africa has 54 countries with their own forms of government, which investors must consider.

“It must be bewildering for the United States to deal with so many different rules, but that’s the reality,” he added. “Those who want to trade with Africa have to respect all the rules and governance of each of the 54 countries.”

Remembering Faculty Mentors

Returning to Pullman after 20 years brought back several memories for Majoro. He chose to attend WSU after earning his economics degree in 1984 from the National University of Lesotho because of SES faculty member David Holland. Holland lived in Lesotho as part of an agricultural development program for the US Agency for International Development and served as Majoro’s master’s adviser.

While at WSU, Majoro said he also benefitted from the faculty mentorship of doctoral adviser Norm Whittlesey. Other favorite professors during his WSU tenure included Doug Young, Ron Mittelhammer, Phil Wandschneider, and Vicki McCracken.

“The broad-based training in economic theory and quantitative methods equipped me very well for joining the National University of Lesotho as a lecturer in 1991 and for handling a variety of courses on the ground,” Majoro said. That same training later helped him in his post as principal secretary for the Lesotho government’s Ministry of Finance and Development Planning from 2003 to 2008.

Advice for Today’s Students

Majoro also met with SES graduate students while in Pullman. He counseled them about the seeming impossibility of getting through a graduate program and how to move forward. “Do it bite by bite,” he said. “Do what you have to do today, and do it well. Then one day, it’s behind you, and you have a new set of challenges.”
Bighorn sheep in northern Washington are not thriving the way they should, and WSU faculty members are working to figure out why.

Bighorn sheep were reintroduced into the Sinlahekin Wildlife Area in central Okanogan County in the 1950s; today there are about 100, according to Mark Swanson, an ecosystem analyst and associate professor of landscape ecology and silviculture in WSU’s new School of the Environment. He is trying to find out what is preventing these animals from achieving more historic populations.

While poaching and exposure to domestic ovine diseases have played a role, another key factor is how suppression of natural fires on the wildlife area has changed its landscape. Swanson, working on a larger bighorn sheep project with wildlife ecology professor Lisa Shipley, recently received another round of funding from the Washington Department of Fish and Wildlife to assess changes in bighorn sheep habitat in relation to the need for ecological restoration in the Sinlahekin.

**Historic Setting**

Prior to intervention by new settlers, a natural cycle of forest fires as well as Native American burning practices on the wildlife area kept smaller trees and shrubs at bay. That preserved prime sheep habitat—wide-open spaces with lots of room to graze and, perhaps more importantly, lots of room to see approaching predators and escape, Swanson said. When the historic fire cycle was interrupted, those smaller trees and shrubs filled in the valuable open spaces.

“If you look at historic photos of certain places in the Sinlahekin and then look at current shots of those places, there is a dramatic difference,” Swanson said. “You can see the grazing areas getting smaller and smaller.”

The effect of that encroachment is three-fold, Swanson explained. In addition to reducing grazing areas, a closed forest canopy shades out many of the grasses, shrubs, and herbs that are staples of the sheep diet. Closed forests also provide much better cover for predators such as mountain lions. “That obviously makes the sheep much more vulnerable,” Swanson said.

**Current Conditions**

Over the past two years, Swanson, Shipley, and their research teams have worked with state fish and wildlife biologists to capture and tag a sample of Sinlahekin sheep with GPS radio collars to track the bighorns’ use of the wildlife area and adjacent lands. That information has helped focus their research on the prime habitat that remains.

The most recent step involved Swanson and graduate student Tiffany Baker dividing the wildlife area into 48 50-foot transects and determining the vegetation type and density on each section, along with bighorn sheep scat counts. The data will allow them to assess the results of fire suppression on the local plant life, and how the bighorns responded to those changes.

**Back to the Future**

After Swanson and Baker have a good understanding of the present-day Sinlahekin environment, they will make recommendations on how to restore lost habitat, including the use of strategic forest thinning and prescribed low-severity fires. “We need to consider putting low-severity fires back into the forest management mix,” Swanson said, “enough to kill seedlings and saplings filling in between the larger trees.”

Both Swanson and Baker acknowledge that recommendation could meet with concern from adjacent landowners and others. “Another component of our work will be educating the public that prescribed burning and thinning is really good for the landscape,” Baker said.

By Kathy Barnard
WASHINGTON STATE UNIVERSITY established the School of the Environment this year, launching an interdisciplinary teaching, research, and extension enterprise that addresses complex, multidimensional environmental issues. High-demand undergraduate and graduate degrees are offered in a broad range of corresponding disciplines.

WSU is uniquely positioned among state agencies and institutions to address the many facets of Earth’s natural resources. Environmentally-focused faculty are located throughout WSU’s multi-campus system, and WSU Extension offices in every Washington county provide environmental education and sustainability outreach to learners of all ages.

**More than a Merger**

The new school is expected to be greater than the sum of its two parts, the former Department of Natural Resource Sciences and School of Earth and Environmental Sciences. By bringing earth, natural resource, and sustainability sciences together with social sciences and ecology, the school is able to inspire, nurture, and leverage team-based research, teaching, and scholarly output.

The school also provides cutting-edge training for the next generation of scientists, resource managers, policymakers, and well-informed global citizens. The school facilitates significant enhancements to WSU’s academic offerings and empowers graduates to compete for increasingly popular “green” jobs in sustainability, renewable energy, and natural resource management.

“This new interdisciplinary school unites nationally-recognized research efforts at WSU and creates a much stronger and more comprehensive program that is poised for preeminence in addressing regional, national, and global environmental problems,” said Stephen Bollens, the founding director of the School of the Environment. For example, the WSU Bear Center, the only facility in the world to house adult grizzlies for research, and the well-equipped Geo-Analytical Lab, which has been providing analyses of rocks and minerals since 1978 to researchers worldwide, are both part of the new school.

**Positive Reception**

At its inception, the School of the Environment includes 40 full-time faculty and staff, more than 300 undergraduate students, and 130 graduate students. It also spans three WSU campuses: Pullman, Tri-Cities, and Vancouver.

“One of the greatest strengths of the new School of the Environment is the interdisciplinary collaboration that will happen here,” said Dan Bernardo, dean of CAHNRS. “The integration of expertise and cross-pollination of ideas better reflect how these issues are addressed in the real world and will provide a great training ground for students.”

Find out more about the School of the Environment at [http://environment.wsu.edu/](http://environment.wsu.edu/).
Jennifer also now has the distinction of being the first contributor to the new Future Cougs section of ReConnect. Here are Jennifer and her son Mason in their Cougar gear.

Thanks, Jennifer…and Go Cougs!

Submit your own Future CAHNRS Cougar photo to brian.clark@wsu.edu.
A Life Well Lived
Anchored in WSU Education, Extension Service

ASK LAWRENCE BROWN why he and his wife, Elizabeth, established an endowment to support professional development for WSU Extension educators, and the 95-year-old Cougar’s answer is immediate and to the point.

“Payback!” says the former WSU Extension county director. “Truly, we owe the life that we’ve had together, the life that has been so richly blessed, to the profession of WSU Extension service.”

For 38 years, the Browns served WSU Extension—he in various capacities for four counties, she as a 4-H leader and supportive partner. It was the anchor to a life well lived, they say.

Upon graduation in 1941, Lawrence knew the career he wanted to pursue. “Number 1 from Day 1 was extension service,” he says.

The couple’s first extension assignment was in Yakima County. The starting salary was $141.67 a month. Just 10 months later, Lawrence was serving as the Ferry County extension director. After two years, they moved to Franklin County, and settled in for 11 years. Lawrence took a brief hiatus from extension during World War II to complete a two-year mission as a military intelligence officer, earning the rank of first lieutenant. He then transferred to Lincoln County where he served as extension director as well as livestock specialist. His career culminated with election to president of the Washington State Extension Agents and Specialists Association and winning a National Association Distinguished Service Award.

In 1966, the Browns purchased 240 acres in the Colbert area and became farmers in their own right. Retirement allowed them to build a house on the property and work to develop “this rundown farm” into producing grain, hay, and timber. They were awarded the Conservation District Wildlife Farm of the Year Award in 2006.

The inevitable process of navigating old age forced the Browns to sell their home and move into the Rockwood at Hawthorne Retirement center in Spokane. They still oversee farming on the Colbert property and have willed “that special place” to their three children.

Lawrence Brown considers himself lucky to have been able to attend then-Washington State College beginning in 1936 and to be a member of Alpha Gamma Rho fraternity. “Those were some of the best four years in my life,” he says. “And, I’m still experiencing the positives of that very close-knit brotherhood.”

1950s
George Fries (’54, Dairy Sci.) has retired after 40 years as a research animal scientist with the USDA Agricultural Research Service. A native of Winlock, Washington, George and his wife, Jean, currently live in Silver Spring, Maryland. They celebrated their 50th wedding anniversary last year. George currently serves as the volunteer business manager of the townhome condominium where the couple lives.

1980s
Mariano Morales Jr. (’81, Forest & Range Mgmt.) was voted “Best Attorney” in the Yakima Valley for the sixth time in nine years by readers of the Yakima Valley Business Times.

Colleen Nolan (’82, Animal Sci.) is dean of the School of Natural Sciences and Mathematics at Shepherd University. She recently was named an ACE Fellow for academic year 2012–13 by the American Council on Education.
Step through the doors of Airfield Estates’ wine tasting room in Prosser, and you step back in time to the 1940s. Strains of swing-era songs filter in from hidden speakers. Wall space is dedicated to black-and-white photos of World War II military planes.

One photo, dated 1942, shows a line of planes in front of a 70-foot water tower, hangars, barracks, and a weathered mess hall. The photo doesn’t give any indication that the land surrounding the buildings would soon be used for agriculture. Back then the property was part of the Sunnyside, Washington, airbase where military pilots were trained until the war ended. Airfield Estates owner and University of Washington alum Mike Miller grew up in that mess hall. “It had a walk-in refrigerator, commercial grade,” Mike said. “As a 5- or 6-year-old, I thought everyone must have one of these.”

Mike is full of stories about the former airbase that gave the family wine business its name. In 1941, Olympia Air Transport Company leased non-farming land from Mike’s grandfather, Lloyd, to build the airbase. After the war ended and the base shut down, the site and buildings reverted back to Lloyd, who converted them for agricultural production. “These unique buildings became the headquarters of the Miller family’s farming operations up to today,” Mike said.

WSU Connections

WSU history for the Millers started even before farming. Mike’s uncle, Howard, was the first in the family to attend and graduate from Washington State College in the early 1930s. Mike’s father, Don, attended WSC for two years before leaving as a junior to join the Army Air Corps during WWII. After the war, Don returned to the Sunnyside farm. Mike followed in his father’s footsteps and joined the US Navy in 1967. He served as an aviation electrician for four years and then attended WSU, graduating with an agronomy degree in 1974.

While Mike was away in the military and at WSU, Don began planting wine grapes. In 1968, inspired by WSU horticulturist and “Father of Washington Wine” Walter Clore, Don started an experimental vineyard of Pinot Noir, Cabernet Sauvignon, Chardonnay, and Riesling. By 1971, he was confident enough to plant 10 acres of commercial wine grapes, and was able to sell the first yields in Canadian markets.

Forty-one years later, the vineyard now spans more than 860 acres and includes 27 varieties. And the fourth generation of Millers—son Marcus, head winemaker, and daughter Lori Stevens, marketing director—has joined the family business. Airfield Estates began offering its own brand of wines in 2007. “And that’s been pretty much the end of cougar football for me,” Mike joked.

A Soaring Reputation

In the last five years, Airfield Estates has increased production from 2,300 cases to 30,000 cases. In addition, Mike opened another tasting room in Woodinville, Washington, in 2010.

Airfield Estates wines have attracted attention at local and national competitions, including Counoise, a Rhone variety similar to Grenache. “We sent this down to the San Francisco Chronicle Wine Competition two years running [2010 and 2011], and both years it took gold,” Mike said.
Freshly minted masters’ used to grow great grapes

COMING FROM Massachusetts, Wisconsin, and Arizona, three recent WSU graduates now have two things in common—master’s degrees in viticulture earned under the mentorship of Markus Keller, and good jobs in great vineyards.

“We’ve had great success in seeing our students take jobs in the viticulture industry,” said Keller, the WSU Chateau Ste. Michelle Distinguished Professor of Viticulture. “We barely have time to hand them their degrees before they are out the door to go work in vineyards all over the world.”

Amherst, Massachusetts, native Laura Deyermond studied the consequences of irrigation and pruning regimes on vine growth and development. “I wanted a better understanding of grapevine physiology and how to gauge vine water status based on external symptoms.” She reported the experience of graduate school gave her confidence and trust in her instincts and the skills to continue learning. Her current position as an assistant viticulturist in the Napa Valley meets a goal she’s had since her first vineyard job on Long Island in New York.

Coming from River Falls, Wisconsin, Richard Hoff studied berry shrivel, a ripening disorder that sometimes plagues grapes. “I mostly worked with Cabernet Sauvignon,” he said. “Berry shrivel results in berries with low sugar and low pH, making them extremely sour!” Graduate studies gave him a good foundation in the biology and chemistry of grapevines and the practical application of viticulture, he said, which prepared him for employment as a viticulturist with Ste. Michelle Wine Estates.

“Arizona had some viticultural endeavors that piqued my curiosity, and that’s what ultimately brought me to WSU,” said Matt Halldorson. He combined several important aspects of viticulture for his master’s project, including pathology, water relations, and winter cultural practice. “And before I even graduated, I had an offer of an assistant viticulturist position with Wycoff Farms in Prosser.”

“All of us involved in WSU’s viticultural research and education programs are proud of Laura, Richard, and Matt—and all our graduates,” said Keller. “As we know, a great bottle of wine begins in the vineyard, so it makes me happy about the future greatness of the vineyards they are working in, and the fine wines that are sure to follow.”

Laura Deyermond
Richard Hoff
Matt Halldorson

Faisal Awawdeh (’97, PhD Animal Sci.) is the new coordinator of the Arabian Peninsula Regional Program for the International Center for Agriculture in the Dry Areas.

2000s
Heath Barnes (’00, Ag.) is a grain merchandiser for Columbia County Grain Growers. He and his wife Tisha are living in Clarkston with their five children.

Raina Spence (’02, MS Plant Path.) is the new director of industry outreach for the Washington State Potato Commission. She will oversee various WSPC-funded research projects and coordinate efforts with other research institutions to develop key educational information.

Shelly Michalak (’03, Human Dev.) recently earned a Behavior Analyst Certification from the Florida Institute of Technology.

Ryan Kile (’04, Agribus.) is a relationship manager for Northwest Farm Credit Services in Colfax. He recently received a Special Recognition Award from the Spokane Guilds’ School for serving as chairman of its annual benefit auction. He currently serves on the school’s board of directors, as well as the board of directors for the Spokane Ag Expo and the St. John Golf and Country Club. He and his wife are expecting their first baby in April.

Jake Spratt (‘05, Econ.) joined Brownstein Hyatt Farber Schreck, a law firm with more than 260 attorneys in the western United States and Washington, DC.
WALL OF FAME INDUCTEE: CHRIS BRINTON

When Chris Brinton graduated from college with her double major (’71, Voc. Home Econ. & Educ.), she recalls only four career paths being available to women. “You could be a secretary, a nurse, a K-12 teacher, or a mother.” But Chris wasn’t inclined to bow to social pressure and give up her interest in educating people about money management. She taught just that at the community college level before going to work at Smith-Barney (now Morgan Stanley Smith Barney), a financial and investment portfolio management company.

“My background in family dynamics, which I got in my home ec studies at WSU, enabled me to bring all the financial technical terms down to earth. My relationships with clients were always educational,” Chris said. “We would spend three or four appointments together before actually doing anything with money.” Her insistence on laying a firm foundation based on an understanding of the client’s needs and preparation for the inevitable shifts in markets made her a successful financial manager.

Chris’s success also helped blaze a trail for other women to work in what had long been a males-only profession. “At Smith-Barney, I was only limited by my drive. I still get cards from my clients,” she said. “People only talk about money when it becomes a crisis. I tried to put financial planning in a positive light. It’s really the most intimate form of teaching.”

A few years ago, Chris was diagnosed with a life-threatening disease. Still a young woman and at the apex of her career, she retired from Smith-Barney. Then she learned that she could be treated with a stem cell transplant from a donor in Germany. Although severely taxed by the medical ordeal, the reprieve has given her a new lease on life. She now works as a volunteer with various organizations to educate people about transplants and help them understand how to get on stem-cell donor lists. The day after she sat for this interview, she left for Germany so that she could thank the man whose gift saved her life.

Chris urges young people to “look beyond the easiest path and expand your horizons. Push yourself to do some of the things that aren’t as easy and ask yourself, ‘What are the careers of the future going to look like?’” With role models like Chris Brinton pushing the envelope, anything is possible.

Allyson Beall (’07, PhD Env. & Nat. Res. Sci.) spoke at the World Water Forum in Marseille, France. She is an instructor in WSU’s School of the Environment.

Rachel Lewis (’08, Ag. Econ.) was recently appointed by the Quincy City Council as the new manager for the Quincy animal shelter.

Donna Drader (’09, MS Nat. Res. Sci.) helped start a school in Uganda. On a recent visit, she was honored by the school naming one of the buildings after her.

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Kirstin Slater (’10, Animal Sci.) is a relationship manager for Northwest Farm Credit Services in Sunnyside, Washington. She is involved in the Washington State Grange, Washington Cattlemen’s Association, and Washington State 4-H Foundation.

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